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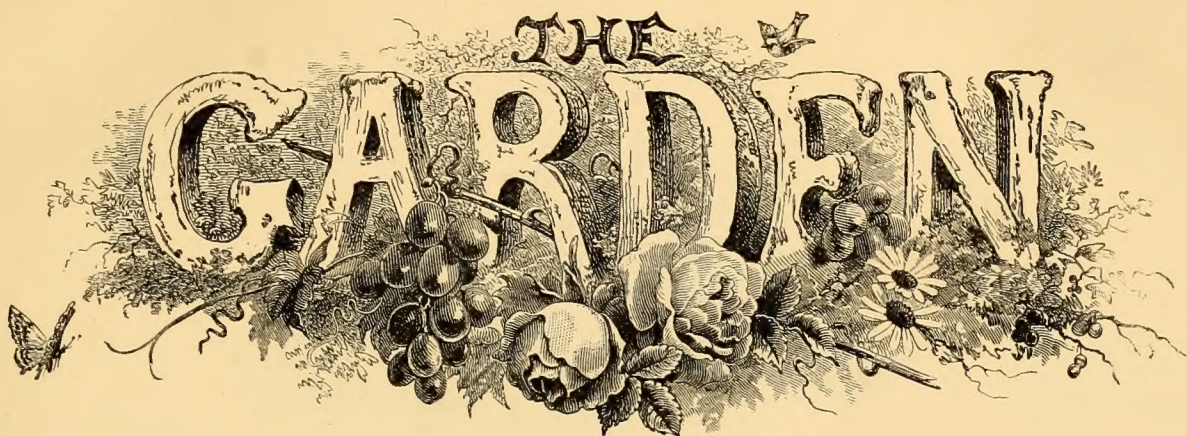
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REV. H. T. ELLACOMBE, M.A., F.S.A.



AN

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OF

HORTICULTURE IN ALL ITS BRANCHES.

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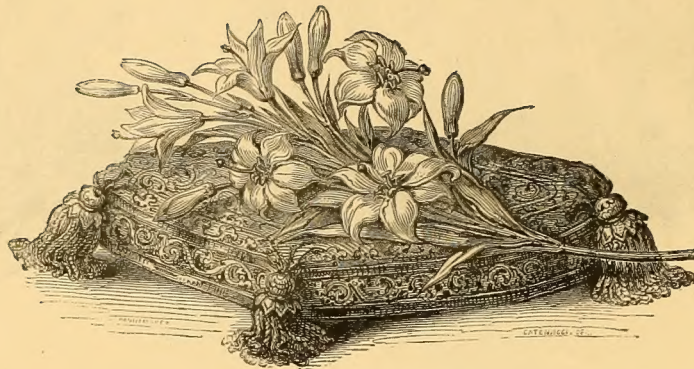
W. Robinson, F.L.S., Author of "Alpine Flowers," etc.

You see, sweet maid, we marry
A gentle scion to the wildest stock
And make conceive a bark of baser kind
By bud of nobler race: This is an art
Which does mend nature: change it rather
'The art itself is nature'—*Shakespeare.*

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TO THE

REV. H. T. ELLACOMBE, M.A., F.S.A.,

Of Clyst St. George (formerly of Bitton),

"A GRAND OLD GARDENER."

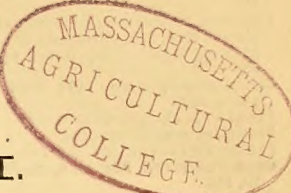
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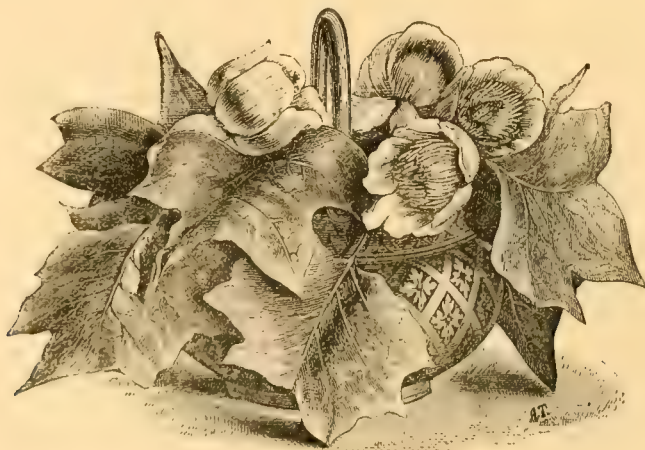
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H. T. ELLACOMBE, M.A., F.S.A.

WE cannot give a more appropriate portrait for this volume of *THE GARDEN* than that of the Rev. H. T. Ellacombe, rector of Clyst St. George, Devon. Mr. Ellacombe was born in 1790, and was educated at Oriel College, Oxford, where, in 1812, he was enabled to add B.A. to his name. Between that year and 1816 he devoted himself to the study of engineering in Chatham Dockyard, under Brunel, and an account of his life as an engineer is given in Beamish's "Life of Sir J. Brunel," pp. 118-124, from which the following is an extract: "However much the Church may have gained by the accession of an active and earnest minister, it is certain that the civil engineering profession lost a conscientious and accomplished member. . . . Of a highly respectable family in Devonshire, directly descended from Sir Hugh Myddelton . . . and inheriting with his distinguished brother, General Sir Charles Ellacombe, R.E., many of the engineering qualifications of their ancestor, he was unable to resist the impulses of his nature, and every hour which he could command from his more serious studies was devoted to mechanical drawing and the construction of models. While still at Oxford he submitted to Brunel the result of his stolen hours, and the delicacy, accuracy, and beauty of the workmanship at once secured the favourable opinion of the great mechanist." In 1816 he took his M.A. degree, and was ordained deacon by the then Bishop of Exeter, and served as curate of Crickdale in 1816-17. He was ordained priest in 1817 by the Bishop of Gloucester, and entered on the curacy of Bitton in that diocese. Of this parish he was curate from 1817 to 1835, when he became vicar of it, and remained so till 1850. Church restoration and extension was not so universal in those days as it is now, yet Mr. Ellacombe, with indomitable energy, and in spite of many difficulties, did a great deal in that way, as well as in the building of schools and the education of the young. It is, however, with Mr. Ellacombe as a gardener we are most concerned. Few men have done more to promote the culture of both hardy plants and trees than he has done. When at Bitton he had a grand collection of them, the catalogue of which was published in *THE GARDEN* for December 24, 1881. He was in correspondence with all the leading gardeners of that time; but, except in the columns of *THE GARDEN*, he has never published anything on the subject. As an author, however, he stands alone as one who has published large books after he was ninety. His "History of Bitton," in two quarto volumes, was published when he was ninety-two. It may also be worth mentioning that he occupies an interesting chapter in the recently published "Reminiscences of Oriel College," by Mozley.

In 1850 Mr. Ellacombe was preferred to the rectory of Clyst St. George, and was succeeded in the vicarage of Bitton by his son, the Rev. Canon Ellacombe, the present incumbent. Mr. Ellacombe, sen., speedily rebuilt the body of the church at Clyst St. George, and in 1860 opened a new school-house and master's residence. His name is known far and near as being the great authority on bells, and he has written several valuable treatises respecting them. He is a learned antiquarian, especially in all ecclesiastical affairs. Though within a few years of being a centenarian, he is vigorous both in mind and body, and as enthusiastic a gardener as ever. Even in the closing number of this volume of *THE GARDEN* (p. 590) will be found an interesting paragraph from him on *Lathyrus Sibthorpei*, seeds of which, with his usual generosity, he offers to distribute. The old garden at Bitton, more richly stocked with hardy plants than most of the largest botanic gardens, has been the refuge as it were of many a fine plant that but for it would perhaps have vanished altogether from cultivation during the time when the bedding-out fashion was rife. The Bitton garden has, however, remained unchanged through all the caprices of fashion, and under the fostering care of Canon Ellacombe well maintains its reputation. It is one of the most interesting gardens in the country—one in which hardy herbaceous plants, shrubs, and trees find a congenial home, and in which the climate is favourable to the growth of a host of subjects not hardy in more northerly districts. The shrub collection is particularly rich, especially that of species of *Roses*, which is as complete a collection as any in the country.





THE GARDEN.

VOL. XXIII.

DROPMORE.

UNLIKE the majority of notable English gardens, the fame of Dropmore is not due to an elaborate display of glasshouses or extensive collections of plants, but simply to its magnificent coniferous and other tree growth. Ever since the commencement of the present century Dropmore has been steadily rising in celebrity for about that time Lord Grenville began to plant ornamental trees extensively, the result being the matchless specimens now dispersed throughout the grounds. The first plantings seem to have been made in about the year 1800, consisting of Cedars of Lebanon, now noble trees, and from that early date ornamental tree planting has been carried out almost uninterruptedly. Lord Grenville, an enthusiastic lover of gardening, seems to have devoted a great deal of attention to the improvement of Dropmore, gradually developing a beautiful garden out of what was little more than a barren waste, productive only of Heath and Furze. Indeed, the poor soil which everywhere prevails at Dropmore, consisting of little more than a bed of gravel on a hard impervious pan, would never have been able to develop such noble trees had Mr. Frost not taken unusual pains to start them in better material. Until fairly within the grounds there is nothing in the surrounding scenery of Dropmore at all remarkable.

The house, however, occupies a pleasant position embowered amidst luxuriant tree growth, and in front of it lies a wide extent of Berkshire scenery with Windsor Forest for a boundary and the Castle as a fine object in the middle distance. A dull, cold winter's day is by no means the best season in which to see any, and more particularly this, garden, though its Conifers always look fresh and green. Early summer is the time to see Dropmore; then the place everywhere is aglow with colour, produced by huge masses of Rhododendrons, Kalmias, Azaleas, and other flowering trees and shrubs, and the very air is laden with their delightful fragrance. The Rhododendrons and similar shrubs are interspersed throughout the place, and so thoroughly do they luxuriate, that seedlings spring up by thousands and supplant the native growth of Heath, Furze, Blackthorn, and other bushes. A charming feature, too, in summer is the little bits of well-kept

lawn beneath the cool shade of the towering Beeches and other forest trees, a verdant carpet lighted up here and there by huge specimens of Pelargonium, Fuchsia, and other tender plants sunk in the turf. These are kept for the purpose and housed under glass in winter. Dropmore being naturally somewhat flat, its surface was diversified years ago by artificial mounds raised here and there so as to enable the visitor to obtain a better view of the grounds and surrounding country. There are what are called the Beech Mount and the Stub Mount, both of which are charming spots, as they are embowered in foliage, and from them can be enjoyed a view of a rich and varied landscape.

The Conifers are scattered about the place in an informal way, no fixed plan being followed. A good many are in the immediate vicinity of the house, but in most cases clearings have been made in the woods for groups of them. This mode of planting obviates much of the artificial look which many Pinetums possess, some being planted not unlike an Apple orchard, in which all the trees can be seen at a glance. At Dropmore each isolated specimen or group has an individuality of its own, as it were. The groups consist either of one species or a mixture, but there is a sort of grandeur and unity of expression about groups consisting wholly of one kind not seen in the case of mixtures. It was, we believe, Lady Grenville's plan to plant mixtures, but Mr. Frost advocates nature-like groups of one kind. There are some magnificent groups of Araucaria, Deodar, and Cedar of Lebanon, and there can be no doubt that Mr. Frost's particular mode of giving Coniferæ plenty of good soil to grow in has been chiefly instrumental in making the Dropmore collection what it now is. Miserable, half-starved specimens find no place here, and it would be well if they were less common elsewhere. "Plant well at the outset," says Mr. Frost; "no tree can be expected to do well if not thoroughly well planted at first." First of all he has a hole made not less than 3 feet deep; he takes away the natural soil and replaces it by good soil, consisting of sods from the road-sides, old potting mould, and similar material, the rougher the better. In planting he always puts the tap root perpendicularly in the bed of new soil, and spreads the others out on the surface. He invariably raises the soil some 3 feet above the

surrounding surface, giving the plant really 6 feet of soil in which to root. The mound is made sloping, so as to throw water off the base of the bole when there are but few roots to parts in which the feeding roots exist. Every coniferous tree at Dropmore is set on a mound consisting in some cases of as many as 50 cartloads of new soil. Moreover, now and then, as the tree requires it, a top-dressing is applied a foot or two in thickness around the stem from 10 feet to 40 feet in radius. Mr. Frost does not believe in pruning Conifers; the only attention they receive in this way is cutting away superfluous leaders. The big specimen of the Douglas Fir, for instance, had three leaders for the first few years of its existence; two of these were cut away and the third carried the tree upwards; the scars of the others may still be seen on the trunk. Mr. Frost prefers planting in October or early in March, but he says, with care, all Conifers may be planted with success at any season of the year.

The great Araucaria more than all other trees has been the object of Mr. Frost's special care, and it has certainly well repaid the extra attention which it has received, for it is without question the grandest specimen of the kind that exists in a cultivated state. Its dimensions at the present time are 61½ feet high, the diameter of the space covered by the branches which rest on the ground on all sides is 33 feet, while the girth of the trunk at 3 feet from the surface is 7 feet 4 inches. This tree was planted in 1830, and it has grown unscathed by frost into a perfect specimen, every part of it being free from blemish. It is planted on a mound of prepared soil to begin with, and ever since it has received periodical top-dressings, so that now the roots sustain an enormous weight of soil in which they are so firmly anchored that no amount of wind produces the least effect upon the tree. Through the courtesy of Messrs. Veitch we are enabled to place before our readers the annexed portrait of this noble Araucaria specially prepared from a photograph taken in 1881 for their "Manual of Coniferæ." It shows admirably the aspect of the tree at the present time. There are numbers of Araucaria about the grounds, some planted singly, others in picturesque groups. The groups consist of from five to a dozen

trees planted at irregular distances apart, but always sufficiently far asunder to enable each to develop itself properly. Mr. Frost asserts that there are distinct forms of *A. imbricata*, which differ in habit and rate of growth, and certainly at Dropmore several of distinct growth may be singled out. There is also a difference in the growth of the male and female trees, the former being much more dense than the latter, which, as a rule, has slender branches more loosely arranged around the stem. The big tree is a male, and some 80 yards from it is a female tree which cones and ripens seeds—the cones being doubtless fertilised by pollen from the large tree.

The Douglas Fir is undoubtedly the glory of Dropmore. Its height is 114 feet, and its wide-spreading branches, which lie on the ground on all sides, cover a space 70 feet or more. The bole at about a yard from the surface is just about 10 feet in girth. This gigantic Fir, which is unsurpassed in cultivation, is in every respect perfect, its towering pyramidal form being only marred on one side, caused by a heavy fall of snow breaking off a few branches some years ago. The history of this magnificent tree, is as follows: Early in December, 1827, Mr. Frost received from the late Lord Grenville a packet of seeds of this Fir, then called *Picea taxifolia*, sent to Dropmore from the Royal Horticultural Society. Of these seeds but three germinated—one the parent of the tree under notice; another is also living; and the third was cut down some time ago. This tree has responded well to Mr. Frost's attention, and now is alone worth going a long journey to see. Among other kinds of Abies the most striking are *A. Menziesii*, planted in 1841, now nearly 60 feet high, with a girth of trunk of over 4 feet; *A. taxifolia*, a near ally of *A. Douglasii*, is between 50 feet and 60 feet, with a girth of bole of over 4 feet; *A. Albertii*, the finest of all the Hemlock Spruces, is represented by a grand specimen, 48 feet high, planted in 1861, and now about 25 feet in height. It stands at the junction of two walks, and is, therefore, seen to the best advantage.

The Piceas, all of which are ornamental in a high degree are, represented by some fine trees. By the side of one of the carriage drives there is a noble example of *P. Pinsapo*, some 40 feet in height, with a spread of branches about 35 feet in diameter. This tree was planted in 1843. Planted about the same date is a *P. cephalonica*, which is about the same height, and a perfect specimen. The finest *P. nobilis* was planted in the autumn of 1835. It is now nearly 70 feet high, and has a girth of stem but little short of 5 feet at a yard from the ground. Of *P. amabilis* there is a specimen nearly 50 feet in height with a girth of bole of 4 feet. It was raised from a cutting and planted thirty-five years ago. *P. Webbiana*, one of the most beautiful of Himalayan Conifers, and remarkable for its violet, or rather purple, cones, is represented by a tree about 14 feet in height. It was raised from a cutting, and was planted out in 1843; hence it may be inferred that it is a very slow grower. Other fine examples of *Picea* are *P. grandis* (true)—planted in 1861, is now 49 feet high—and *Nordmanniana*, both handsome and in vigorous health.

The Pines are the most numerous of all the conifers here. Even before Mr. Frost's time they numbered over thirty and forty species, and now they exceed that number. The finest specimen among the several trees of *Pinus insignis* was planted in 1839, a cutting plant obtained at Messrs. Lee's nursery, Hammersmith. It is now about 80 feet in height, and its huge wide-spreading head, massive limbs, and trunk over 90 feet in girth make it a grand object. Near it is an example of *P. Pallasiana*, a Crimean species in the way of the Corsican Pine. This, too, is some 80 feet in height, and possesses three leaders, a living example, says Mr. Frost, of the baneful results of neglecting to remove two of them when the tree was small. Of the handsome *P. excelsa*, among the noblest of Himalayan conifers, there is a splendid specimen planted thirty-seven years ago. It is now about 70 feet in height, and has a ponderous bole, and huge wide-spreading limbs so symmetrically arranged as to make a well-balanced

tree. This occupies rather a sheltered situation, surrounded by forest trees, with which the bluish-grey tint of its feathery, drooping foliage makes a pleasing contrast. There are many other specimens of *Pinus excelsa* about the place, but this is one of the finest. *P. Benthamiana*, planted in 1843, is now fully 50 feet in height, with a girth of some 5 feet. Near this is a specimen of the rarely seen *P. densiflora*, Japanese species, scarcely suitable for our English climate, as, though planted twenty years ago, it is only now about 15 feet high, and has an ugly habit of growth. A specimen of *P. monticola* is one of the finest in the country, a noble object between 50 feet and 60 feet in height and some 5 feet in girth. It was planted in 1835, and is a very hardy Californian species. The Weymouth Pine (*P. Strobus*) is, of course, a common tree at Dropmore, and some very fine examples of it exist there. There is a variety of it called *alba*, which Mr. Frost treasures highly. It differs from the type in the foliage being altogether of a whiter hue and shorter. It makes a beautiful contrast with some of the more sombre tinted Coniferæ. The Stone Pine (*P. Pinaster*) may be seen in its characteristic picturesqueness, now that most of the trees of it have gained maturity. A variety of it named *Escarena* is a remarkable one—different from the type in growth, as it does not assume the tabulated form so much as the type; it is, however, said to be less hardy. *P. Lambertiana*, planted in 1841, has grown into a lofty specimen, 50 feet in height or more. Other species of Pines represented by handsome specimens are *P. ponderosa* (80 feet high), *P. pungens rigida*, *Brunoniana*, *Mughus*, *pyrenaica*, *Cembra*, and *Lemoniana*, mostly reared from seeds sown about 1829.

The Deodar thrives to perfection at Dropmore, every tree of it seeming to be thoroughly at home. The largest specimen is 70 feet in height, perfectly symmetrical in shape, and in luxuriant health. It was planted in the autumn of 1834, from a cutting bought for three guineas. There was a larger Deodar than this, but a few years ago its stem was riven from top to bottom nearly by lightning. There are numerous fine Deodars about the grounds; one, said to have been grafted on a Larch, is much looser in habit than usual. A good many of the trees here have been reared from cuttings, and all have become fine specimens. Of the Atlantic Cedar (*Cedrus atlantica*), which by the way is not plentiful here, the largest tree planted in 1843 is now about 70 feet high, and finely proportioned.

The Cedar of Lebanon is one of the chief features of Dropmore. As soon as the lodge gates are passed a magnificent group of it comes in view. The trees of which it consists were all planted in the first year of the present century, though they are not so large as one would suppose; in fact, they have not made good use of their time, a circumstance attributed to their being planted in the naturally gravelly soil of the place without any preparation or addition of new material. The way in which the trees are grouped, however, is very picturesque, though they are too much crowded, only the outermost ones being furnished with wide-spreading limbs. There is a huge specimen on the lawn near the house, planted in 1792, on the day Lord Grenville took possession. This is a very handsome tree. The Cedar drive is a remarkable and uncommon feature, it consists of a winding avenue about a third of a mile in length, backed on either side by plantations. The trees are planted only 25 feet apart and 50 feet between the rows, consequently they are much too crowded; if double the space had been given between the trees, and 80 feet allowed between the rows, they would have had room in which to develop themselves properly. This avenue was also planted early in the present century. A variety of *Cedrus Libani*, called *glauca*, is a distinct and handsome tree, with a decided glaucous hue.

The Wellingtonia is represented by some well developed specimens. The largest was planted in 1857, and is now fully 53 feet high, with a girth of bole of some 8½ feet. Another,

planted in 1862, is nearly as large. There are also some uncommonly fine specimens of its ally, the Red Cedar (*Taxodium sempervirens*), a tree which thrives here admirably. There is an example of it, planted thirty-seven years ago, which is now about 45 feet in height, with a spread of branches some 30 feet in diameter. All the specimens of the Red Cedar are very healthy, and do not appear to have suffered so much from severe winters as it has in some localities.

Cryptomeria Lobbi, a variety of *C. japonica*, is represented by a specimen 46 feet in height, having a spread of branches 16 feet in diameter, and a girth of trunk 3½ feet. This is probably the finest cultivated specimen in existence; of *C. japonica* there is likewise a fine example. Among other remarkable conifers may be noted *Cupressus thurifera*, planted in 1847; *Larix microcarpa*, a rare species with pendulous branches, planted in 1822; *Thuja gigantea* (Lobbi), a perfect specimen some 50 feet high, though planted so recently as 1862. There are some large specimens of *Cunninghamia lanceolata*, but every one of them has a woe-be-gone look about it, the branches and foliage being discoloured by frosts. There are, however, one or two very old examples of it here; one planted in 1822 withstood even the famous "Murphy's" winter, which made such havoc among vegetation generally. *Thujopsis dolabrata* is another conifer that does not appear to do well at Dropmore, but this we were assured was owing to rabbits injuring it; indeed, they seem to be so excessively fond of it that every plant has to be closely wired round, and even then they somehow contrive to get at it.

The above comprise the principal coniferous trees on the Dropmore arboretum, but there are more, some only planted a few months ago, that are gradually developing into fine specimens under Mr. Frost's fostering care.

W. GOLDRING.

RECENT PLANT PORTRAITS.

THE number of the *Botanical Magazine* for January contains coloured portraits of the following plants, mostly from specimens which have flowered at the Royal Gardens at Kew during the course of the year 1882.

Doryanthes Palmeri (double plate), a magnificent Amaryllid allied to the Agaves and Fourcroyas, producing a flower-stem from 8 feet to 10 feet in height, the topmost 3 feet of which are covered with bunches of flowers, the outer petals of which are of a deep red colour and the insides white. The specimen figured continued in bloom during the whole of March and April, and ripened seed in October of last year.

Nemastylis acuta.—A pretty light purple flowered Irid, indigenous to the South-Western States of America. The flowers are, unfortunately, very fugacious, falling to pieces within a few hours of their opening, as is also the case with most of the members of this family. It is also known as *N. geminiflora* and *Ixia acuta*. It resembles the *Tigridia* in habit.

Babiana ringens.—One of the most curious and striking of Cape bulbs, with bright red tubular flowers, quite unlike those of any other *Babiana*, and more resembling those of a *Hedychium* in shape; it is also known under the name of *Antholyza ringens*.

Microstylis metallica.—A curious foliaged and somewhat insignificant flowered member of the Orchid family, belonging to the tribe of Epidendrum, with brown deeply-ribbed leaves resembling those of an *Anæctochilus*, and a short spike of small pinkish flowers, a native of Borneo. If the leaves of this plant are plunged in boiling water, and then dried, they become green. The specimen figured was sent to Kew by Messrs. Low, of Clapton.

Cereus cespitosus.—One of the Echinocereus section of the Cactus family, native of New Mexico and Texas, usually grown under the name of *C. pectinatus* from which it only differs in some slight and hardly distinguishable points of

botanical structure. Its spines are very small and fine in texture, and its flowers of a conspicuous deep rosy colour, somewhat resembling those of *Echinocereus Fendleri*. W. E. G.

COLOUR IN THE FLOWER GARDEN.

THERE are one or two statements which "R. A. H. G." makes in regard to this subject which I thought

I had sufficiently demolished. He still maintains that all the colours in the rainbow combine to make white; they do nothing of the kind. Each shade of colour is produced by a separate length, or rate of regular waves, while white is produced by a jumbled flood of regular waves; grey is produced by irregular waves of less intensity; black is the absence of all motion. Red and yellow do not form orange, or anything like it, any more than yellow and blue make green. Red pigment and yellow pigment mixed form a pigment which reflects orange, most likely for the same reason that the red and yellow lines described by "R. A. H. G." produce orange, namely, because the colour waves, moving at different rates of speed, jar and produce uniform waves of a speed differing from that of the two component colours. "R. A. H. G." must distinctly understand that it is proved by experiment, that the sensation of colour is produced by waves of light either entering the eye at a definite rate of speed, and that rate varies for every hue in the spectrum, so that it is a mistake to imagine that any combination of two colours can produce a third; this is not a "vexed question," but has passed into the domain of undisputed fact. It will not do for "R. A. H. G." to deprecate the introduction of the scientific side of the question, and then make statements which can only be shown to be fallacious by appealing to what science has discovered. "R. A. H. G." maintains that all that is necessary to produce harmony is that red, blue, and yellow be present in some form; cannot he see that this is in reality begging the whole question? If we allow him to assume that these colours combined all the others as well as white, grey, and black, we can scarcely make a single combination of colour, not even red and grey, or white and gold, but he will assume it to be an illustration of the complementary code.

Science has proved that every colour in the spectrum is distinct, so that red and green, for instance, are not red, blue, and yellow, but simply red and green. No combination of colours but red, blue, and yellow, pure and simple, contains or consists of those three colours in any

form or combination whatever. Until "R. A. H. G." can disprove these results of accurate and scientific investigation, and show conclusively that his idea of three primary colours, combining the four secondary and tertiary colours, is founded on a solid basis of scientific fact, no argument he can advance in favour of the complementary code can possess the weight of a straw. What "R. A. H. G." advised originally was to

with red, for that reasoning is incorrect. Combinations of one bright colour with a tertiary ground quickly right themselves, as people find out almost at once that the right combination is with the tertiary tints which the complementary code makes out to be discordant, but errors with the bright pure colours of flowers are flagrant. I should like to trouble "R. A. H. G." with just one little bit more science, after which I think we may consider make the subject threshed out, and agree to differ.

Colour. when we come to the visible and enjoyable part of it, is not like form. Form is a thing which has a definite existence apart from us, but colour as we know it has no existence apart from our senses. The waves of light ether are a reality, but what we call colour is not these waves, but the effect which they produce on our senses. These waves enter the eyes of colour-blind persons, and of persons who are blind to red, exactly as they do the eyes of others, but they produce no sensation of colour. Colour is a thing, therefore, about which it is difficult to reason; it is truly a matter of taste, and as thoroughly so as the productions of the skilled cook; no hard and fast rules can be laid down about it. The one difficulty we have in dealing with colour is this: In the fifteenth century it became the fashion to imitate the arts of the later periods of the Roman empire instead of making progress and improvement in such art as then existed. People ceased to follow their own taste, and all art, from high to low, became matter of book learning. By processes far too long to describe here, colour faded out of everything of human manufacture: colour became vulgar, and, as Mr. Ruskin describes, we were "legalised into grey." Compare the male costumes of even 1782 with those of 1882. Now, if any faculty of the human mind is allowed to lie dormant or habitually outraged it becomes weak, and three centuries of bad colouring have without doubt weakened the perception of colour in the northern races. This can only be corrected by following the lead of Nature and of those nations and periods



The great Araucaria imbricata at Droppo ore. Height, 61½ feet. (From a photograph taken in 1881.)

place "red, yellow, and blue flowers next each other; his purple Pansies, for instance, with their green foliage next his golden ones." Also, "we should be correct in placing purple alongside yellow, green alongside red, and orange or golden alongside blue." If "R. A. H. G." likes green and red together, by all means let him have it and recommend others to try them, but that is quite another thing from saying that because green is a combination of blue and yellow, and is equal to all the colours but red, therefore it must harmonise

in the arts of which good colour forms a feature, and also by following the lead of people distinguished by sensitiveness to colour. A person whose eye is so sensitive to colour as to be unable to look at a truss of *Vesuvius Pelargonium* for five minutes at a time without becoming red blind for the time being is assuredly a much better guide in matters of colour than a person who can enjoy gazing at a bed of scarlet *Pelargoniums* or red and yellow *Tulips* for half an hour at a time. The most charitable way a

colourist can regard those terrible beds of red, blue, and yellow, which one saw so much of in the hey-day of the bedding system, is to imagine that those who enjoyed them were to a certain extent colour-blind, and that colour of that strength was required to produce to their eyes the pleasing sensation which would be conveyed to the mind by a combination of a quiet, soft red, primrose, and bluish grey. All that anyone can recommend for general adoption is such

Combinations of colour as were formerly considered beautiful, and which are still considered so by people who make colour their study and business. The difficulty in writing about colour consists in the want of definiteness in the language obliged to be used, but with flowers this is to some degree obviated by known flowers having known colours, so that we can use them to give definiteness to our descriptions. I can assure "R. A. H. G." that when my promised article on colour for bedding appears he will find many combinations recommended which cannot by any stretch of imagination be said to consist of the three primaries, as well as some which consist of these and secondary and tertiary colours as well, but I shall not recommend red, blue, and yellow as harmony of any of those combinations which his diagram would lead us to believe are harmonious.

J. D.

HOW TO DRY PLANTS.

MR. LEO H. GRINDON, whose name is well known in scientific circles, gives the following practical hints on this subject in a recent article in the *Field Naturalist* :—

"The very ancient adage, that if a thing be worth doing at all it is worth doing well, applies to the preservation of plants for the herbarium as much as to any great and important work or business. Specimens that are no better than fragments of brown stick, or that seem effigies of plants cut out of thin brown paper, the flowers shrivelled and shrunk so as to be no longer intelligible, the leaves crumpled and doubled up, everything confused and mashed together, such as one may see sometimes in collections, are altogether undeserving of the name. Nothing that is not dried in the best manner possible, its colours and configuration preserved as perfectly as the nature of the plant will admit, ought ever to be allowed a permanent place in the herbarium. The bad may be tolerated a while, in default of better, but the further a specimen is from vivid and pleasing resemblance to the living thing, the speedier should be the endeavour to supersede it. Specimens from abroad that cannot be superseded of course we do not speak of. In the plants within reach, none but admirable representatives of their best features while alive should be considered worthy of a place. Plants dry very variously. Some require not a moment's trouble; others demand patience. Now and then the case is hopeless, and we are constrained to fall back upon the pencil, and prefer drawings, coloured ones if possible. Grasses and their allies, most kinds of Ferns, plants that resemble Heather, Everlastings, the mature leaves of shrubs and trees, call for only the minimum. Those which try the patience, and can be managed only after considerable experience with easy ones, are such as may be illustrated by citation of the Hyacinth. To secure the best results, obtain first half-a-dozen pieces of stout millboard cut to about 18 inches by 12 inches. Then gather together a hundred old newspapers, and fold them neat and square to about the dimensions of the millboards. Four or 5 yards of common white cotton wadding, a score of sheets of tissue paper and as many of blotting paper, all cut to the same size, complete the apparatus. One of the boards serves for the foundation; on this only a newspaper, then a piece of wadding, and upon this place the specimen intended to be dried. The cotton being soft and retentive, every portion can be laid in a proper and natural way, including the petals of the flowers. A newspaper above, two or three if the specimens have thick stems, and so on, till all shall be deposited in the way of the first. If the specimens are sticky, or hairy, or of a kind that

the wadding seems likely to adhere to, then, before depositing them on it, introduce a half sheet of the tissue paper. A heavy weight must be put on the top of all, sufficient to imbue the specimens in the wadding; then leave the whole to rest for twenty-four hours. All the papers must then be changed, dry ones being put in their place; and if the plant seems to throw off a very considerable amount of moisture, such as will render the wadding quite damp, change the wadding also. A second and even a third change is desirable at the end of two or three days or a week; and when this is made introduce the blotting paper, pressing again till everything is perfectly flat, and the specimens are absolutely dry.

"Such is the simple process by which the writer of these lines has succeeded in the art of preserving the colours and forms, not only of robust and tractable plants, but of the most delicate and very many of the obdurate. Every petal, every leaflet, retains the form it had in life, and nine specimens out of ten keep their colours excellently. To insure the keeping of colour, it is well, if time can be spared, to change the blotting paper many times, and to dry it thoroughly before the fire, but this need not be done until after the third day from the beginning."

INDOOR GARDEN.

SEEDLING FREESIAS.

IN a little note of mine on *Freesias* which you published last summer I spoke of some seedlings which I hoped to see in bloom before Christmas. I have not been disappointed. The seed was sown on May 19 and 21, 1882; the seedlings were found appearing above the soil on July 5, and the first bloom expanded in my greenhouse on December 10. Every seed, I think, must have germinated, and every seedling almost is now bearing bloom or bud. Last year I spoilt my chances by sowing the seed too thickly in too small a pot. Obviously, the young seedlings, in order that they may make adequate growth, must have plenty of room.

On the other hand, some seed which I sowed September 16 to 23, which also had only just ripened, and came fresh from the capsule immediately upon dehiscence makes no sign at all, though I have tried to help it on by putting it into heat. I imagine that now it will not start till the spring comes. The seed which is now blooming was from hybridised flowers from *F. alba* and *F. Leichtlini*, and from *F. Leichtlini* and *F. alba*.

The first (*alba* × *Leichtlini*) has given me so far a spike of somewhat large yellow flowers, which, as far as I can remember, reproduces almost exactly the form raised by Mr. Smith, of Guernsey, and figured in *THE GARDEN* (p. 94, Vol. XXII.), and other spikes with flowers in form like *Leichtlini*, but varying from pale white to pale yellow.

The second (*Leichtlini* × *alba*) has so far given flowers of the form of the mother, but varying in colour; some are nearly pure white, others pale yellow, and still others of a deeper yellow with a tendency to violet blotches, more marked than in the typical *Leichtlini*. This last fact tends to confirm me in my belief that most of the forms with names are mere varieties. With the exception of the first spike mentioned, the flowers are rather small, but I have some hopes that they will grow larger when the bulbs get older, i.e., next year or the year after.

I have not got to the bottom of the culture of these bulbs yet. Of the pots, taken from the same stock, potted at same time, and treated, as far as I know, in the same way, one is showing goodly growth, the other nearly dormant. There must be some reason for this, and I must try and find it out. F.

Coleuses for winter decoration.

Everyone admires the glorious tints of colour that may be seen during the summer months, but how seldom do we find them in winter when plants or flowers for decorative purposes are so desirable. Old plants lose their foliage, and too often are victimised by scale and other insects, and young plants often damp off. Then how are we

to have their bright colours? Visiting the stove and Orchid houses at Birdhill the other day, I was much struck with the glowing, vivid colours, filling up space and hiding pots, just as in mid-summer. The secret seemed to be propagation of the best and brightest in October, and placing the cuttings in very small pots, about four in each, the colours to be contrasted. The *Coleus* requires very slight feeding material, the less the better, during winter. The colours were brighter than several of the Orchids.—W. J. M., *Clonmel*.

GREENHOUSE RHODODENDRONS.

WHAT are commonly known as greenhouse *Rhododendrons*, viz., the various hybrids belonging to the Princess Royal section, might be with truth described as perpetual flowerers, for where numbers of them are grown they are seldom without flowers if kept in a somewhat higher temperature than that of an ordinary greenhouse. Although they will exist therein, they neither grow nor flower so freely as when kept during the winter in a temperature of from 50° to 60°. Although, however, their blooming season extends over such a long period of time, the greater number of their beautiful flowers are produced during the autumn and winter months, and, owing to that circumstance, they are especially valuable. If the atmosphere of the house is not too heavily surcharged with moisture the blossoms will remain in good condition for at least a fortnight. They do not appear to have any particular season of growth. If kept in the temperature just named young shoots are even produced more or less throughout the winter. These *Rhododendrons* also possess the merit of flowering freely in a small state, as when only in 4-inch, 5-inch, or 6-inch pots every shoot will frequently be terminated by a head of blossoms. Not only, too, do they flower when small, but, being naturally of a short bushy habit, they are well suited for structures where more vigorous kinds would soon outgrow the space allotted to them. The beautiful kinds raised by Messrs. Veitch give us great variety in the way of colour, some of the later hybrids being very striking in that respect. The varieties of this type which I grow, all of which are very distinct, consist of the following, viz., Princess Royal, a rich pink-flowered kind, one of the oldest and still unsurpassed in its colour, that is, when a good form of it is obtained, but I find that plants of it vary a good deal in the tint of their blossoms, probably owing to some having been raised from seed. Princess Alexandria is pure white at first, but after being expanded a few days becomes slightly suffused with blush; Duchess of Teck is a light buff yellow-shaded with rose; Duchess of Edinburgh, bright orange crimson, a very brilliant coloured and effective flower; Taylori, rich pink with white tube; this is quite distinct from Princess Royal. Besides these hybrids the beautiful pure white *Jasminiflorum* is well entitled to a place in any collection; in continuous blooming qualities it ranks with the best of its class.

The soil in which I find these *Rhododendrons* to do well is good fibrous peat, with a liberal admixture of silver sand and some pieces of charcoal, their size varying with that of the plants. For those in 10-inch pots pieces as large as one's thumb may be used with advantage; while for those in 6-inch pots they should not be larger than beans. The partiality of the roots for the charcoal may be seen by the way in which they envelop it. The best time to pot is as soon as the plants are out of flower, and as most of them are in that stage during spring or early summer, no better season could be selected for the general potting. Be sure the pots are thoroughly clean and well drained, then pot firmly, and do bury the stems deeper than before. For small plants: annual repotting is necessary, but when larger they may remain some time undisturbed. At all times overpotting must be strictly guarded against. The only insect pests that trouble these *Rhododendrons* are thrips, and they are easily kept down by the use of the syringe, which will also benefit the plants.

Propagation may be effected by means of cuttings, grafts, or seeds; but I like cuttings best. They should consist of the young growth, taken off when in a half-ripened condition. As the shoot is formed of a tuft of leaves with a certain amount of bare stem below, cut it off at its base, that is immediately above the next cluster of foliage; in this way the whole of the young growth will be removed. Roots are produced more freely from the base of the young shoot than if taken off half-way up. Such being the case, if the shoot is not too long, leave it in its entirety, but if it is more than 6 inches it should be shortened, and in that case a long slanting cut gives a larger rooting surface than a horizontal one. The cuttings may be put singly in small pots, which should be filled with peat, sand, charcoal, and crocks, the two latter broken very small. If put in a close case in a temperature some few degrees higher than that in which they have been growing, roots will soon be produced, when air must be given by degrees, and the young plants hardened off. In this way if attention be paid to stopping in their earlier stages dwarf plants may be produced without the bare stem common to those that are grafted. Grafting certainly possesses one great advantage, inasmuch as small shoots that would not be large enough for cuttings may be grafted; therefore for the newer kinds it is commonly employed. Side grafting is the method generally employed, and as the older variety, Princess Royal, is oftentimes at hand, it is used as a stock for the newer kinds. Seed is the way by which new varieties are obtained, and to any one who does not mind waiting some years for the fruits of his labour, seedling Rhododendrons offer a tempting prospect. There is no difficulty in obtaining plenty of seeds if the flowers are properly fertilised; when ripe they should be sown in pans of light sandy peat, just sprinkling a little dry sand over them when sown, not enough to cover them, but to partially hold them in their places. Either put the pan in a close case in the stove, or lay a pane of glass over it, and when the seeds germinate give air by degrees. The young seedlings are very liable to damp off, so a sharp look out must be kept, and when any symptoms of damping show themselves, prick the young plants off into other pans—a very delicate operation, as great care must be exercised not to bruise the tender tissues. As the young plants require rather a high temperature in their earlier stages care must be taken that they do not suffer from thrips, which will sometimes attack them, even as soon as they become visible. H. P.

HEATING THE NEW LAW COURTS.

To understand how this is effected, says the *Times*, the building may be divided, by lines running at right angles, through the centre of the Great Hall into four nearly equal parts. To each of these is fitted a separate apparatus, all alike in power and character, but capable of acting separately or together at will, and each arranged so as to be interchangeable in working upon or into each other's divisions. By these means what was once seen to be a serious difficulty in dealing with a building of this magnitude has been overcome—that, namely, of directing the power along lines of nearly equal resistances. It also provides for contingencies of various kinds, for one division is a duplicate of the other, and capable of working on the other's ground by a system of arterial mains, which encircles the crypt, and which connects and embraces the whole. The medium employed is hot water, circulating through pipes formed into ranges and clusters. The whole of the warmth, therefore, is derived from surfaces heated by means of hot water on the low-pressure principle. The range of pipes in the whole system measures a little over 11 miles in length. The boilers attached to these for heating the water are equal to the power of 200 horses, one boiler of 50-horse power being apportioned to each of the four divisions, and situated in the crypt under the four angles of the Great Hall. There are two other boilers of the

same dimensions and power, which are for steam, to be employed for working the engines, for propelling the air into the Courts, and for heating the several coils of pipes in the ventilating shafts connected with the Courts. These two boilers have been fitted and are coupled in such a manner that they may be used singly or together, as may be required. The scheme will thus be seen to have been arranged broadly into four main divisions, all of which have again been sub-divided into sections of high and low levels. Each of these sections and divisions is connected, not with the boilers directly, but with the arterial mains, which are carried round the crypt, linking the four boilers together by means of larger mains, the whole being arranged in a way that will allow of the sections working together or independently, so that anything going wrong in one section need not interfere with the proper working of the other parts. Further, in the low-level sections the arrangement provides for the repairing or removal of any one of the systems below the Courts, while the hot water may be working perfectly through all the others. Each Court is separately treated both as regards its heating and air-propelling power, and below each Court is a chamber divided into two equal compartments. In one the requisite power is provided to warm and maintain the Courts to a temperature of from 58° to 60° Fahr. in the coldest season, with an interchange of air equal, if necessary, to 10,000 cubic feet a minute. The other compartment is used for cold air. These two chambers merge into one, and are covered with a coarse cloth (a kind of gauze), which is used for mixing and filtering the air, after which the air passes into the Courts at a temperature little above that required in the Courts themselves. The air enters through numerous vertical openings provided behind the wall linings and at other convenient points. The supply of fresh air to the other parts of the building is from the staircase areas on the outer circle. This is warmed in winter by systems of pipes placed at convenient points in the corridors and other parts. The warming of the Great Hall is effected by means of the arterial mains and eight powerful batteries of hot-water pipes, which are placed under the floor in the crypt, all being supplied with fresh air filtered before passing into the hall. As to the summer season, it was felt that without some

Special arrangement for cooling the air the system would be wanting in a most essential part. A machine, therefore, for cooling the large quantity of air required to ventilate the Courts in hot weather was seen to be an absolute necessity. The system of refrigeration adopted is what is known as the "ether process," which was, after duly weighing the merits of the different systems in use, considered the best for the purpose. A complete ether machine, therefore, has been constructed in the crypt, consisting of a pair of engines, vapour pumps, refrigerator and condenser, but no brine pump or tanks for ice-making, as in its application none are required. The air, in its passage to the Courts, will pass through a fine water spray. The instrument for the production of this is an "atomizer." The water for these atomizers is supplied from a tank in the roof of the building, and is passed through the refrigerator, being thereby reduced in temperature to the required degree. It has been calculated that the atomizers will, when in full use, consume 1000 gallons of water an hour. The temperature of the water in the tank will be but little below 70° Fahr. in the summer. Therefore the machine laid down is sufficient to reduce from 70° to 40° Fahr. 1200 gallons of water an hour; and this is considered to be slightly in excess of what is necessary to cool from 78° to 62° Fahr. the largest quantity of air that would be passed into the Courts at any time. The water which feeds the sprays will, as before stated, pass through the ether cooler, and be reduced to 40° Fahr., or lower if required. This cold water, after falling from the atomizers, is collected in a cistern by a system of drains, and is drawn thence by a pump fixed to the machine and conveyed to the condenser, where, flowing among the tubes, it abstracts the heat given off by the working charge

of ether while reliquifying; and thus, after serving two purposes, it is allowed to run to waste, which it will do at a temperature of about 90°. A recording thermometer is attached to the inlet and outlet pipes of the cooler, so that the temperature of the service water to the sprays can be adjusted to a nicety. The whole arrangement is simple and easily understood, and is now partly in operation. The works in question have been executed by Messrs. Haden and Son, of Trowbridge, and carried out under the personal supervision of Mr. Blake, of Manchester, who assisted the late Mr. Street in working out the scheme.

NOTES AND READINGS.

COLOUR IN THE FLOWER GARDEN.—Red, blue and yellow, the writer on this subject in *THE GARDEN* says, "are enough to produce lunacy," which we do not credit for a moment, because plenty of examples could be found who, for a great portion of their flower gardening existence, have gazed on gardens planted exclusively with clear yellow, *Calceolarias*, bright blue *Lobelias*, and scarlet *Geraniums*, and are yet perfectly sane. Does not "J. D." know that red, blue, and yellow formed the original base of mostly all bedding out combinations, and were the predominating colours of many a parterre? There is a good deal of sense in "J. D.'s" remarks on colour, and no doubt he is right on many of the obscure points he raises; but if the planting of our gardens simply and naturally is to be preceded by such a probation on the subject of colour, and carried out with such elaborate intricacy of detail, it is to be feared some of us will go back to "first principles"—like the rustic who, overcome by the elaborate bill of fare presented to him, "guessed he would go back to beans and bacon." Is it worth while troubling our heads with such fine distinctions on the subject of colour in gardens of hardy plants when we know that hardly any one of them can be exemplified in practice, owing to the nature of the materials at our disposal? This, indeed, seems to be what "J. D." realises fully when he sums up with the remark "that nearly all that can be done with herbaceous plants is to avoid a spotty effect by massing the colours;" and the gardener will understand such language as "families of plants produce related tints among their different varieties," meaning, as he explains, that "all *Roses* harmonize, also all *Gladioli*, all *Carnations*, nearly all *Pansies*, *Poppies*, *Auriculas*, *Phloxes*, and *Lilies*," &c. If this was understood before, the knowledge has not hitherto been generally acted upon.

MORTALITY AMONG HORTICULTURAL PAPERS—The obituary notices of these have been rather frequent of late—*Floral Magazine*, *Horticultural Record*, *Irish Gardeners' Record*, *Gardener's* and, lastly, the *Journal of Botany*; while those who read the signs of the times know it has been a time of trial for others. What has been the cause of these failures? It cannot be that less interest is taken in gardening, for it is expanding everywhere; nor is it because there are fewer readers, for they are more numerous now than ever. The only explanation that suggests itself is that the defunct journals have been somehow out of joint with the times. It is curious to think, too, that "horticultural" Scotland is now virtually disfranchised; is, in the matter of gardening papers drawing her inspiration from south of the Tweed. Even the paper which was lately supposed to represent Scotland more especially was mostly written by Englishmen or gardeners living in England, which is much the same thing. The land of gardeners had better look to its laurels.

"VISCUM ALBUM."—Are those auto biographical sketches of our garden shrubs, in another paper, to be continued, and who are they intended for—the real rising generation or their fathers? We thought "Aunt Judy" monopolised that sort of thing in her magazine for babies and small folk; but these

two late leaders in your contemporary are quite in the "shilling's-worth-of-wonder" vein. Gardeners of sober years read their old friends "Aucuba japonicas" and "Viscum album" garrulous account of themselves with that kind of shame-faced feeling which prompts the enquiry, if the writer knows "who he is talking to." Many feel as if either they or the editor had suddenly gone back to their "Children's Magazine" days when

There were books full of pictures for presents and prizes,
Of all sorts of colours and all sorts of sizes;
And thousands of gay things and playthings and toys,
With dolls for the girls and toys for the boys.

TRADE ADVERTISEMENTS.—The advertisements of some of the horticultural papers are not by any means the least interesting portion of their contents now-a-days. It is said the trade read nothing else, but they are worth the gardener's perusal as well. Our growing penny friend, *Gardening Illustrated*, now enjoying such an immense and increasing circulation while other papers have fallen off, has gathered quite a new and numerous class of readers within the fold of the gardening fraternity, and the wants of these are in turn bringing out a new class of advertisers. The catalogues will soon not be needed. Nothing indicates the direction of the popular taste better than these advertisements, and those who want bargains would do well to consult them. Everybody who has anything to sell seems to find their way before the public, and no doubt the parcels post will greatly facilitate trade in this direction. Some buyers complain that they are disappointed with their bargains after having prepaid them, the goods not always turning out as was represented. This, however, should be no difficulty. We know gardeners in important places who consult the advertising pages for their wants, and meet this difficulty by making post office orders payable ten days after date.

ROCKERIES.—Some of your contemporaries have done good service lately in holding up to public criticism the worst examples of "British gardening." The last example of this kind is a formal rockery, which, like Artemus Ward's jokes, it is explained is a rockery, and to sustain the delusion to the spectator the rocks are periodically washed with a scrubbing brush, so it is stated. This scrubbing is to keep down the "cryptogamic vegetation," and occupies the time of nine or ten men for as many weeks. It is an "original" rockery also, and deserves the compliment because it does not resemble anything of the same kind in creation. "If you, gentle reader, wish to experience a feeling of surprise and astonishment," you are to "make your way" to this rockery, and you are if possible to "get the gardener to lead you to the garden by some back way." Like the productions of some great composers, one must ascend from the "depths" to understand the conception.

FLOWER GARDENS.—The next example is a flower garden—a new one too, that is the point—designed on the baldest and the barest, and the worst form of the bedding-out style—a grand architectural pile with an utterly barren garden. One of those mismanaged examples in which great wealth and high influence are prostituted to a miserable end, for the garden in question is an acknowledged failure of its kind, and the original looks worse than the illustration given of it in a contemporary about six weeks ago.

STYLES IN GARDENING.—In some ways the various styles of landscape gardening which have prevailed have had a baneful influence on garden design. People have followed them because they were fashionable only, without staying to inquire into their merits or demerits. And yet it does seem necessary to have some recognised style in gardening just as we recognise standards and principles in other matters. Without some guide of this kind it is evident that great mistakes must be committed, for people will just do what seemeth right in their eyes, and garden design will become a mere matter of chance and caprice, just like the

comical rockery and bald flower garden we have been speaking of. The landscape gardener is after all a necessity in a country like ours, but he must be worthy of the name—not a mere empiric—versed in his profession in all its bearing, free from prejudice and the fetters of fashion, a student of Nature, and skilled in all trees and plants, and their nature and adaptabilities. Only a school can produce such men, and that does not exist at present. No book has yet been written that goes beyond the mere routine of propagating and planting since the older authors wrote sixty or a hundred years ago, modern authors not seeming to recognise any broader or higher view of garden art than is compassed by the narrow limits of their summer flower beds and borders and their own limited experience.

SELF-HELP FOR GARDENERS.—An acquaintance occupying a position of influence in the horticultural world suggests that the time has come when institutions for the benefit of gardeners should rely on something better and more certain than the benevolence of the public. The Gardeners' Benevolent Society, although doing good in a small and disproportionate way, and worthily discharging its functions, has too much of the "frozen-out gardener's" ring about it—is, in fact, a "begging" institution. He proposes a union or brotherhood to promote a superannuation fund on self-help principles, and thinks such a numerous and intelligent community should be able to sustain such an institution as many other professions do—the Schoolmasters' Association, for example, or the Law Clerks' Society, &c. Very probably, if such a society was set on foot, it would at once succeed. Such projects need at starting an impetus to make them succeed.

VINE PLAGUES.—"Cambrian," I observe, "recommends frequent syringing up to the time the fruit is ripe." In the case of Vines infected by mealy bug, he will "venture to say anyone who will try this in a viney where bug is rampant will be astonished at the result." No one, we should think, doubts this. The result will be that instead of the pest being localised—confined to a few Vines and a few bunches—it will be evenly distributed over every leaf and every bunch in the viney, and the Grapes spoiled as well. Who ever heard of mealy bug being reduced by driving it broadcast over a house with the syringe and clean water? The idea is preposterous. It is too bad, also, to put down the examples of Grapes at the Edinburgh show as the result of "one quart of tar and four quarts of water," applied to the Vines "cleared of mealy bug in the manner just indicated." The way to keep mealy bug down on Vines is never to let it get into the viney, and that this can be done, let alone allowing the pest to get "rampant," is proved every day in gardens—at least where ordinary accommodation exists for the culture of plants that are wanted.

PEREGRINE.

Shoddy.—"A. D." (p. 586, Vol. XXII.) seeks information respecting this. Cotton shoddy is eagerly sought after in this district by farmers and market gardeners. I have not had an opportunity of using it myself. Those gardeners, however, who have been fortunate enough to get it pass very high encomiums on its fertilising properties for out-door crops as well as for all kinds of soft-wooded plants in pots. One of my acquaintances, gardener to a mill owner, uses it for hotbeds, covering bulbs in pots, plunging plants in pots, &c., and when it has become thoroughly decayed it is used for potting. What he has for hotbeds has a greater proportion of the larger particles of cotton in it than what the ordinary consumer could get, which is nothing more than coarse dust from the mills. As a manure for pot plants it has one advantage over the usual hotbed manure—it is free from worms, which are always a source of annoyance to cultivators. I am informed that Mr. Troughton, 4, Church Street, Preston, supplies shoddy in large or small quan-

ties. The exact price I am unable to give, but it is only a few pence per bushel.—R.

FLOWER GARDEN.

THE CARNATION AND PICOTEE.

Perdita: The fairest flowers of the season
Are our Carnations and streaked Gillyflowers,
Which some call Nature's bastards.
—*Winter's Tale*, Act iv., sec. 3.

No flower is perhaps so widely cultivated as the Carnation, for in what garden, great or small, do we not find some specimen or representative of it? The *Dianthus* family is divided by florists into various sections, the principal of which are as follows:—

Carnations.—Flowers containing a white ground, on which are striped or flaked one or more colours. They include (1) flakes, which have stripes of one colour traversing the petal from centre to outside; (2) bizarres, which have two colours, one light and the other dark, traversing in the same way the white ground. There are scarlet, purple, and rose flakes, and crimson, scarlet, and pink and purple bizarres. "Fancies" would include any flakes or bizarres of any other colours or neutral tints.

Picotees.—Flowers having the colour evenly pencilled round the edge. The edges, which are either heavy or light, are red, rose, and purple. (The word Picotee is derived from the French *picoté*—pricked with little flecks and spots, which is not the florist's idea of a Picotee; such a flower would be a "fancy.")

Yellowground Picotees.—Flowers having a pure yellow ground, either flecked, fringed, or edged with colour. These have not been brought to such perfection of form, &c., as the others, but they are making rapid strides towards that end.

Self Cloves are flowers having only one colour distributed all over the petal. They are of all shades and colours except black, green, and blue.

Carnations and Picotees are cultivated in beds or pots for bouquets, exhibition, and other purposes, and as flowers for exhibition are required to have certain "properties," an article on the Carnation would not be complete without an enumeration of these.

Properties of a "perfect" Carnation.

—(1) The flower should be from 2½ inches to 3 inches across, but, it must be borne in mind, size is a very secondary consideration, the other properties, of form and colouring, being the most important. (I have myself beaten badly-marked flowers 3 inches in diameter with a flower less than 2 inches across perfectly marked.) (2) The largest petals must be outside, the others arranged above them according to colour, size, and to hide defects in those below. Each petal must be of good substance, and quite smooth at the edge, without the slightest notch or serrature in its outline; any unevenness is surely fatal to the stand. (3) The white ground should be pure and brilliant, not specked or tinged with colour of any sort. (4) The colour, or colours, should traverse the entire petal from the centre as much as possible in broad bands, clearly defined. In the case of a bizarre, the light colour should be bright and pure, the dark colour deep and rich, the two colours distinct, not confused or running into one another. (5) Each petal must contain the white ground as well as the marking; any petal entirely suffused with colour and showing no ground would disqualify the whole stand infallibly, as would any petal pure white not showing the colour, or in the case of a bizarre, both colours. (6) The pod of the bloom must not be split or burst by the opening flower.

A perfect Picotee would be one in form exactly the same as prescribed for a Carnation. The colour must be pencilled round the edge as if drawn by a careful hand, not tinging, or feathering, or barring into the ground, which must be pure white.

Disqualifications for exhibition.—(1) If any petal is dead or damaged; (2) if any petal has been substituted for another; (3) if any petal contains no white ground, or no colour, or in a bizarre only one colour; (4) if a pod is split too far down; and above all (5) if any petal be in the slightest degree notched or serrated in the edge. Flowers shown as fancies are not subject to any of these rules, but may be shown in any way, or lacking any of the above qualities.

Stock-taking.—Always get your plants as rooted layers in the autumn; September is the best month, and as soon as they arrive put them into their permanent positions about 8 inches or 10 inches apart in the bed, or singly, or a pair in a 3-inch or 4-inch pot if they are choice exhibition kinds, or you have no bed ready for them. In the pots let them remain in a cold frame all the winter, giving as much air as possible on fine days, but guarding them zealously from damp, wind, or rain, all which will worry them dreadfully if the layers were not well rooted when potted. In the beds they will require no attention. Neither in beds nor pots do they require more water than is necessary to keep them just reasonably moist, as the roots are dormant till the spring. If the plants are shifted or got in in the spring it often gives them a severe check not easily recovered. If the young plants are lanky and tall, tie a little stick to them, which will protect them from wind and rain, and prevent their getting twisted at the root, which is always dangerous. Keep them scrupulously clean.

Culture for exhibition.—About the end of July cover over the bed intended to be devoted to Carnations with 2 inches of good rotted manure, and add to this, if the soil is sandy, 2 inches of good mellow loam; or if it is stiff, the same quantity of sand. Then whenever you can spare time spread it regularly, and dig the bed over. As soon as the plants arrive put them in firmly, all of one sort in a row with a good legible label at the end. Thus they will need no attention till next spring, being perfectly hardy. At the same time take up and put in in the same way any seedlings sown in the spring, which will now be fine strong plants. Next spring when the continued cold has ceased (about March or April) fork over carefully between the rows, and water them if dry in fine weather. When the flower-stems begin to rise place a stick about 30 inches long to each plant. They should be painted a light whitish green. The flower-stems must be kept well tied up as they grow, tying quite loosely, as if the stems are tied tightly they will kneel and bend, and finally break. About the 20th of June, or later, when the buds have appeared, take off all the buds but three on each shoot, so as to leave each bud a little footstalk to itself when it grows. What you lose by this in quantity will be repaid you twenty-fold in quality. From this time until the buds are nearly showing colour give them occasionally a little weak manure water, *i.e.*, a handful of well rotted stable litter to a large pot of water. As soon as the buds show colour at the top, tie them round about half way down with a little strip of bast. This should be done every morning early in July, as it will save much trouble and the unsightly peculiarity termed a "split pod." If, in spite of this, the pods split on one side, carefully open the bud all round at the other segments. For this purpose I use the flat wedge handle of the knife that I use for layering. Unless you intend saving seed, cut off dead blooms as soon as they wither, and the flower-stems as soon as no more buds are left to come out, which will be about the end of August or beginning of September. The last week in July, not later, see about layering. As soon as the layers are ready rooted, which will be early in September, take them off and lay them in by the heels for a time whilst you take up and throw away the old stools; top-dress and fork over the bed, giving it a couple of inches of well rotted stable litter or cow-house sweepings; replace your layers, and then you are in the same condition as you started.

Cultivation in pots.—As soon as the plants come in in the autumn or the layers are

ready from the old stock they should be put singly into 3-inch, or pairs of the same sort into 4-inch pots and placed in a cold frame, the pots plunged up to the rim in Cocoa-nut fibre. Here keep them all the winter, giving only just enough water to keep them from getting dust-dry. When you put them away see that they are scrupulously clean, dusting them over with a little brush. Between the 1st and 20th of October is the best time to store the plants away. Occasionally, when fine, go over the stock, cleaning off any dirt which settles itself on the leaves, &c., and give as much air as possible when fine. Remember that the greatest enemy is damp, which must most zealously be guarded against. In spring, when nothing but the late frosts are to be apprehended, say about the end of March, the plants should be put into their blooming pots. The best sizes are 7-inch for a single plant, or a pair of the same sort in a 10-inch pot. The best compost for potting the plants in the spring as well as the layers in autumn is one of good mellow loam, leaf-mould, cow manure, and silver sand in equal proportions. Each ingredient should be well rotted and quite sweet, and the mixture should be made as long before use as possible. I always take particular care to make my compost for layering into and for potting the layers in April or May, and my compost for the blooming pots next spring in the July of the preceding year. These heaps I turn over and pull about as much as possible all the year round, to thoroughly mix and sweeten them. When the potting season arrives take the blooming pot and invert an oyster shell or large crock over the hole at the bottom, and cover it with at least 2½ inches of broken crocks; over this lay a fine layer of moss in order to prevent the earth choking the drainage. Carefully turn the little plant out of its winter pot, remove the drainage from the ball, and put into the blooming pot enough compost to make the top of the ball come an inch from the top of the pot, mixing in with it as you put it in a handful or so of little lumps of charcoal, to keep all sweet; fill in up to within an inch of the rim of the pot. When all the plants are potted place them in masses—bizarres in one, flakes in another, Picotees, fancies, and so on, either on stages or on an ash bed. Stages are best formed of rafters 4 feet long 3 inches across 1 inch thick. Stand six inverted 10-inch pots on the ground in an oblong 8 feet by 2½ feet, with two pots in the middle; lay six pairs of rafters on them; from one end to the centre pots three pairs, and from the centre to the other end three pairs; thus you have a staging 10 inches high, 8 feet long, 2½ feet broad on which three rows of pots will stand, which is eminently portable, and can be stowed away for the winter every autumn. Arrange as many stages as you want with walks, 2 feet between them. If you cannot arrange stages thus, make an ash bed on which to stand the regiments of pots, by levelling the ground over an area the requisite size, treading it down and spreading over it 3 inches of ashes on which the pots may be placed. The best position for stages or ash bed is under the shelter of a wall facing south. It is as well, if possible, to erect a temporary shelter over the pots to protect them from late frosts and early cutting winds, but it may be taken off as soon as all chance of frost has gone. When the plants are potted, if any show signs of weakness or crooked growth, tie them up to a little stick. (I tie all my young plants thus.) If a plant gets twisted at the root, it is almost fatal, though, when a plant has got twisted, never try to straighten it. Early in June the flower-stems will be beginning to rise, when sticks must be placed to them, and the stems kept carefully tied up, tying loosely for reasons already given. As soon as the buds appear, disbud, leaving from three to six buds on each plant, according to its strength. Considerable judgment must be used in this matter, so as not to leave too many on a weak plant, or too few on a strong plant, for, in the first case, the flowers would be weak and poor, and, in the second, the flowers would be coarse and rough. As to the buds to be taken off and those to be left on,

leave the first, or top, bud on each shoot. As a rule, when a bud is blunt, and thick at the top it promises well for the flower, so leave that bud but when fine and pointed, it generally is a bad sign, so if there are better promising buds take these consumptive ones off. In the matter of manure water, I have been successful with very weak decoctions (a trowel full of horse litter well rotted to a large pot of water) given from June 10 to July 10 (remember I am a southern grower) at every fourth watering. If a flower begins to open too much on one side towards the sun turn the pot round. As soon as the first flower shows colour invert on the top of each stick the broken-off bowl of a common clay tobacco pipe (which may be bought at 1s. 9d. per 100). These should be searched every morning for earwigs. A.

HARDY FLOWERS FOR CUTTING.

"J. H." says (p. 502), "How can I get a complete list of hardy plants to afford cut flowers, &c.?" Such a list would be longer than I can undertake to give, but I will endeavour to name a few which I have found to be useful for the purpose just named. By hardy flowers, I suppose "J. H." means plants which will unfold their blooms in the open air without or at least with slight protection, and to such I will confine my remarks. But it may at the same time be as well to say that where an abundant and continuous supply of cut flowers is required throughout the season this can hardly be accomplished without the necessary appliances of forcing pits or glass structures of some kind.

Amongst hardy plants likely to be useful for cutting may be named the Christmas Rose, the flowering of which, although it varies somewhat in accordance with the character of the seasons, may generally be said to be from the early part of December to the end of February. But in order to obtain clean, pure white blooms for cutting the plants should during inclement weather be covered with hand-glasses or a frame. Various other species of Hellebores are also useful in a cut state and succeed the Christmas Rose as regards their time of flowering, such as *H. maximus* and *H. intermedius*, both probably cross-bred varieties between *H. niger* and some of the spring flowering species. The *Sternbergia lutea*, or the Lily of the Field, produces clear bright yellow blooms in the very depth of winter, or, at all events, when the soil is not altogether frost-bound, and its flowers keep well in water, as do also those of the winter Aconite. The clear yellow flowers of these contrast agreeably with those of the Snowdrop, and also with those of the pretty *Leucojum vernum*, which comes into bloom somewhat later. The pretty blue flowers of *Scilla biflora* and *Chionodoxa Lucilia*, the various varieties of *Hepatica*, European *Cyclamens*, early Tulips, Hyacinths, and Grape Hyacinths, Violets of different sorts, single and double Anemones—all these will be found to be exceedingly useful in a cut state; and as the season advances plants whose flowers are still better adapted for this purpose will become plentiful, such as Daffodils, including double and single sweet-scented Jonquils, the Hoop Petticoat (*Bulbocodium vernum*), *Narcissus Campbrellii*, *N. poeticus* or Pheasant's-eye *Narcissus* and its double variety, which in purity of colour as well as delicious perfume rivals the blooms of the *Gardenia* itself. To these may be added the Dog's-tooth Violet, *Triteleia uniflora*, *T. conspicua*, *Ixias*, *Sparaxis*, *Babianas*, &c. Primroses, Polyanthus, alpine Auriculas, double-flowered varieties of the Pansy, double and single Wallflowers, *Alstroemerias*, the blooms of which are all admirably suited for cutting, and also those of many of the early Irises and Gladioli; the old *Tigridia Pavonia*, a charming flower, which unfortunately lasts for only one day cut or uncut; Lily of the Valley, Solomon's Seal, *Spiraea japonica* and *palmata*, and *Dielytra spectabilis* with its gracefully depending blooms. To the above-named hardy plants and early flowering bulbs, the list of which might be greatly extended, may also be added the names of various

Early-flowering hardy shrubs, the blooms of which are all useful for cutting, such

as *Chimonanthus fragrans* and its large-flowered variety, both of which bloom profusely in the very depth of winter, and the flowers are also highly perfumed. This shrub, however, being a native of Japan, requires in this country the protection of a wall or a sheltered situation, as does also *Jasminum nudiflorum*, which blooms profusely at midwinter; its long spikes of yellow flowers, devoid of foliage and of scent, mingle well with the flowers and foliage of other plants in vases or glasses. With these might be associated the *Forsythia viridissima*, *Coronilla glauca*, *Magnolia fuscata*, and the Pomegranate, all of which will bloom in the open air in a sheltered situation or on the south side of a wall. For forming a succession to these may be named the *Edwardsia macrophylla* and *E. microphylla*, *Escallonia rubra*, *Illicium floridanum*, *Olea fragrans* or the Olive, *Indigofera*s, *Lonicera*s or Honey-suckles, the single and double varieties of *Kerria japonica*, *Calycanthus floridus*, *Buddleia globosa*, the hardy *Fuchsia Riccartoni*, *Ceanothus azureus*, the latter a very pretty profuse flowering plant. There is, too, the *Laurustinus*, well known to be one of the prettiest winter flowering shrubs we have; also *Berberis Aquifolium* and *Fortunei*, and *Choisya ternata*. The last is a pretty Mexican shrub which is quite hardy, and which blooms in February; its flowers resemble those of the Orange, and are also sweet scented. The blossoms of the various *Daphnes* are likewise great favourites, as are also those of various species of the *Cistus* or Rock Rose, all very beautiful and well adapted for cutting. There are also the varieties of hardy Heaths and *Menziesia*, or Irish Heath. Some of the early flowering *Rhododendrons*, *Azalea amena*, and the pretty Ghent varieties of this genus, with the various *Kalmias*, &c., all of which are useful in a cut state. Most of the above are what may be considered evergreen or sub-evergreen shrubs. But many useful varieties may also be found among what are known as

Flowering deciduous shrubs, such as the *Philadelphus* or Mock Orange, *Persica fl.-pl.* or the double blossomed Peach, the double flowered Almond, &c., *Cerasus Padus* or Bird Cherry, and *Cerasus fl.-pl.* or double flowering Cherry. The latter is an admirable plant for the production of white rosette-like flowers. Most of the *Deutzias* are also useful for this purpose, particularly *D. crenata fl.-pl.* and *D. gracilis*, *Viburnum Opulus*, or the Guelder Rose, the *Colutea*, or Bladder Senna, and *Cytisus*es of different sorts, all of which, including the *Laburnums*, are exceedingly handsome free-flowering shrubs; as are also the *Syringa*, or Lilac, more particularly the Persian varieties. Also various species and varieties of the Honey-suckle, the Jasmine, and the *Clematis*. Many of the *Ribes*, or flowering Currants, bear pretty flowers, and the *Potentilla fruticosa* is a very free flowering shrub; also the *Rhus Cotinus* or Sumach on account of its fine foliage and curious wig-like inflorescence, together with flowering Thorns and Roses of many kinds. As summer approaches many of the most suitable plants for the production of cut flowers will naturally be in bloom, such as the Pink and the Carnation, *Aquilegias*, *Delphiniums*, and many annual flowers, such as the Sweet Pea, *Mignonette*, &c. For the autumn months the blooms of some of the late flowering *Phloxes*, *Anemone japonica* and its white flowered variety (*Honorine Jobert*), *Aconitum japonicum*, which blooms very late in the season, single and bouquet *Dahlias*, *Chrysanthemums*, &c., all of which will yield a more or less abundant supply of cut flowers throughout the greater part, if not during the whole year. P. G.

Violets.—The mild weather the last week in the old year has certainly brought with it a charm, as though it would steal some of the pleasures of spring in the form of sweet Violets. Although the autumn and winter cannot be said to have been particularly cold (a few days excepted), Violets have not been so plentiful with us this winter as last, although we have a greater stock planted about the same time (*viz.*, early in May, 1882) as in the preceding year. But the recent mild weather

has brought with it abundance of bloom both in frames and out-of-doors; the former is one sheet of blue, and the fragrance around them is delightful and may be detected in the breeze some distance off. It would appear as though the damp mild weather supplied them with all they required for their proper development, and I may state that, added to this just now, the chattering and singing of small birds lend additional charms, and almost makes one imagine we have arrived at spring, although the old year has only just passed away.—C. WARDEN, *Clarendon*.

Early Primroses.—Of winter flowers few are so persistent in making their appearance at every mild break in the weather as Primroses. I find the single white even more precocious than the common wild Primrose of our woods, but these under cultivation seem to take the habit of garden varieties, and to flower more or less plentifully, according to temperature, from October to March, when the display they make is quite charming. I find some of the coloured kinds to be very floriferous in autumn, and more or less through the winter, and none the less able to hold their own in spring with other kinds. Possibly indeed in time we may get these characteristics more fixed, for until recently the Primrose has received but very scanty attention. I am now gathering flowers from plants lifted and replanted quite late in autumn, and though not so good as those from plants transplanted in spring directly after flowering, they are nevertheless welcome at this season of the year. I may mention that I find the shelter of a hedge to act both as a screen from cutting winds in winter and from scorching sun-rays in summer, most useful in the case of the Primrose. I have planted a thick hedge of young bushy *Hollies* specially for a Primrose shelter.—JAMES GROOM, *Seafield, Gosport*.

Cultivation of show Auriculas.—May I be allowed to say that the two articles on the Auricula published in *Gardening* last June probably comprise the lecture on the Auricula which I was asked to give at the Royal Horticultural Gardens. That was simply an attempt to trace the long and touching history of the flower, and was not intended to be a cultural treatise. This I stated briefly, but pointedly, in the few very general remarks I made on the cultivation of the Auricula. "M. R." has therefore only not found that which was avowedly not within the plan and province of the lecture. "The filling up for beginners," which I think has not been forgotten in its proper place by writers, may be found in Mr. Douglas' book called "Hardy Florist Flowers," and I have also left a legacy on the subject in the pages of the "Florist and Pomologist" from May, 1876, to July, 1877. Those papers follow the Auricula from month to month throughout the year; and I so strongly recognised the truth of what "M. R." states respecting the value of minute details in practical directions, that at the time of writing I often thought I was even erring on that safe side.—F. D. HORNER, *Kirkby Malzeard, Ripon*.

Wallflowers.—I have on this, the 1st of January, just gathered quite a handsome nosegay of Wallflowers, and so deliciously perfumed that the odour pervades the house. I might have gathered many such bunches, but doing so sacrifices too much of the woody part of the plants, and therefore flowers are picked out and thrown down that the plants may bloom later and at a more suitable season. A good bunch of the rich crimson kind, lit up with a few heads of bloom of the bright yellow and golden variety, gives a nosegay that in this mid-winter season few would despise and myriads would be delighted to possess. Wallflowers have been furnishing to the market growers abundance of flowers during the recent mild weather, but dull skies and very bright sunshine are both unfavourable to colour, for in neither case is the rich blood-red hue seen that is the prominent feature of the London market strain in the spring. A few plants perhaps are steadfast, but usually the colour now is washy. The yellow kinds, on the other hand, are very constant, and

the purity of the flowers renders them just now specially attractive. Wallflowers will always bloom early if sown early, but still early strains are more productive of precocious flowers than are those in which special selection of early kinds for seeding has not been practised. I have seen in market fields plants from seed sown in February that were dwarf and dense and quite 18 inches through. One such plant would of itself give a good bunch of bloom at the cutting season. By selecting the very earliest flowering plants, if allied to that feature are rich colour and a good habit, a strain in a few years becomes so even that it can always be relied upon to produce flowers of rich hue very early and of the finest quality. Strains of this kind once secured are held with great tenacity by the growers, who pride themselves on the possession of them.—A. D.

PLANTS IN FLOWER.

PINGUICULA CAUDATA.—As an instance of the remarkably protracted flowering season of this charming new Butterwort, we may mention that it is still in bloom in the vestibule adjoining the Orchid house at Kew. Its large carmine-tinted blossoms rival in beauty those of the choicest forms of *Masdevallia Harryana* and *Lindeni*, to which, singularly enough, they bear some resemblance.

CYCLAMEN BRILLIANT is one of the finest forms of the Persian Cyclamen we have seen, the colour being peculiarly brilliant—of a kind of carmine-crimson as near as it can be described. The flowers, moreover, though not monstrously large, are, as the florists term it, of refined form, and it seems to be extremely floriferous. We singled it out from a large group in flower in Mr. B. S. Williams' nursery, Holloway, as being specially worthy of note.

ACACIA DEALBATA.—In a week or so the fine specimen of this tree, about 40 feet high in the temperate house at Kew, will be a magnificent sight. It will then be a mass of primrose-yellow bloom, which, contrasted with the silvery foliage, is lovely. Nowhere else in gardens can such a plant of this *Acacia* be seen, and every successive year it seems to become more beautiful. Small plants of this *Acacia* flower freely, and few more beautiful plants could be recommended for winter decoration.

WINTER-FLOWERING HEATHS.—Among those in flower in the Heath house at Kew, the prettiest are *Erica melanthera*, with myriads of tiny wax-like white flowers with black-tipped stamens in the centre; *E. hyemalis superba*, much superior in colour to the ordinary form; *E. mammosa* and varieties, all very fine; *E. cerinthoides* and its variety *coronata*, two of the most beautiful of all Heaths, both with clusters of large scarlet blossoms; *E. colorans*, *Lambertiana*, *Juliana*, *caffra*, are also desirable and distinct kinds.

RHODODENDRON JASMINIFLORUM, with its clusters of waxy white tubular flowers, is a singularly beautiful winter flowering shrub, as indeed are all *Rhododendrons* of the Javanese type. We notice even small plants in the greenhouse at Kew furnished with a quantity of bloom. It requires to be grown in a higher and moister atmosphere than that of an ordinary greenhouse, which, however, conduces to preserve the flowers longer. Those who desire beautiful winter-flowering plants for cutting or otherwise cannot do better than make a note of this and other Javanese *Rhododendrons*.

NEW MARGUERITE.—From Messrs. Cannell, Swanley Nurseries, we have received quite a novel kind of single Daisy or Marguerite, but it is neither more nor less than the single-flowered or typical *Pomponé Chrysanthemum* which for so many years appears to have been involved in obscurity. The variety is called *New Departure*, as it is so different from any other Marguerite. The flowers are about 1½ inches across, and have two or three rows of narrow snow-white ray florets,

but which do not in any way hide the golden central disc. It is said to be very free flowering and graceful, and the stems are very slender. The plant bids fair to become very popular for cutting from, particularly as it flowers in autumn and winter. Messrs. Cannell possess, we understand, a few other new varieties of this section of *Pompone Chrysanthemum*, varying in the colour of the flowers.

PELARGONIUM CHARLES DARWIN.—This double-flowered zonal *Pelargonium* is with me one of the best for winter flowering. Amongst a large collection kept in an ordinary greenhouse two sorts stand out prominently in this respect; they are Guillon Mangilli (mentioned the other day in *THE GARDEN*) and Charles Darwin. The latter is rather vigorous in habit, and the flowers rich violet-crimson in colour with an undescribable metallic lustre about them like that of the well-known single kind named Dr. John Denny. —H. P.

GARDENIA CITRIODORA.—One does not often meet with this neat little shrub in ordinary gardens, though in a sense it is quite as beautiful as its popular congener, the button-hole double *Gardenia*. The citriodora, as its name implies, has flowers scented like Orange blossoms. They are about the size of a florin, borne in numerous clusters on short twigs, profusely even on small plants. It is neat in growth, and never fails to produce a good crop of bloom in winter. It is now in flower at Kew, and though an old garden plant, is one of those that well merit attention from the general cultivator. It thrives under ordinary stove treatment.

GOLDEN ACONITES.—Just a few spikes of this, the earliest of our hardy bulbs, to show you how pretty they are. I like them so much that I anticipate their out-door season by planting a few roots in pots or boxes and placing them in a cool house. They do not force well in the ordinary acceptance of the term, but come on readily under the stage of a greenhouse until just about to expand, when they are placed in a more prominent position, and very pretty they are, and I may say useful, especially for amateurs, to whom any kind of flower is welcome at this season. I find boxes of common *Stonecrop*, planted in autumn, also make very pretty greenhouse ornaments.—JAMES GROOM, *Seafield, Gosport*.

ROSES ON NEW YEAR'S DAY.—I send you a box of General Jacqueminot Rose blooms gathered in the gardens here to-day (January 1), showing how well this Rose does here. They bloomed profusely all the summer and up to December 11, when we had severe frosts and 20 inches of snow, which remained on the ground until December 17 when the thaw came. Since then we have been having fine, mild, but showery weather and a little frost. They are again blooming, and if the weather continues favourable there is a great quantity of blooms just opening. We are 3000 feet above sea level, but well sheltered from the north winds.—EDWARD TATE, *Balcarres, Colinsburgh, Fife*. [Uncommonly fine blooms, particularly having regard to the untimely season.]

STRELITZIA REGINÆ.—Some time ago I sent you a brief account of this curiously formed and coloured flower. I now send a spike from the same plant, singularly coloured orange and blue, and I may mention that the flowers last a long time in perfection; as soon as one set of orange petals and the blue tongue begin to fade another set is pushed up from the base of the older ones, forming a double flower. It is rarely that one meets with this old inhabitant of our plant houses, *Coleuses* and similar plants that acquire quickly the dimensions of good-sized bushes having taken its place; but it is, nevertheless, a plant possessing more than ordinary interest, and requiring only a medium temperature in which to grow to perfection. It is by no means fastidious as to soil, and it keeps on producing fresh flowers for several weeks in succession. I feel sure, therefore, that it only needs to be made better known to be more extensively grown than it is at present.—JAMES GROOM, *Seafield Nursery, Gosport*. [*Strelitzia*

reginæ and also *S. ovata* are in flower at the present time in the Palm house at Kew.]

LACHENALIA PENDULA AND QUADRICOLOR.—Some remarkably fine spikes of these two plants have been sent to us by Messrs. Smith from their Caledonia Nursery, Guernsey. The first possesses a stout flower-spike nearly a foot high, densely furnished with coral red blossoms about an inch in length. They gracefully droop on all sides of the spike; hence the specific name, *L. quadricolor*, is a more slender-growing species—more in the way of the well-known *L. luteola*. The flowers, from eight to ten on each spike, are about an inch long. The calyx is an orange-yellow, tipped with green, while the petals are a greenish yellow, conspicuously tipped with claret-purple. Both these *Lachenalias* are particularly welcome in mid-winter, and should find favour with all who are fond of showy and, at the same time, flowers possessing a somewhat uncommon aspect.

MASSANGEA (TILLANDSIA) MUSAICA.—During the week we have seen this rare and handsome Bromeliad in flower at Kew, also at Mr. Bull's nursery, Chelsea, where there are numbers of plants of it. It is beautiful in a two-fold way. The foliage, which is long, broad, and of a leathery texture, is gracefully recurved in a vasiform manner, and is curiously marked on its upper surface with hieroglyphic-like tracings of pale green or almost white on a dark green ground. On account of the semblance of these markings to mosaic characters it was named *musaica*. The stout, erect flower-stem arises from the centre of the tuft of foliage for about a foot in height, and is furnished with reddish bracts, and terminated by a dense cluster of erect flowers, which are yellow on the lower part and white above. These three colours, the white, yellow, and red, make a singular combination, which makes the plant conspicuous. It is somewhat remarkable that handsome Bromeliaceous plants such as this should not be more appreciated in this country than they are. On the Continent, and especially in Belgium, Bromeliads are great favourites.

EUCHARIS CANDIDA.—The more we see of this beautiful bulbous plant the more we are convinced of its great value, particularly for affording an abundant and continuous supply of cut flowers during winter. It is not second even in beauty to its popular congener, *E. amazonica*, and, being smaller, it is even more desirable, especially for association with other cut flowers. The blossoms are about a third smaller than those of the *Amazon Lily*, but are of the same waxy texture and snowy whiteness, save the cup, which is tinged with a greenish yellow. It is a vigorous grower, and develops leaves as large or even larger than *E. amazonica*, and continues to produce flower-spikes throughout the winter if grown in a moist, warm stove. It may be successfully grown in a good, turfy loam, enriched by a little well decayed manure. In Messrs. Shuttleworth and Carder's nursery at Clapham, who have imported the plant from South America by the thousand, there is now a beautiful display of bloom; some huge specimens in 14-inch pots bearing a quantity of flower-spikes, as many as ten and a dozen blooms on each, is really a lovely sight at this season.

Re-appearance of certain plants.—I have read Mr. Webster's letter on this subject with great interest. In the cases mentioned the seeds probably laid dormant in the ground till circumstances favoured their germination. The subject affords an ample field for constant and careful observation. In this immediate neighbourhood the Butterfly Orchis and the broad-leaved Helleborine (*Epipactis latifolia*), which last grew abundantly, have been diminishing since the year 1873. I watch most carefully for them each summer. The succession of bad seasons may have something to do with this diminution, especially as the soil on which these two plants grow best is a heavy gault clay. I am sure they are not interfered with by botanists. One would be glad to know that the Durham clergyman had concealed his Lady's Slippers from the collectors,

who, if they once found them out, would not leave one behind.—WILLIAM WICKHAM, *Binsted-Wyck, Alton, Hants*.

FERNS.

ADIANTUMS.

(Continued from Vol. XXII., p. 569.)

A. curvatum.—A very fine species from Brazil, producing from a thick underground rhizome its fronds, which are very distinct from any other *Adiantum*, as the pinnae being much curved backwards give them a very peculiar appearance; they are large, tripinnate, and bright green in colour, and, under good cultivation, attain the height of 2 feet. If this beautiful species is not always seen in such good condition as to show its beauty it is because it requires more shade than any other Maiden-hair with which I am acquainted, a fact which is not generally known. Stove.

A. cyclosorum.—This grand species, from New Guinea, is very effective. Its fronds, which are tripinnate, and reach 2 feet in length, possess a very plumose appearance, as the pinnae and pinnales are set far apart. They are gracefully arched, and of a beautiful bronzy pink when in a young state, whereas when matured their colour is of a very pleasing light green. The pinnales, which are rather large, are semi-circular in shape and prettily serrated. Stove.

A. decorum.—A well-known and extremely handsome species from Peru, somewhat resembling *A. cuneatum*, but of gigantic proportions. The fronds are larger in all their parts than those of the above-named species, and they are produced in great numbers from a tufted crown. It is of a lighter green than most *Adiantums*, and is a very useful plant for decorations, and in that respect second only to *A. cuneatum*, from which it is easily distinguished by its pinnales much more rounded and slightly serrated. Stove.

A. excisum multifidum.—This charming garden variety partakes somewhat of the characters of *A. concinnum* as regards the way in which its fronds are produced, and also their drooping habit, and of *A. cuneatum*, of which it possesses the dark green colour. The fronds are quadripinnate, the pinnae deeply cut, giving it a very graceful appearance; they grow from 15 inches to 18 inches in height; they are frequently divided at their apex into several branches, which very often are again divided, forming a beautiful tassel some 2 inches or 3 inches long. Stove.

A. excisum nanum.—This, also a variety of garden origin, is a plant of small dimensions. Its rigid fronds, which are produced in great abundance from a crown, seldom attain more than 8 inches in height. They are tripinnate, with pinnales wedge-shaped and densely set. It is very useful where dwarf Ferns are required for edging, or where small fronds for mixing with flowers are in demand. Stove.

A. farleyense.—This very elegant *Adiantum*, from Barbadoes, is by far the most interesting of the whole tribe, and might with justice be called the queen of the Maiden-hair Ferns. It is too well known to require a very elaborate description, which, however good and complete, would most likely fail to do it full justice; it has been given at different times as a natural sport or accidental seedling from *A. scutum* (Ghiesbreghtii) or a cristate form of *A. tenerum*. Be what it may, either a species or a variety, this evergreen East Indian plant is unrivalled for exhibition purposes, where it always attracts a great deal of attention, and shows the gardener's skill to great advantage with its immensely broad, quadripinnate, and gracefully-drooping fronds growing from 2½ feet to 3 feet high. When grown near to the glass, and with plenty of light, the pinnales, which are of an enormous size, beautifully cristate, deeply fringed, and with almost crispy lobes, are very prettily edged with a delicate pale crimson tint, turning to

a pleasing rich light green when quite mature. Stove.

A. Feei.—A most distinct species from Mexico, quite different from any other *Adiantum* in cultivation. It is of semi-scandent habit, seemingly a climbing Fern, with fronds extending to 2½ feet in length and tripinnate in shape and dull green in colour, their stalks covered with ferruginous short hairs. It is a capital kind for cutting purposes, as it stands well when cut and put in water, but it lacks the graceful appearance of most of the other *Adiantums*. Greenhouse.

A. formosum.—This fine strong-growing New Zealand species is one of the most ornamental Ferns in cultivation, and is on that account grown in immense quantities. The fronds, which are quadripinnate, light green in colour, and from 2 feet to 3 feet in height, are produced from slender underground creeping rhizomes. They are erect, or nearly so, with pinnules small and hairy rachis, and their stalks, which are proportionally very strong, are of a shining jet black. It is of very easy culture, and succeeds admirably in a greenhouse.

A. fulvum.—A very pretty compact plant, producing from a crown its bipinnate hairy fronds from 8 inches to 12 inches long; they are of a soft greyish green, slightly hairy on both surfaces; the stem is rough and also covered with small hairs. It is an excellent plant for the greenhouse.

A. glaucophyllum.—This is a very beautiful, neat, small growing species from Mexico, rarely exceeding 8 inches in height. The fronds, which are produced from a slender rhizome, are erect, bi or tripinnate, and of a pale green colour; the pinnules are sometimes wedge-shaped, sometimes spatulate; their underside is glaucous. It does well in a greenhouse.

A. Henslovianum (sessilifolium).—A distinct species from Peru, and certainly a good addition to the genus as an ornamental stove Fern. The fronds, produced from a creeping caudex, are tripinnate, arching, of a semi-drooping character; when fully developed they are from 2½ feet to 3 feet in height, proportionately broader with the lower pinnæ slightly branched, very delicate in texture, and light green in colour. It is of quite a different aspect from all other *Adiantums*, as the stalk, instead of being thin, black, and shiny, is thick, fleshy, and slightly hairy. It is of easy culture. Stove.

A. Hendersoni.—This handsome species grows from 18 inches to 24 inches high. The fronds are produced from a decumbent rhizome; when mature they are of a beautiful dark green colour, the young ones being of a very rich bronzy crimson, which tint they retain for a very considerable time. It is of very distinct growth, the fronds being of a semi-drooping character, giving the plant a very graceful appearance. Stove.

A. hispidulum.—A very handsome species, with fronds profusely produced from a crown, and attaining the height of 15 inches to 20 inches. They are pedate or flabellate, dark green in colour; the stalk rough, being covered with short, stiff brown hairs. It is an Australian species of very easy culture, and does well in a greenhouse.

A. intermedium.—This Brazilian species is a very ornamental evergreen stove Fern, with fronds produced from a decumbent rhizome. They grow from 18 inches to 24 inches high, and are bipinnate, dark green in colour, and their stalks, which are rather thick for an *Adiantum*, are covered with short brown hairs. It is very distinct. Stove.

A. Lathomii.—A beautiful garden variety, probably a natural sport from *A. scutum* (Giesbreghtii), from which it differs in having a gracefully drooping instead of a semi-erect habit of growth. The fronds are produced from a tufted crown, and measure from 2½ feet to 3 feet high; they are triangular or rather pentangular in shape from the enlargement of the basal pinnules of the lowest pair of pinnæ; they are quadripinnate and

borne on smooth black stalks; the pinnules, which are very large, are trapeziform. It is one of the most ornamental of the large growing species of Maiden-hair, and as useful in its way as the smaller growing *A. cuneatum*. Stove.

PELLÆA.

GARDEN FLORA.

PLATE CCLXX.

VANDA HOOKERIANA.*

AFTER having been cultivated in European gardens for the past ten or fifteen years at least, this Bornean *Vanda* has at last been induced to flower. I am not quite sure who was the first to discover it, but believe it was either Mr. Low or Mr. Lobb. The wild plant is very common in Borneo, beside rivers as also in brackish swamps near the sea, and so far as my own personal observations go, always growing as an epiphyte on a slender-stemmed *Pandanus*, which is itself a most beautiful plant when laden with its bright red Horse Chestnut-like fruits. The *Vanda* is particularly abundant near Brunei, the great water city and capital of Borneo, a place resembling in many respects the ancient Swiss lake dwellings. Its native name is "Etek amas," or "Gold Duck," and its beauty is celebrated by the natives in songs and legends in common with many other beautiful plants and trees. It grows, fully exposed to the sun, on the slender *Pandan* stems, and flowers at the commencement of the rainy season in great profusion.

One of the first Orchids which attracted my attention in Singaporean gardens was this plant (and its Burmese congener, *V. teres*) which was planted out in front of the bungalows, stout poles or stakes being driven into the ground near the plants, and up these supports the plants clambered, supporting themselves by means of their aerial roots. Well-established masses of *V. Hookeriana* so grown in that tropical paradise, warmed by a vertical sun, and deluged by nightly rains—rains compared to which our heaviest thunderstorms are but mere showers—are very beautiful objects. When so nourished by copious heat and moisture their profusion of flowers reminds one of clumps of Sweet Peas as seen in our gardens here at home. The plate is a faithful representation of the plant which first flowered in this country in the collection of Sir Nathaniel Rothschild, whose gardener, Mr. Hill, deserves great credit for having lifted the veil of curious conjecture from the face of such a dainty Oriental beauty. *V. teres* has the advantage in point of mere size, but in brilliance and delicacy of tinting; and in the exquisite markings of the widely-expanded lip *V. Hookeriana* has no equal in the whole genus of beautiful species to which it belongs. Although the plate shows the blossoms only, the species has far greater potentialities. On referring to a sketch I made in the Botanical Gardens in Singapore in August, 1877, I find the spike which the curator allowed me to cut had only one flower open, and that near the end of the spike, the extreme end of which bore two or three of its singular sharp-angled buds, each bud bearing two curious tail-like points at its apex. But then

this spike had been blooming for some time, having already borne six or seven flowers, as attested by the scars whence the pedicels had parted, the ovaries having fallen away unfertilised. One singular trait of this and many other Orchids, as seen wild or "at home," is the gradual development of their indefinite inflorescence. Under cultivation this is not so evident; the flowers, being protected from rain, wind, and insect agency, endure fresh and fair for a much longer period; hence it is not uncommon to see every flower on the spike of a *Vanda* or of a *Phalænopsis* open at the same time in our Orchid houses.

In Mr. Lowe's Orange groves at Labuan I particularly noted at intervals extending over a year a plant of *Phalænopsis grandiflora*. One spike dangled down 4 feet or 5 feet below the tuft of leaves, and during all that time it bore at least one, and sometimes as many as three fully expanded flowers. All the time the point of the inflorescence grew and put forth fresh buds as flower after flower fell away below, and on the zig-zag spike I counted fifty-four scars from which the flowers had fallen. So much for light, heat, and fresh air, in all of which the majority of epiphytes delight, but which, as above hinted, do not conduce to the endurance of their individual blossoms. I make these notes because erroneous impressions are not unfrequently conveyed when old flower-spikes are exhibited—say, for example, of a *Cattleya* bearing thirteen or fourteen scars on each flower-spike—since it does not follow that likereults are obtainable under our present conditions of culture, and even in a state of nature, it is rare to find all or half that number even fully open at the same moment. All this shows that the plant we now illustrate is likely to become a much more showy garden plant than even Mr. Moon's exquisite plate would lead one to expect.

Now and then its Indian ally, *V. teres* (which some find difficult to bloom because they starve it under the name of "rest"), when strongly grown surprises us by producing many flower-spikes. Perhaps the finest specimen plants, both as to growth and flower, ever seen were those in the Londesborough collection when at their best, and they were, I believe, never dried off. I must ask Mr. Bedford, who was Mr. Denning's foreman at the time, to say if he remembers the number of flowers each bore, and how many blossoms each spike gave, if he will kindly do so at his leisure. I remember they were specially awarded a medal by the Royal Horticultural Society at South Kensington as wonderful examples of good culture at the time I received the impression that they had experienced the very reverse of dry treatment—indeed, was told that they were watered, if not syringed also, every day in the year except when actually in bloom. As I turn up "*Vanda*" in my notes, I find one paragraph from a contemporary which may be quoted as showing the capabilities of *V. teres* when well grown. The writer is Mr. Duncan Munro, Finnart Gardens, Dumbar-tonshire: "We have just now in flower a plant of *Vanda teres*. The plant is about 3 feet high, and has three spikes upon it, and on each spike eleven flowers." Yes; no doubt that *Vanda teres* was "in flower," and I very much question if it is not the greatest number of blooms on a spike yet recorded. The name "*Vanda*" itself points to the epiphytal habits of the plants of the genus, it being the Sanscrit equivalent for *Loranthus*, or *Mistletoe*.

Our plate was prepared from a plant that flowered in Sir Nathan el Rothschild's garden at Tring Park in the first week in September last.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



VANDA HILLEBRANDII

I have purposely avoided saying a word on the culture of *Vanda Hookeriana* in deference to Mr. Hill, who is so fortunate as to have succeeded in flowering a lovely species, in the culture of which myself and others have signally failed. F. W. B.

[Mr. Hill, Sir Nathaniel Rothschild's gardener at Tring Park, the person who first flowered *Vanda Hookeriana* in this country, thus writes respecting its culture: "I will briefly state my experience with regard to two plants of this *Vanda* that came to us from Messrs. Veitch about this time last year, and which for a few weeks were placed in the *Phalænopsis* house pending necessary arrangements for their removal to what we considered a more suitable place for them, viz., a hip-roofed pit with a south aspect. The plants in question were trained close to the glass, and not a particle of shading was given; consequently, during bright sunshine the temperature ranged very high, plenty of air being at all times admitted. The Teak block upon which the stems were fixed was covered with *Sphagnum*, and inserted a few inches in a pot, which was filled with crocks and *Sphagnum*, plenty of moisture being given by a free application of the syringe several times daily. One plant produced a flower-spike in July which attained half an inch in length, but failed to get any further. A few weeks later a spike appeared upon the second plant, which grew away rapidly and developed two flowers, which were accurately described in THE GARDEN (p. 239), and exhibited at the September meeting of the Royal Horticultural Society. After flowering, the plant was allowed to rest for a time, but it has again started into active growth, and is now freely supplied with moisture. I am thoroughly satisfied with the way in which our plants are going on, and hope to flower half-a-dozen next year."]

ORCHIDS.

ORCHIDS AT CLAPHAM.

THE following beautiful winter flowering Orchids are singled out as worthy of notice among those in bloom in Messrs. Shuttleworth and Carder's nursery, Park Road, Clapham:—

Comparettia macroplectron is one of the most beautiful amongst them, and we have never hitherto met with it so finely flowered. One plant here has a spike $1\frac{1}{2}$ feet long, with side branches widely spreading out and carrying about a score of blooms, though the recent fogs have greatly impaired their original beauty. The light, airy habit of growth of this plant and the singular form of the flowers, combined with their delicate colour, render it in every way charming. The flowers have a heart-shaped labellum an inch or so across, of a most delicate shade of rose-pink, copiously spotted and lined with markings of a richer colour. Added to this there is the beautiful colouration of the sepals, which are abundantly freckled with deep rose-pink on a light ground. The long, transparent white spur that projects from behind the flower for fully 2 inches gives a singular aspect to the plant. It is an intermediate house Orchid, easily grown on a suspended block of wood or in a basket. It flowers long and continuously throughout the autumn and winter. A coloured plate of this Orchid will shortly appear in THE GARDEN.

Spiranthes euphlebius is the name of a new terrestrial Orchid, lately introduced by this firm from South America. It may be best described as being similar to *Stenorrhynchus speciosus* or *Neottia picta*, but differs in several points. The broad foliage, produced in a tuft, is of a pale green colour, conspicuously blotched with white. From the tuft the slender stem arises a foot or more in height, terminated by a dense

spike of pink and white flowers, accompanied by membranous bracts of the same shade of pink. The flowers remain several weeks in perfection, and have a distinct and pretty appearance. It will be found to be a particularly useful plant, as it habitually flowers in the depth of winter. It is a thick rooted terrestrial kind, hence requires pot culture, but, as in the case of *Stenorrhynchus speciosus*, that is of the simplest kind, in a warm, moist house.

Masdevallia Shuttleworthi.—Before the recent foggy weather set in there was every promise of there being in this nursery one of the finest displays of bloom of this charming little Orchid that has yet been seen. But the fogs came and almost every bud turned yellow and died off. The buds not so far advanced survived and now are expanded, showing what an exquisite little species it is. The blossoms are triangular, each of the three sepals having attenuated tails. The sepals are hooded, the upper two being beautifully grained with a pinkish purple on a white ground; the lowermost one is a primrose-yellow lined with dark stripes. It is a veritable little gem for growing in suspended pans. It is, however, a pity that its flowers are so susceptible to injury by the London fogs, which prevail about the time that it flowers.

Zygopetalum Mackayi majus superbum is the name applied to a very fine variety of a favourite old Orchid, one, perhaps, that is more generally known than any other. The typical form is a handsome plant, but the flowers of this variety are fully a third or even half as large again, and the colours are brighter and more pronounced. The labellum measures just 2 inches across, and is marked with parallel lines of bright purple on a white ground, while the large sepals are a bright bronzy brown on a greenish ground. The specimen in this collection is carrying a massive spike of about ten flowers, and the strong and delightful violet-like fragrance they emit is widely diffused.

Cypripedium Schlimi.—This pretty little Lady's Slipper has been known for some years in Orchid collections, but it is not much grown even now, presumably on account of its weakly constitution and its susceptibility to insect attacks. We saw, however, the other day in this nursery a form of this species from a different locality from that the original importation came, and which evidently appears to be altogether more vigorous in growth, and, moreover, possesses a larger flower. Compared side by side with the old form, the leaves are twice as long and of a healthier tone of green, and the flowers, too, are fully a third larger, being quite 2 inches in diameter. The colour of the sepals is a bright cheery rose, while that of the globular pouch, about the size of a large marble, is a deeper hue, more intensified about the rim. If this form turns out to be really distinct and more vigorous than the type, it will indeed be welcomed by Orchid lovers, for Schlim's Lady's Slipper has always been thought highly of, and, moreover, it is one of the parents of some of the handsomest of hybrid Cypripeds, notably *Cypripedium Sedeni*, which is without doubt the most popular of all the hybrids.

Odontoglossum crispum Walkeri-anum.—Though the forms of this variable Orchid are now so numerous, there are continually some cropping up from importations which by their distinctness and exceptional merit are well deserving of a distinctive name. Such may be said of the variety under notice, which we saw in this nursery a few days ago. It is indisputably one of the most extraordinary forms of *O. crispum* yet introduced. The flowers measure over 3 inches in diameter, the two lateral sepals being three-quarters of an inch broad, exquisitely crisped at the margin, and snow-white, while the three outer or smaller sepals are white, heavily blotched with a sort of cinnamon-red, which with the spotted lateral sepals make a striking and beautiful contrast. Added to this the labellum is broad and finely crisped at the edge, the upper part is bright yellow, traversed by pencillings of chocolate, while the lower part has two large blotches of

cinnamon-red on a white ground. It is, in short, an uncommonly fine form, and one only among the thousands of plants of *O. crispum* in this nursery, though there is great promise of others of the same imported batch turning out as fine. These fine varieties, which possess such marked distinction, will always be much sought for by Orchid connoisseurs, and will, moreover, command high prices, fetching as many guineas as ordinary forms will shillings. Though we are adverse to the practice of appending varietal names to every form that shows a little variation from the type, we cannot but admit that such forms as these well deserve distinction. W. G.

Odontoglossum roseum.—Though this neat and pretty Orchid cannot compare favourably with *Mesospidium vulcanicum*, to which it bears such a strong resemblance, it is nevertheless a desirable cool house Orchid, as it flowers in mid-winter, and moreover the colour, a deep rose-magenta, is so uncommon, particularly among winter Orchids. It is grown very successfully in Mr. B. S. Williams' nursery in a cool house suspended in a pan near the light. It has been attractively in flower for some time past in this nursery.

Odontoglossum nebulosum candidulum.—The distinctive character of this rare and beautiful variety is the almost entire absence of any marking to mar the chaste beauty of the ivory whiteness of the large attractive blossoms. There is a dash of citron-yellow in the centre, which throws up the white sepals to better advantage. The flowers, as in the type, are 2 inches across, and possess that solidity of texture so much admired in Orchids. We saw this variety lately in bloom in the cool *Odontoglossum* house in Mr. B. S. Williams' nursery, Upper Holloway, where also we noticed the pretty little *O. Ehrenbergi* in bloom, besides crowds of *O. crispum* represented by the finest and richest varieties, one of which had a branching spike carrying fifteen blooms; likewise numerous specimens of *O. gloriosum*, and others of a similar stamp also with widely branching spikes.

Epidendrum pseud-epidendrum.—The flowers of this rare Orchid exhibit a combination of colour probably unequalled by any other Orchid. They are about $1\frac{1}{2}$ inches across; the long narrow sepals and petals are pea-green, while the labellum and column are brilliant vermilion inclining to orange. It is one of the tall, slender-stemmed species, growing some 5 feet or 6 feet high, and furnished with foliage on the upper part of the stem, which is terminated by a large drooping cluster of flowers. It is now in bloom in the Royal Exotic Nursery, Chelsea.

Maxillaria grandiflora.—Those who require a selection of beautiful winter flowering Orchids ought not to omit this one from the list, as it is one of the most beautiful of all. The flowers are large, over 3 inches across; the sepals are of firm texture and of ivory whiteness, while the labellum is marked with yellow, and blotched at the base with two large spots of reddish brown. The long time, often a month or more, the flowers remain in perfection adds considerably to its value combined with the delicious perfume it emits. We have seen it flowering lately in various collections about London, and notably in the Victoria and Paradise Nursery, Upper Holloway.

Oncidium unguiculatum is one of those Orchids only suitable for a large collection, but at the same time it is a desirable one; a very long flower-spike, often more than 6 feet, which is repeatedly branched, is the chief characteristic of this species. The flowers are large, and their most conspicuous part is the labellum, which is large and of a clear yellow, contrasting well with the dark coloured sepals. A fine specimen is now in bloom in Mr. Bull's nursery in the *Odontoglossum* house, where also a somewhat similar species, the old and well-known *O. tigrinum*, makes a showy display, and diffuses its delightful violet-like fragrance throughout the house.

Cœlogyne barbata, as it may now be seen in Mr. Williams' nursery, at Upper Holloway, is really a beautiful Orchid, notwithstanding all that has been said to the contrary. No other Orchid possesses flowers like it, and it is altogether a distinct-looking plant. Unlike other Cœlogyne, it bears its flower-spikes erect. They range from 12 inches to 18 inches high, and bear a good number of large showy blossoms, which are pure white, with the exception of the bearded lip, which is a very deep brown, surfaced, as it were, with a bronzy metallic hue. Being evergreen, its thick leathery foliage intermingles pleasingly with the flowers, and so sets them off to advantage. It is a plant of easy culture in a cool house, and the flowers possess the very desirable quality of being fog-proof; during the long spell of foggy weather experienced in London they have been unaffected, whereas those of *Calanthes*, *Phalænopsids*, and others have been sadly injured.

Cattleya Dodgsoni.—We saw this scarce variety in bloom the other day at Messrs. Veitch's nursery, at Chelsea, and thought it the loveliest late flowering *Cattleya* we had ever seen; indeed, it is hardly surpassable by any other in cultivation. It is of the *Trianae* type. The flowers are as large as those of a good *C. Mendelli*, the sepals and petals broad and of firm texture, and almost white, there being but the faintest suggestion of lilac, which gives them such a soft, pleasing appearance. The chief beauty lies in the labellum, the lobe of which is large, shallow, and exquisitely crisped. Two-thirds of the lip is white, the rest being of the richest carmine-crimson hue possible—a very striking contrast. The plant under notice was carrying nine such flowers from four sheaths, and the specimen was, as may be imagined, a beautiful sight. As this variety habitually flowers during mid-winter or in the early part of the year, its value is considerably increased.

Dendrobium Leechianum is the name of a new seedling Dendrobe which has been raised by Mr. Swan, gardener to Mr. Leech, Oakley, Fallowfield, Manchester, between *D. heterocarpum* and the well-known *D. nobile*. The hybrid is exactly intermediate, and, as may be imagined, is very beautiful, combining the chaste beauty of *D. nobile* with the delightful violet-like fragrance of *D. heterocarpum*. Mr. Swan sends us three superb blooms, the finest we have yet seen of it. They measure over 3 inches across. The sepals and petals are waxy white, delicately suffused at the tips with lilac-purple, while the broad-pointed labellum is of a splendid velvety maroon, broadly edged with primrose and tipped with pale pink. Altogether it is a lovely flower, as beautiful as that of any Dendrobe in cultivation. Those named *D. Ainsworthi* and *D. splendidissimum*, both hybrid varieties, are very similar to it. Judging from what Mr. Swan says, it appears to be very free flowering, for he has on one bulb 9 inches high as many as eighteen flowers.—W. G.

Temperature for Phalænopsids.—In reply to "J. D." (p. 562), I regret to say that some additions to my copy (p. 502) were unfortunately dispatched too late for publication, or the paragraph would have explained itself better. However, no one reading it as it stands could suppose that I would wish them to subject their *Phalænopsids* to a temperature of from 40° to 45°. I have never recommended them to be below 60°, and until a few years ago I thought they would be greatly damaged if placed in a lower temperature; repeated visits, however, during the winter to Mr. F. A. Philbrick's large and vigorous collection of these plants when they were at Avenue Road proved to me that they might be grown to perfection much cooler. Several times I found the thermometer in Mr. Philbrick's *Phalænopsis* house between 50° and 55° toward mid-day, and an unmistakably cold feeling in the house, and yet the plants which so thickly covered the roof would compare with any in the country. The cool temperature in which they were kept served a good end in London, as it kept the blooms back until the fogs were gone. But I could not help thinking that such treat-

ment would not answer in every Orchid house, and that the dry, sweet, equable temperature in Mr. Philbrick's house made it an exceptional case; it was therefore for that reason that I said they might be grown in a temperature of 50° at night, and 60° to 65° under certain circumstances. I always avoid recommending extremely low temperatures, knowing that the effects of a very low or a very high temperature vary so much in different houses, that the temperature which would keep a plant in perfect health in one house would be injurious to it in another, and that often without any cause being visible. It is for that reason that a grower always takes such pains to know his houses and their peculiarities.—JAMES O'BRIEN.

SEASONABLE WORK.

FLORAL DECORATIONS.

WHERE early Dutch bulbs are cultivated in quantity for decorative purposes other than for the conservatory or standing in small vases in the house, it is an excellent plan to follow to some extent the system pursued by those who grow for the trade. Of course appearances have to be studied more in a private establishment than in market producing places; and therefore in lieu of rough and ready boxes in which to bring forward the bulbs to a flowering stage, seed pans of goodly size (square ones will occupy least room) should be chosen. In these the bulbs can be grown more closely than in pots, and when required for decorations, can be taken, bulb and all for any uses other than vases where the bulb and rootlets would be unsightly. This system will be found to be preferable to any other for the making up of what might be termed rustic arrangements, and will afford a pleasing change where much decorative work has to be carried on. Too much sameness renders decorations of any kind monotonous and uninteresting, and therefore should be avoided. In table decorations especially it is well to add a fresh feature occasionally. This can be done with ease; when all the costly epergues and vases have been exhausted to give variety, a very pretty effect can be produced by choosing a medium sized dish or a large dinner plate on which to arrange our chosen material. For a large table select an oblong dish, such as would be wanted for a fair sized joint. A slender-growing Palm, such as *Cocos Weddelliana*, *Euterpe edulis*, or *Chamedorea glaucifolia*, having a good healthy head of foliage in a 3-inch or 5-inch pot, might be set in the centre, after which some sand and fresh green moss or *Selaginella* should be at hand. Sand should be placed around the central plant at once. Then choose, say, of the early Dutch bulbs some scarlet and white varieties of the *Duc van Thol* Tulips, a few bulbs of each; two or three of the white Roman Hyacinth, bulbs, foliage, and spikes included (if the latter are not too much drawn up), and three or four small Chinese *Primulas* flowering in 3-inch pots, from which they should be removed. Fill up between these with the moss, so as to cover the sand, and dot in a seedling Fern or two where opportunity offers, but avoid crowding. Around the base use a few growths of small-leaved Ivy or other convenient material, to rest on the table cloth. Again, with the same Palm, as a change select some tiny plants of *Pandanus Veitchi* and *graminifolius*, or growths of either will do instead of plants, likewise a few tufts of the *Cyperus alternifolius*. Having arranged these, let us procure a few spikes of *Eucharis amazonica* that have say one perfect flower and another partially open; about three of such will be sufficient with a few small leaves. To these add a few spikes of *Lily of the Valley*, *Paper-white Narcissus*, or *Spirea japonica*, using for colour either the yellow or scarlet *Duc van Thol* Tulip but sparingly. As a finish a few Fern fronds around the margin would add to the effect, and a few slender trailing growths of *Ficus repens* reaching beyond these would be a welcome addition. A slight bedewing with a syringe to either of these arrangements would tend to keep the flowers and foliage all the fresher. Other forms

of arrangement could be followed out, modified, of course, according to the supply and other circumstances.

FLOWER GARDEN.

Herbaceous and other plants of that class show off best in wide shrubby borders with low evergreens to back them up, but these latter ought not to be of a kind that root far about, or they rob the former, and so spoil their growth. *Rhododendrons*, *Berberis Darwini*, *B. stenophylla*, and such like do not do this, and therefore should be largely made use of, as they are not only valuable on this account, but they are more desirable than most others on account of their moderate habit and the great beauty of their flowers, which they bear so profusely in spring. For variety of foliage, *Aucubas*, *Euonymus*, and *Hollies* are the most suitable, and to these may be added the variegated *Dogwood* and *Acer fraxinifolium*, and by way of contrast to these one or two of the dark-coloured Nut, which, with its rich coppery leaves, shows up well. To make sure of old borders being perfectly free of roots from trees and shrubs near it is a good plan at this season to trench up the same, and when doing so to work well up around, cutting and removing all in the way. As most herbaceous plants are fond of rich soil, the opportunity afforded when trenching of giving a good dressing of manure should not be lost. The kind of manure most suitable for the purpose is that of a mild nature and which has been lying by for some time to get well decomposed. Such as this is agreeable to most plants, and may be used freely without fear of injuring the roots, but it is always best to keep it low down.

INDOOR PLANTS.

General winter treatment of stove plants.—There is nothing in the whole range of cultivated plants able individually to give such a lengthened succession of flowers as a few of the best stove species, such as *Ixoras*, *Allamandas*, and *Dipladenias*. If so managed as to enable them to continue in bloom for the greatest length of time throughout the year of which they are capable, it might almost be said that they are continuous flowerers, for it has been found that when all the conditions of cultivation are suited to their wants, that they, along with a good many other occupants of the stove, require only a short rest—very much less than they are often subjected to—but the length of time out of the twelve months that admits of their being submitted to enough heat to keep up this lengthened active growth depends upon two things, the houses in which they are cultivated being such as to admit a full amount of light, and, what is of equal consequence, their being kept close to the roof. This latter is a matter of importance not nearly so generally accepted as it should be. We train Vines, Cucumbers, Melons, and other fruit-bearing plants as close to the roof as we can get them without absolute contact with the glass, with the admitted result of increasing their fertility; it is just as necessary to keep plants that are intended to produce all the flowers we can get from them in a similar position so far as proximity to the roof of the house goes. The least experienced grower of plants under glass cannot fail to have noticed the strong, healthy leaves and short-jointed wood that are formed with plants of all sorts kept with their heads close to the glass, as compared with that which results from others, identical in every way, but stood further from the roof in the same house. Such subjects as I have named and many others can only be had in flower for the full length of time by submitting them to a corresponding amount of heat, and where the houses are comparatively dark through their construction, or the position they stand in, or where lofty, without the means of getting the plants well up to the roof, it will not do to use as much heat as will start them into active growth until the days are longer. Our own practice with houses as light as they could be made and adapted in their construction to have the plants occupying them continu-

ally within a very short distance of the roof, was to give all the rest that the majority of them received through the months of November, December, and the first week or two in the new year, during which time there is usually much less sun than after the turn of the days, and as soon as fairly into January the temperature used to be raised in the night to from 65° to 70°; by this means we had no difficulty in having the same plants of *Dipladenia*, *Allamanda*, and *Ixora* in flower from the middle of April until the beginning of October, or longer if the heat requisite was given them; under the same conditions, *Clerodendron Balfourii* and *Thomsoni*, *Bougainvillea glabra*, *Gardenias*, *Tabernaemontana*, *Scutellaria Mocciniana*, and others of like character gave several crops of bloom alternating with growth; consequently where the stock is in strong robust health, and has been subjected to a rest of a couple of months, preparations should be made for starting them into growth. Any examples of such things as require cutting in should be so treated at once previous to giving them more heat.

Stephanotis.—Where the flowers of this general favourite are wanted over as long a period as possible, several plants should be grown. There is the advantage of obtaining larger specimens when planted out, but this is over-balanced by the inability to retard or push them on at will in the way that can be done when they are moveable and grown in pots; moreover, the plant only requires a limited root space, and very large examples can be grown in good sized pots. It never succeeds so well as when trained close to the glass under the roof; we prefer thin string for thus supporting it rather than wire, as when it is necessary to remove the plant to a lower temperature to give a rest, the string can easily be taken down and the shoots wound round the trellis or a few temporary sticks. Plants that have been so rested may at once be put into active heat, distributing the shoots under the roof tolerably close. With this plant whatever cutting back is required should take place after the blooming is over.

Amaryllises.—Some bulbs of these may now be started, moistening the soil sufficiently to induce a healthy movement of the roots. With the deciduous kinds wherein the ball has been allowed to get dry, it is not a bad plan to soak them in tepid water for an hour or two, as with the ordinary application of water it often happens that the top of the ball looks moist when it is dust-dry below.

Gloxinias.—There are few flowers so useful as these, for with judicious management in arranging for successions they can be had nearly all the year round; but to have them in a condition to be really serviceable for cut purposes, they must not be too much hurried, and whilst growth is going on they cannot be too near the glass. It is much better to start the corms at different times; if a few are at once potted and placed at the coolest end of the stove they will come in early; do not use the soil too moist, and let them be put in heat immediately they are potted. We have seen the corms destroyed through two or three days' inattention by leaving them in a potting shed after they have been placed in contact with the new moist soil. It is scarcely worth while now going in for named varieties of *Gloxinia*, as really splendid flowers both in form and colour can be had from seed. If a little is sown at this time, the plants will bloom nicely through the later months of the year after the older examples have become exhausted; the seed should be sown thinly in a wide pan drained and filled with finely sifted soil, to which has been added a good deal of sand; make the surface smooth and firm, so that the seeds may not get down too deep, covering them very slightly with a little fine soil, pressing gently down and putting a sheet of glass over the pan, by which means the material will retain moisture so as to minimise the amount of water necessary to be applied, a matter that it is always needful to be careful about with small seeds that require heat to enable them to vegetate.

Eucharis.—Where *E. amazonica* and *E. candida* are treated under the system of alternate growth and rest, a few of the strongest plants that have had a dormant period may be put into a brisk heat; they will stand as much as most things.

Tuberous-rooted Gesneras.—These are a beautiful class of plants somewhat neglected. The old bright scarlet *G. Cooperi* may be taken as an example, and is still a very fine kind; there are numbers of hybrids equally deserving of places. There is an advantage in starting them early, as by so doing they may be induced to flower twice before autumn. All they require is such treatment as is needed by *Gloxinias*; they will thrive in either loam or peat. The time of flowering of the winter blooming *Gesneras*, such as *G. exoniensis* and *G. zebrina*, will depend upon the amount of heat they have been subjected to; where well managed they will now be very useful, their long spikes of bright flowers standing out conspicuously in the stove. They like a fair amount of heat up to the blooming period, but when in flower they will stand an intermediate temperature, not giving them too much water. When the flowers fade the plants must still be kept warm, applying less water until the well-matured foliage dies down slowly.

Lachenalias.—Where a sufficient stock of these are grown they are very useful, for, if after flowering, the bulbs are well attended to until their growth is matured, they go on increasing in size and numbers yearly. They will now be in a growing state without any artificial heat, and if put into warmth will come on apace. They are excellent subjects for hanging baskets, in which they are very effective.

ORCHIDS.

East India house.—The weather at present is all that can be desired for starting to surface-dress or re-pot any plants that may require it. Moderately dull mild weather is the best to do such work in, as under these circumstances the plants do not feel any root disturbance so much as if the weather was very cold and much artificial heat was required to bring the temperature up to the necessary heat. Care ought to be taken with the plants while they are being repotted that they do not suffer any unnecessary check. In places where the houses have been erected specially for Orchids, the potting shed would be somewhere in proximity to the plants, and so as they would not be required to be taken into the open air. In many places there is no such convenient arrangement, and all plants have to be taken into the open air to be conveyed to the potting shed; rather than do this we would erect a temporary potting shed in the house, and do all to the plants that they required without subjecting them to a change of temperature. It may have been stated before, but it cannot be repeated too often, that it is in what may be termed the minor details that success is to be achieved or failures made. For instance, many persons either do not know how to place the drainage in a pot, or they think it does not matter how it is done, and they are careless about it. The drainage and pots should be clean, the potsberds to be put in carefully in a way that the water may run off freely. The Sphagnum should be carefully picked over to remove all dirt and weeds; finally wash and lay it out to dry. Orchids resent any injury to their roots, and as a rule all the best of them are clinging firmly to the sides of the pots. It is better, therefore, to carefully break the pot with a hammer rather than to turn the plant out in the usual way to the serious injury of its roots. Many of the broken bits of potsberd to which the roots are clinging may be allowed to remain and be potted along with the usual compost. Owing to the mild weather it has not been difficult to keep up the required temperature of 65°.

Cattleya house.—The remarks just made referring to repotting apply equally well to this department and the cool house section.

Nearly all the strong-growing *Cattleyas* succeed best grown in pots, with good fibrous peat and Sphagnum in equal proportions, some broken potsberds and charcoal being added to keep the compost open and for the roots to lay hold of. The nature of nearly all Orchids is to lay hold with their roots to every firm substance with which they come in contact, and with a grasp so firm, that the roots cannot be removed from the substance to which they adhere without breaking or lacerating them seriously. *Cattleya* roots will either be amongst the drainage or else clinging firmly to the sides of the pots; few indeed of them will be amongst the compost, and yet give them nothing but drainage and the sides of the pots to grow in they would require more attention as regards watering, and they would not succeed so well. We are always very careful when repotting them to save all the roots; and any young roots that are being produced from the base of the last formed pseudo-bulbs are not buried in the compost. We have seen peat and Sphagnum piled round these to their hurt. If they are let alone they will lay hold of the material they like best; some will run along the surface and others will push into the potting material; and when the circumstances are favourable the roots will also push over the sides of the pots. *Cattleyas* like to be near the glass; many of the shy flowering species will not flower if placed on the stage, but if the pots containing the plants are placed in baskets and these are suspended near the roof glass, where the air can freely circulate under, over, and around them, they will flower freely. The smaller growing species may be placed in teak baskets or potted into small shallow pans to be suspended from the roof. Some of them will succeed well on blocks for a time, but after two or three seasons' growth, the plants that have nothing but the bare blocks to support them soon show signs of exhaustion. When these signs are evident, place the block in a pot with the base of the pseudo-bulbs well raised above the rims, and then place round them the usual potting material recommended for *Cattleyas*.

Cool house.—A look through some of the cool Orchid houses in the neighbourhood of London at this season of the year shows very conclusively what a very valuable adjunct to a garden the cool Orchid house is, and how easily the plants are to cultivate successfully. It will be a surprise to many, as it is to us, to read of the fastidiousness of cool Orchids as they are grown on the Continent (see page 585). We are sure with the instructions given from week to week in THE GARDEN anyone with an ordinary knowledge of plants may grow cool Orchids well. The principal thing to do is to build a house for them in a cool place. If the whole truth was known it would be found that in most cases where cool Orchids did not succeed well the result would be due to too much heat in summer. It is difficult, when the houses are exposed to the full blaze of the sun, to keep down the temperature sufficiently during hot weather, unless the shading is too thick, and in that case the plants are debilitated as much as they would be by too much heat. As far as we know the wants of Orchids, we believe they like as much light as can be afforded them; and if the shading is left on to do more than protect from the direct rays of the sun they are injured. It was stated last week that the attention required by the occupants of this house was of a very simple kind at present, but what attention they do require ought not to be omitted. A look through the house the first thing in the morning to ascertain the lowest night temperature is necessary; during the present mild weather if it does not fall below 50° it will be all the better for the plants; a very low temperature causes many of the delicate blooms to become damp spotted.

It is easy to see whether much or little moisture will be required by evaporation, and the person in charge ought to act accordingly. Too many, it is feared, throw water about every day, summer and winter, with no thought to the necessities of the case. Air ought to be on all night, and it may not be necessary to admit any more during

the day. It is also necessary to look through the houses between 8 p.m. and 10 p.m. to regulate the heating apparatus and see that no garden pests are enjoying themselves at the expense of the plants.

FRUIT.

Early houses.—If the Vines have been bent down to a horizontal position, to insure an even break, get them tied up to the wires as soon as the most backward buds are on the move. Syringe with warm water when the temperature begins to rise. Give air at 68°, close early, and syringe again if the afternoon is fine. If inside borders are well drained, a second supply of water at a temperature of 80° will help the young growths rapidly forward, and old Vines will benefit by the addition of a little clear liquid from the tank, or a dash of guano in the water, while vigorous young canes will produce more compact "shows," and set their fruit better if stimulants are withheld. Pay timely attention to disbudding, or rather the removal of weak breaks, from which bunches of Grapes cannot be expected, and when the best shows become prominent raise the night temperature to 58° or 60° on mild nights. If forcing has been commenced with fermenting material on the borders, make frequent additions, turn the whole mass, mixing the old with the new, and aim at a temperature of 70° to 75° on the surface of the soil. Where external borders have been well covered with a good body of dry warm Oak leaves, and protected from wet, they will retain their warmth much longer than when fermenting manure, which is objectionable, is used.

Hardy fruit.—The mild damp weather which has been so favourable for pruning and nailing will have held out inducements to many to postpone such work as top-dressing and mulching until walks and borders are in a better state for wheeling manure and compost. But so important an operation must not be longer neglected, as the timely application of a good covering to newly planted or root-pruned trees cannot be overrated. Where Pears are grown on the Quince stock and the roots have not been disturbed, the annual top-dressing of good rich manure may be wheeled out on frosty mornings as soon as the nailing is finished. It is well known that the successful culture of Pears on the Quince stock greatly depends upon rich top-dressings; and as the borders in course of time become too high, old top-dressing and exhausted soil may be forked off and placed on the vegetable quarters to make room for the new. After a few years heavy cropping puts an end to extension; blossom buds only are formed, and as many people are quite incompetent to thin their own fruit, the annual removal of old spurs at pruning time should not be neglected. If on wet, adhesive soils the planting of trees has not been completed, it will be better to allow them to remain "laid in" on a dry border and well protected with litter than to attempt to plant while the ground is saturated with cold water. Push on the pruning and cleaning of all kinds of fruit trees, as the time may be at hand when it will be cruel to force men to stand for hours at a stretch against cold brick walls. Unfortunately, the winter dressing of hardy trees is much neglected; many troublesome insects are allowed to rest in the bark and walls from which they almost precede the unfolding of the earliest buds in spring.

KITCHEN GARDEN.

If directions in former calendars have been attended to, the first sowing of Peas will be above ground. Cover them all over with coal-ash to ward off slugs, and by putting three strings of worsted 6 inches above the Peas, their tops when they peep above the ashes will be saved from the depredations of birds. Get in the second lot at once, sowing such as are hard and round—wrinkled Peas, as a rule, are the best flavoured, but not the safest to plant at present. Laxton's Earliest of All is both hard and round; therefore try it. Ringleader and William I. are also both good standard varieties. Successional sowings of

Broad Beans should be made. We have no great fancy for Leviathan, but prefer early Mazagan and good, old green Windsor to any yet offered. Now is a capital time to make plantations of Horse Radish; we merely sink the tops with an inch or two of the roots attached to them a foot deep in good land. Get ground for Onions dug up roughly and deeply—our site for them is the Celery quarter. Where these useful esculents go off from mildew or other causes, give the land a good dressing of soot and lime, allowing it to remain on the surface until the seed is to be sown. About the second week in March will be quite soon enough to get the seed in. Sowing early in February is a mistake; the young seedlings come up, and the March winds turn them yellow and cripple them so much that good bulbs cannot be expected. Land for Carrots should also be dug and treated in a similar manner to that for Onions. Early Vallery is an excellent variety, still a few Early Horns may be sown to draw early. The state of our Broccoli crop is most cheering, fine stout stems close to the ground, the result of sowing late and planting out directly the plants are large enough to handle. Never allow any kind of plants to become drawn or leggy before planting them out. We are cutting Snow's Broccoli in fine condition; those allowed to stand are far superior to those laid in. Working or turning over leaves and long manure, filling the pits for spring vegetables and salads will now be the order of the day. Keep up good supplies of Seakale, Rhubarb, Mushrooms, and French Beans, not forgetting small things, such as green Mint, Tarragon, and Mustard and Cress.

TREES AND SHRUBS.

MANAGEMENT OF HARD-WOOD PLANTATIONS.

In the rearing and management of plantations, the great aim is to produce the greatest quantity of timber of the best quality on a given space or area of ground in the shortest period of time; and to assure this result it is necessary that the best system of management be pursued. To rear hard-wood plantations so as to arrive at a profitable or satisfactory issue, it is necessary, first, that the plants should be healthy. Care should also be taken that the trees are planted in soils and situations specially suited to their growth; for, however suitable the soil and situation may be for the growing of certain kinds, trees of a different sort might not thrive in the same place. Further, it is generally advisable to have the ground prepared and improved by thorough draining and loosening of the soil. Another important matter is the laying out of the plantation, in deciding upon which, the natural rise or fall of the ground as well as the exposure of the situation, should be taken into consideration, and whether the plantation is intended for profit or ornament. Long, straight lines should, as far as possible, be avoided; and the shelter of the surrounding ground, as well as of the plantation, be kept in view. The outline should be formed so that the wind or storm will not strike against too much of the plantation at once, but rather be thrown off than received in full force on a long, flat line of fence. Again, the greater the mass of trees in one enclosure the better will be the result in every way; the plants will have more shelter and thrive better than in small enclosures, where storms blow right through the planting. The expense of managing large plantations is considerably less, and a much smaller length of fencing is required than if the same extent of ground were covered by several small enclosures. After the young trees are planted, it is necessary to see that they are not blown about by the wind and shaken at the roots. When planted in exposed situations, they are apt to be blown to one side, while the shaking two and fro by the wind in many cases works a hole in the ground round the collar of the plant down to the roots. When this happens, the plants should be raised erect, a little soil added and pressed down with

the foot. If these details are not attended to in proper time, the air gets down to the roots, or they are saturated with water, which may be frozen, causing the death of many plants, retarding the growth of the remainder, and making them one-sided. If attention is paid to keep the plants upright during the first year, great loss will be avoided, and there will be little after-trouble from this cause.

Clearing herbage.—The next operation is the keeping of the young plants from being smothered or choked with long Grass, Ferns, Whins, or growing herbage. Even, although not overtopping the young trees, this undergrowth, if allowed to remain, will destroy the lower branches of the plants, and deprive them of both sunshine and showers. On the other hand, in exposed situations, it is preferable merely to clear a space round the plants, or to clear early in the season, so that a certain amount of growth may rise before winter, and afford slight protection to the young trees. In no case should the branches of the plants be roughly treated where profitable timber is the object in view. The smothering of plants by rank herbage is as detrimental to their health as the want of thinning after they have grown into one another. It is equally important to keep them free and open when planted out, as in the nursery lines. When the plants are kept as above indicated, they require little attention or expense, except slight pruning, until their side branches have begun to encroach upon one another, when thinning operations will have to be considered.

Thinning.—The style and extent of thinning hard-wood plantations greatly depend upon the kind of trees constituting them. Some trees require more room to mature than others, while some ought to be kept close together, to check their straggling habit and ramifying side branches. The Oak, for instance, requires ample space to develop itself, and as considerable revenue is derived from the bark, and in some places from the branches, as cord-wood, it should at all times have plenty of room. The Wych Elm and the Beech, on the other hand, although growing to large dimensions, and of a wide-spreading habit, should not be allowed more room than is necessary for their healthy growth, as neither the bark nor the branches are of much value. They also exhibit a tendency to grow much to rough branches and short stems, and the timber, if not of good quality, is unsaleable. The Ash, English Elm, Sycamore, and Birch require plenty of room, and are not so straggling in plantations, especially in their young state. The great point to be kept in view in thinning hard-wood plantations is to commence in good time, and not to wait until the trees become drawn up and weakly. It is not uncommon to see plantations left without thinning until the sapplings have arrived at a marketable size. This is false economy, for it is better for the main crop to thin in time, even if the first thinnings are of no value. The loss on the thinnings will be made up in the health and extra growth of the trees left. It is equally objectionable to continue thinning longer than necessary, with the view of deriving immediate revenue. In both cases the value of the main crop, which ought to be the principal object, is lost sight of, and the certain result is material loss in the end. It is by some recommended in thinning with a view to profit, that operations should commence as soon as the branches touch one another. A little careful pruning may sometimes defer it for a year. The thinning of hard-wood plantations should, of course, commence before any injury is sustained; but not in ordinary circumstances, in the writer's opinion, before the second or third year after the side branches have met, and in no case should the operation be deferred until the side branches show signs of decay, or till they have closed into one another well up the stem towards the leaders, as in such a case the trees will be deprived of the amount of such light and air necessary for their healthy growth. Hard-wood trees require more room for the spread of their branches and healthy growth than conifers; but the plantations are generally filled in

with Larch, Spruce, or Scotch Fir, as nurses for the intended crop. Under such circumstances the first thinning will generally remove such conifers as are encroaching upon the hard-woods. Although Firs are the best nurses for hard-wood plantations when young, and also more valuable when of small size, great care must be taken not to let them crowd or overshadow the hard-woods. While their shelter is better than that of hard-woods, they are more ready to overgrow and destroy them. In the case of any hard-wood tree dying out or getting damaged beyond a chance of becoming a good timber tree, it is advisable to leave one of the nurses to take its place for the time being. Any such tree left during early thinnings can be removed as opportunity occurs. The great aim should be to preserve the hard-wood sorts, however irregular the appearance may be at early thinnings. Presuming that the nurses have all been removed, it is desirable to preserve the best and most healthy trees, irrespective of sorts, and never to cut a healthy, vigorous, growing tree to make room for a small unhealthy neighbour for the sake of regularity. Such thinning must in the end turn out a great loss and disappointment to the owner. A little opening or larger gap is preferable to a sickly or ill grown tree, and such openings can be rectified at the next thinning. No definite age can be given for commencing to thin for the first time, as all depends upon the soil and situation in which the trees are growing. Thinning may be performed too early as well as too late, and it may be overdone as well as underdone. Great care should be taken not to err in either direction. When hard-wood trees are mixed with Firs as nurses, they generally have to be thinned sooner than if the plantation consisted of all hard-wood trees, because the Firs, as already noted, generally outgrow and overshadow the hard-woods, thereby drawing the hard-woods up into a weak state.

Over-thinning.—When hard-wood trees are over-thinned, they seldom rise to valuable length, and the timber is of a rough and branchy nature, never so valuable as clean, well-grown timber of moderate length. On the other hand, trees drawn up for want of thinning are equally unprofitable, as they never arrive at proper size, neither is the timber so well grown and durable as when judicious thinning has been carried out. In many instances, where plantations have been overdrawn from want of timely thinning, the trees are bark-bound and stunted, and never reach the dimensions and value they would have done had they been treated so as to induce the growth of a proper amount of branches and foliage. When such neglected plantations are afterwards thinned, it is advisable to do it sparingly at first, and to continue every second or third year until they are in a satisfactory state. Roots and foliage are the main organs of nutrition in trees, and to ensure their healthy growth it is necessary that there be a proper complement of lateral branches as well as sufficient room for the ramification of their roots. In plantations, these cannot be provided without resort to thinning operations. The importance of this branch of management cannot well be overrated, and attention to it is necessary to ensure success; and if thinning is neglected altogether, or done injudiciously, there is but little chance of a profitable crop of timber. If the work is done in due time, and with good judgment, many other oversights in management will be thereby removed or greatly mitigated. When trees are grown entirely for shelter or ornament, thinning should be performed more freely than when grown for profitable timber, the object being to encourage branch growth; and to keep it within proper limits, pruning should be resorted to, but very little stem pruning will be necessary after the nurses have been thinned out, as it is desirable to have as much branch growth as possible towards the ground. Free thinning also shows more fully the natural habit and character of the different trees intended for ornamental purposes. They should therefore be thinned as soon as they begin to encroach on one another, and the operation should be repeated at intervals as may be necessary.

Bark stripping.—Hard-wood plantations should be thinned in winter, and where the thinnings are of considerable value, as much as possible should be done before the end of the year, with the exception of Oak, which should be felled in summer and stripped of its bark. As a rule, bark stripping may be commenced in the end of April or beginning of May; this depends on the earliness of the season. Small trees may be felled with the axe, but large trees should be rounded or "laid in" with the axe, and cut with the cross-cut saw, to avoid waste of timber. When Oak trees are to be felled and stripped of the bark, they should first be "hosed," or have their bark removed from about 2 feet of the base of the stem down to the ground. All loss of bark is thus avoided. If this is not done, the axemen, in rounding the tree, cut away much of the best of the bark, which is lost. After the trees are felled, the bark should be removed as much as possible without lopping the branches. If the branches are left, the trees are more easily peeled than when detached. The smaller branches only should be removed before peeling, and where it is necessary to cut off any large branch, the bark should be stripped before doing so. Mallets should only be used in removing the bark from the smallest branches, and never, except where unavoidable, should they be used in removing the larger bark, as it is thereby discoloured, and it is advisable to strip it with the peeling irons alone. Each day's work should be collected and put on ranges as the work proceeds. The ranges should be erected on the margins of the plantations, or in the most open and airy parts of the plantation, to ensure as much sunshine and wind as possible, in order to accelerate the drying and harvesting before putting it in stacks. Ranges should be made from 2 feet to 3 feet high, with a slope from back to front of at least 6 inches, to prevent the water from lodging. The ranges are generally formed of forked sticks driven into the ground, with spars laid thereon to hold the bark. All of these can be obtained from the peeled wood. The bark should never be laid thickly on the ranges, or it takes long to dry, and if laid to a great depth, it requires to be turned before it is ready for the stack, which should, if possible, be avoided. All the small bark should be laid on the ranges first, and the larger bark on the top, as the latter takes longer to dry, and it also acts as a cover to the whole. Placing the bark thin on the ranges, and well raised from the ground, allows the wind to blow through under it, and with plenty of air the whole gets ready at once. As soon as a sufficient quantity is dry, it should be put into a shed or stack, where it can be chopped or delivered in the rough, as the case may be.

Pruning.—As hard-wood trees require large space to develop properly, it is necessary that their ramifying side branches should be kept in due bounds by pruning. It is not contended that pruning adds to the quantity of timber grown in one tree, but it certainly improves the quality of the timber. Pruning, skilfully and regularly conducted, will also assist timber trees to produce more timber of greater value than if they were left unpruned, or allowed to shed their branches naturally, which is the result of trees growing too close for want of thinning. Although, therefore, the effect of pruning is highly beneficial, when conducted with care on sound principles, pruning done in a haphazard way, or by an inexperienced hand, without supervision, is often most injurious. Pruning operations should be begun when the trees are young. If they have been looked over before being planted, it will probably not be necessary till about the third year, and afterwards, perhaps, every second or third year, but a good deal will depend on the special features of each case. By regular and proper attention, each subsequent pruning will be reduced, and the great evil of having to amputate large side branches (which is damaging to the timber, and checks the growth of the trees) will be avoided. As already stated, the great object in pruning forest trees is to prevent the overgrowth of large side branches, and to increase the quantity

of sound timber in the stem of the tree; and not only is this result attained by skilful pruning, but the trees are rendered less liable to damage from storms; a free circulation amongst the leaves and branches is also promoted, and the trees are not so likely to be infested with Lichens, &c. There is probably no branch of wood management about which there is more diversity of opinion at present than the necessity, expediency, and effect of the different systems of pruning. Many uphold that no pruning whatever is necessary; but the writer humbly submits that where sound timber is the object, judicious thinning must be had recourse to, and, for the same reason, pruning also cannot be dispensed with. Pruning, to be performed with the best results, should reduce as little as possible the foliage of the trees while shortening all straggling side or lateral branches. The majority of the lower side branches should be shortened at an offshoot, to check their growth, a couple of years before being removed from the main stem. By this reduction of the side branches, they do not increase in proportion to the main stem or trunk of the tree, and their removal makes a small wound, which soon heals without damaging the timber. It is sometimes necessary to thin the side branches of the tree, to allow the sun to penetrate and the air to pass round the whole plant, thus encouraging healthy foliage and bark. When there are contending leaders, one should be removed, leaving the one which rises most natural from the tree (irrespective of size), and promises to make the best leader.

When to prune.—Pruning may be performed at almost any season, provided the weather is open—mild and free from frost. The writer prefers midsummer or early autumn, and considers September a very good time for pruning hard-woods. If trees are pruned in spring, when the sap begins to rise, they generally throw out if quantity of spray round the wound; whereas if done about the period indicated, the wounds soon heal, with little loss of sap, while the risk of the trees being damaged by hard weather is materially lessened. If drives or rides have not been made in the formation of plantations, it will be advantageous to have them formed at the early thinning. Drives are necessary for the removal of timber and other purposes, and should be at least 15 feet wide. In large plantations they likewise promote the health of the trees, as they make room for and induce a current of air throughout them. Accordingly when drives are laid out, they should intersect the plantations at the places, and in the way which may be found most suitable for securing these objects, and they should be 100 yards to 200 yards apart. It is only in exceptional cases that

Underwood is to be recommended in plantations grown for profitable timber. In some districts a considerable revenue may be derived from underwood, but when thoroughly looked into, it may be found that the gain is merely apparent, being to a great extent obtained at the expense of the timber crop. On the other hand, there are many neighbourhoods where there is comparatively no demand for underwood of any description; and where such is the case, the growing of underwood adds to the expense of management, and is detrimental to the standing trees. It is certain that ground cannot carry two crops at the same time without one of them suffering. Where there is a heavy crop of underwood, it must absorb much nourishment from the soil, and deprive the timber trees of a great portion of the food necessary for their healthy development. Further, the roots of underwood form a network in the soil, which should be left entirely for the spread of the roots of the trees. The same reason may be adduced in favour of nursing hard-wood trees with Firs instead of hard-woods, as the latter not only throw out growing shoots from the stools, but their roots continue to spread, and thus deprive the trees of the full benefit of the ground in which they are planted. Another objection to the growing of underwood amongst hard-wood trees is the amount of shade caused thereby, shutting out in a great measure sunlight and air,

and thus defeating the objects of thinning plantations. In these observations I do not condemn the growing of underwood under all circumstances, but merely in conjunction with a crop of hard-wood trees. It must be admitted that there are exceptional cases where it is advantageous to grow underwood in hard-wood plantations, as in very exposed districts; but then only round the margins, and in well-selected masses throughout the plantation. Underwood may be grown for cover in game preserves, or in clumps for ornamental purposes, and along the sides of drives or rides, but for the reasons above set forth in most other cases it is open to serious objection. It has been said that the ground should be thoroughly drained before planting, especially where there is any tendency to wetness. In most cases open ditches are preferable in hard-wood plantations. They should not be less than 2 feet deep, nor more than 30 feet apart. Open drains should also be run along the sides of all plantation roads and drives. All open drains require to be inspected periodically, as they are soon filled up by the falling in of the sides, growth, and decay of herbage, &c., and it is especially necessary to overhaul them after every thinning, as many will be choked by the branches of the fallen trees. The distances at which hard-wood trees should be planted depend upon the soil and situation of the proposed plantation. In all cases it is necessary to calculate the size they are likely to attain in such soils and situations. Trees, if planted at too great distances apart in exposed situations, are liable to severe checks from cold winds, &c., and do not attain the height they would do if planted more closely, and sheltering one another. Thick planting is the safest method to adopt, provided thinning is attended to in proper time, before the trees injure one another.

Felling.—As to the time for cutting down a crop of hard-wood timber, much depends upon the soil and the position in which it is growing. When trees are planted in inaccessible places, it is sometimes almost impossible, or may cost more than the value of heavy timber, to have it removed. In such situations, therefore, trees should be felled before they reach full size, to render their removal possible without cutting them into unsuitable lengths.

Ash is most valuable when grown to a good length, and with a clean stem, and ought to be planted in a rich loam with a dry subsoil. In favourable soils, and in moderately sheltered situations, it may be planted from 12 feet to 15 feet apart, the spaces being filled in with Fir nurses, from 4 feet to 5 feet apart. From seventy to eighty years' growth will be found a profitable age to fell Ash grown for profit.

Alder, as a rule, is never allowed to attain a very large size before being cut down for profit, and may therefore be planted moderately close. It thrives best in a moist soil fairly sheltered, and may be planted 9 feet to 12 feet apart, filled in with Spruce nurses from 3 feet to 4 feet apart. When the ground cannot be thoroughly drained, it may be planted 5 feet to 6 feet apart, to avoid planting Firs as nurses. As the Alder is saleable of moderate size, before it becomes coarse, it may be felled to advantage at forty or fifty years.

Beech may be planted in light soils thoroughly dry and moderately sheltered, at from 4 yards to 5 yards apart, the spaces being filled in with Scotch and Larch Firs from 3 feet to 4 feet apart. Beech will generally be found to reach its most saleable size and quality at from eighty to a hundred years.

Birch may be planted from 9 feet to 12 feet apart, with Scotch Fir nurses from 3 feet to 4 feet. The Birch thrives in very poor soils, and in exposed situations, at high elevations. About fifty years' growth will generally be found a profitable age to cut down the Birch.

Chestnut (Horse) should be planted in a good rich soil, and in a sheltered situation, at moderate elevation, at 15 feet to 18 feet apart, and filled in

with nurses at from 4 feet to 5 feet apart. If the Horse Chestnut is planted in exposed situations, its foliage is sure to be damaged, and the branches, which are somewhat brittle, broken by the wind.

Elm (Scotch) is difficult to grow to any length of stem, from its spreading habit, and should therefore not be planted at too wide distances. In moderate soils of a dry nature, and a medium exposure, 12 feet to 16 feet, and filled in with nurses from 3 feet to 4 feet, will be suitable. Elm (English) grows more upright than the foregoing variety. Its branches are of less spread, and when planted in a good soil and sheltered situation it grows to very large dimensions. From its fast growth it should not be planted too close; in favourable situations, 18 feet to 20 feet, and filled in with nurses from 4 feet to 5 feet asunder. As a rule, both Scotch and English Elm may be cut down with advantage at from eighty to a hundred years.

Lime requires a good soil and sheltered situation to be either a profitable or ornamental tree. Sixteen feet to 18 feet apart is a good distance to plant the Lime tree, with nurses about 4 feet apart. In favourable situations it may be cut down from eighty to a hundred years.

Oak, when well grown, is the most valuable of all our hard-wood trees. Although it may be grown profitably as coppice wood on inferior soils, it should never be planted with the view of growing good heavy timber, except in good rich soils and at low elevations. In such situations the Oak may be planted at 15 feet to 20 feet apart with nurses 4 feet to 5 feet apart. The Oak is longer in arriving at maturity than most timber trees, and when of large size is most valuable, and should therefore never be cut down before its wood is well matured and hearted, which will be from a hundred to a hundred and twenty years in good soil.

Chestnut (Sweet).—The remarks above made regarding the Oak apply also in a great measure to this tree.

Poplars, of which there are many varieties grown for profitable timber, are all fast growing, and may be planted with or without nurses; in the former case, 9 feet to 12 feet apart; and the latter, 5 feet to 6 feet. Most of the varieties require good rich loam and sheltered positions, when they soon arrive at large size. If well grown, about sixty years' growth will be found advantageous for cutting down a crop of Poplar.

Willows may be planted about 6 feet apart, and cut down at fifty to sixty years old. They thrive best when planted in a rich, rather moist soil, and sheltered situation.

Sycamore is one of our hardiest trees, growing well in exposed situations, and even within the influence of the sea. This tree suits a variety of soils, and when of moderate quality, 12 feet to 16 feet apart will be suitable to plant, with intervening nurses 3 feet to 4 feet apart. As a rule, the Sycamore may be cut down profitably at about a hundred years old, when the timber will be of large size and high value.—*Arboricultural Society's Transactions*.

Gorse.—Though one of the commonest this is also one of the most ornamental of evergreen flowering shrubs. The tufted picturesque shape, deep green leaves and shoots, and brilliant yellow flowers render this plant a favourite with most people, and we can well excuse Dillenius for being in a perfect ecstasy of delight when he first saw our commons covered with its golden flowers. Linnaeus lamented that he could hardly preserve it alive in a greenhouse; and Gerard relates that in Poland there was not a branch of it growing, except some few plants he sent, which were most curiously kept in the fairest gardens. It is usually found growing on dry, rocky, or stoney places, and though of a hardy constitution is frequently killed in severe winters. The double flowered variety is one of the most gorgeous plants during summer, being literally one mass of bloom, which, in bright sunny weather, is very conspicuous and beautiful beyond description. The

Irish Furze is a very luxuriant upright variety with soft spines. It flowers in October, and is useful as a hedge plant.—ANGUS WEBSTER.

KITCHEN GARDEN.

FORCING FRENCH BEANS.

THROUGHOUT November and December French Beans have a greater disinclination to grow than during any other months in the year, but with the change of the day, and the gradual increase of light and heat which we will soon experience, there will be less difficulty to get them to succeed. The present is an excellent time to sow extensively for fruiting in March and onwards. Of all French Beans for growing under glass there is none to equal Osborn's Forcing. It is the earliest of the early and the latest of the late, and, further, it is dwarf and compact in habit, and most prolific—all points of the utmost importance in an under-glass Bean. There are various ways of sowing the seed and bringing the young plants forward, but modes of doing this which might be the best in April or May would not answer very well during the shortest days. For instance, when the spring is well advanced, the seed may be sown in boxes, or in 8-inch or 10-inch pots, in which the plants will bear pods; but if this was done now, many of the seeds would be liable to decay before they germinated, and the plants would not grow so strongly or rapidly as they will if the seed is sown in small pots, from which the plants will be transferred into larger ones as soon as large enough to handle. Our plan at this season is to fill a number of 3-inch pots half full of a light rough mixture of loam and horse droppings, and to put 6 or 8 seeds into each. The soil is pressed down as firmly as possible, and some of it is placed on the top of the seeds to the depth of half an inch or so. They are then placed in a house or pit in which the temperature ranges about 60°, and here they get little or no water until the first leaves are formed and a few roots have been made. This treatment prevents all damping or decaying, which must be guarded against at this season. When sufficiently advanced in growth to bear and require water they have a plentiful supply, and then they grow freely. It is a great advantage to have them near the light and in rather a dry atmosphere.

As soon as the plants are 5 inches or 6 inches high, and have made half-a-dozen leaves each, it will be found that the small pots are well crammed with roots, and they should then be shifted into larger pots. The 8-inch ones are our favourites. They should be well drained, and the potting mixture should consist of rough loam and horse droppings. Fine soil is to be avoided. After potting they may be returned to their old quarters, but water should be given sparingly until the roots have taken possession of the new soil, when more must be given. Those who wish to keep up a constant supply of Beans should sow a quantity every fortnight. We have kept up a fair supply by sowing five dozen potfuls at a time, but this, of course, must be done according to the demand. At times we have placed only one of the small potfuls of young plants in the 8-inch one, but where space was limited we have put three small potfuls into this size. When this can be conveniently done it is a profitable way of growing them, as a great many more Beans are secured from the pots with the most plants than the others, and the space required for both is just about the same.

We have generally to grow our spring Beans on back shelves in lean-to houses, but we would prefer to have them where air and light are admitted on both sides, as in such a position the crop would be even. When in bloom the flowers should be kept as dry as possible, as the fruit forms with more certainty than when the blooms are damp. We never allow any of the growths to fall over the sides of the pots, as this checks them; but when any of them are so tall or weak as not to be able to stand without support, pieces of birch from old brooms are put in to hold them up. Osborn's Bean does not, however, require so much

attention in this way as such kinds as Canadian Wonder, which cannot be grown without support. As soon as any of the pods become large enough to gather they should be removed from the plants at once, as there is nothing so much against the production of a long succession of fruit from the same plants as allowing some of the first formed pods to become old. Liberal quantities of liquid manure assist old plants to keep on fruiting, but we do not approve of paying too much attention to this matter, as plants are so very easily raised, and young vigorous ones are always the most fruitful. J. MUIR.

Margam.

FORCING ASPARAGUS.

I LIKE young plants best for forcing; they seem more vigorous, and require less heat to start them than older ones. Where much Asparagus has to be forced it is best to make the raising of the plants for forcing a separate affair, distinct from the beds or trenches kept to supply the table in spring. The ground for sowing the seed should be prepared now by manuring and deep digging or trenching. If the soil is of a clayey character, it must be opened, either by adding something to it, or by burning a part of it. The latter plan is not adopted so often as it might be, though there is no better—or, may I add, cheaper—way of warming and opening up heavy, cold clays. Six inches of the ashes from burnt clay spread over the surface will have a lasting effect, rendering land difficult to cultivate, and upon which some things only lingered, fertile and capable of carrying every crop usually cultivated in a garden. The roots of Asparagus plants have not the power of making their way in heavy, unworked soil; they are gouty-looking, and lack the penetrating power of the roots of most plants. Hence the importance of thoroughly breaking up the soil and making it light by mixing with it plenty of burnt or charred earth. The seeds should be sown thinly in March when the land is in a well pulverised condition. Sow in drills 1 inch deep, and, instead of dropping in the seeds all along the drill, place them in little patches 1 foot apart, 3 seeds in a patch. The drills should be 3 feet apart. When the young plants are up, and it can be seen which are taking the lead, take away all the plants but one, leaving, of course, the strongest. There is an advantage in having a power of selection, as some seeds, and the plants springing from them, possess more power from the first than others. A little artificial manure is a help if we are contending against time; either guano or superphosphate may be employed, scattering it along the drills when the seeds are sown. The first year nothing but cleanly culture will be necessary. A row of Lettuces or Spinach may be grown between the rows in summer, and in winter they should receive a mulching of good manure, and the spaces between the rows should be forked up roughly, though not, of course, to injure or expose the roots. Under very liberal culture, three-year-old roots from the seeds may be forced; and plants that have not been transplanted usually have the strongest crowns, as they have grown on unchecked. There are several ways of forcing, but scarcely anybody who has secured good strong Asparagus can fail to make it grow. A steady temperature at the roots of about 75°, with some 10° less in the atmosphere (which should be of a genial character) will grow Asparagus of the best quality. Where there is plenty of strong roots, the best plan is to make up gentle hotbeds of leaves and manure in succession. Place the roots as thickly as they will stand on the top, and cover with 2 inches or 3 inches of light, rich soil. Place in the centre of the bed a stick, to tell the temperature, and mat up the frame till the heads of the Asparagus are pushing through. The frame must then be uncovered daily, and air must be given on mild days. Asparagus may be forced in pans, pots, or boxes, and these may, until growth has commenced, be placed in the Mushroom house, as light is quite unnecessary till growth appears above ground. Weak, tepid manure waters should

be given when necessary; and at least a soaking should be given when the roots are placed in the frame, in order to settle the soil around them. The first batch that is forced in the autumn should have the tops cut off early, in order to send the plants to rest. E. H.

COLEWORTS.

THESE are most useful vegetables and always to the fore even when other varieties are killed or damaged by frost. Useful, however, as they are, they are, as a rule, but seldom grown either by amateurs or cottagers, while with market gardeners they form one of their principal winter crops. The Rosette is the best kind for early crops, as it forms compact heads early in the autumn and keeps in good condition for sometime afterwards. The hardy green Colewort seldom hearts like the Rosette, the leaves being loose and more spreading, and it is somewhat less tender when cooked. It is, however, very hardy, and will be found to be a desirable sort to grow for winter and spring use, and it seldom runs to seed.

Cultivation.—Ground that has been cropped with Peas comes in well for this crop, and sometimes an old Strawberry bed which has been destroyed after the fruit has been picked, deeply trenched and well manured, will be found to produce good crops of Coleworts; the ground, being well rested, will be sure to produce plants free from club. The ground for this crop should be deeply trenched if not done for the previous crop. Let the soil be moved from 2 feet to 2½ feet in depth, working into it plenty of rotten stable manure as the trenching proceeds. If not trenched it must be deeply dug, so that the manure may be buried well down, which encourages the roots to run deep in search of food and moisture, an important consideration especially in hot dry weather. Thus treated, they will require to be but seldom watered, while crops growing upon ground slightly dug will be suffering from want of moisture. Ground for the seed beds will often be found to be dry and hard; when dug, should such be the case, give it a good watering through a coarse-rosed watering-pot the day previous to sowing the seeds, otherwise they seldom germinate until rain comes. This course of treatment will be found better than frequent waterings after the seed is sown, as waterings form a hard crust difficult for the seedlings to get through. Two sowings should be made, the produce from which will carry one through the winter, furnishing a good supply from the time late Cabbages are finished till the early crop is fit for use. After thoroughly preparing the ground, the first sowing should be made in the second week in May, using the Rosette, which will come in early in the autumn. The second or main crop should be sown in the second or third week in June to come in in good time for winter use. Sow some soot and lime upon the beds as soon as the seedlings appear above ground, which will prevent the roots from clubbing. When large enough prepare a piece of ground and prick them into it 4 inches apart, when they will grow short and stocky before being planted in their permanent quarters. Dust occasionally with soot, which will help to destroy insects, which often injure the young plants, eating their hearts out, when they will be found to be of but little use. When large enough to plant out and the ground is ready for them, plant in rows 12 inches apart and 9 inches plant from plant. Hoe frequently between the rows to keep down weeds, and if thought desirable hoe into the ground deeply some artificial manure which will be found to be beneficial to the growth of the plants; or liquid manure may be applied with success, using it once a week when the plants are in full growth. Earth up slightly to keep them firm at the roots, when little more will be required until the crop is fit to cut.

Varieties.—Use, as I have said, the Rosette, an early hearting variety, which produces finely flavoured heads when cooked, and also the Hardy Green Colewort, a hardy variety, which produces

medium sized heads, which are very useful as winter greens. WM. CHRISTISON

NOTES OF THE WEEK.

IRISH HORTICULTURAL SOCIETY'S FIXTURES FOR 1883.—As set forth in the schedule of prizes for the coming year, just issued, the dates of the Royal Horticultural Society of Ireland's exhibitions for 1883 are as follows: Spring exhibition, Thursday, April 19; May exhibition, Thursday, May 17; summer exhibition, Thursday, July 5; autumn exhibition, Thursday, September 6; winter exhibition, Thursday, November 22.

RUSSIAN ENDOWMENT OF SCIENTIFIC RESEARCH.—The Emperor of Russia, says the "Zoologist," has ordered £2200 to be allotted from the Imperial Treasury to the Russian traveller in New Guinea and the Malay Archipelago, M. Miklucho Maklay, in order to enable him to work up the results of his explorations. His Majesty has also ordered M. Maklay to be informed that the cost of the publication of his book of travels will be defrayed by the privy purse.

PROFIT FROM TREE PLANTING IN IRELAND.—Mr. G. Dodds states in the *Irish Farmers' Gazette* that a few years ago, upon an estate in the county Kildare, there was drawn for thinning from a wood consisting of 112 Irish acres, about forty-five years planted, something near to £3000. Timber, principally Scotch Fir, Larch, some small Ash, and Oak. Part of this wood grows upon the Bog of Allen, consequently the land is of little or no value for agricultural purposes. Previous thinning, he feels sure, had paid both principal and interest for money expended.

BEAUTIFUL NEW HARDY FERN.—Messrs. Backhouse send us from their nurseries at York some fronds of the most elegant variety of Polypodium vulgare that we have ever seen. It is named trichomanoides, and very appropriately too, as it is more like the Killarney Fern (*T. radicans*) than any other with which we can compare it. The fronds are cut into very fine segments, which give them quite a feathery look, and they are, moreover, exquisitely crisped, which adds greatly to their charming appearance. For such a hardy Fern we predict a brilliant future.

THE ORIGIN OF THE POTATO.—At the last meeting of the California Academy of Sciences Mr. John O. Lemmon reported the results of a summer's tour of botanical exploration among the mountain ranges along the Mexican frontier of Arizona. Among his discoveries were two or three varieties of indigenous Potatoes, found growing abundantly in high mountain meadows surrounded by peaks attaining a height of 10,000 feet above the sea level. The tubers were about the size of Walnuts. Mr. Lemmon brought home a supply, which will be carefully cultivated. The *Scientific American* remarks that this interesting discovery goes far to settle the long-vexed question of the origin of the Potato.

FILMY FERNS AND FROST.—It is no small recommendation, says the *Irish Farmer's Gazette*, to the more extended culture of this charming section of the Fern tribe that the majority of those in cultivation ignore coddling and fire heat altogether, and will not wince even with the mercury inclined to touch zero. Looking in last week at that very interesting compartment—the Filmy Fern house at Glasnevin, nothing could look more happy than the Todeas, Hymenophyllums, and others in their garniture of richest green, profusely beaded with diamond dew-drops, notwithstanding that in their cool and humid quarters there must have been in the previous week some fifteen or more degrees of frost.

THE COAL TRADE IN 1882.—The demand for coke has increased, that for gas and manufacturing coal has risen, and locally and generally the household requirements have been enlarged, so that, with shipments on a larger scale than in 1881, there has been a very great increase in the way of consumption and stocks have fallen. This

having been the case, there will be an upward movement in prices, especially in the case of some kinds of coal. Northumberland has not felt that demand so fully as Durham, because a large part of the output of the former is sent out of the country by sea in the summer and autumn, while the latter finds the fullest demand for its gas coals very naturally in the winter; but in both counties manufacturing coal is dearer, and there is a tolerable certainty that the wages of the miners will be higher in 1883 than in 1882. Newcastle is still the chief of the coal-shipping ports, sending out now slightly over 7,230,000 tons of coal and coke; Sunderland, with 3,230,000 tons yearly, follows; while West Hartlepool, with 1,090,000, is the only other one of the north-eastern ports that ships over a million tons yearly.

LUCULIA GRATISSIMA.—The large bush of this grand flowering and most deliciously fragrant greenhouse shrub growing in the central portion of the cool conservatory range at Glasnevin has been unusually floriferous, and the Hydrangea-like flower-heads, particularly large and fine this winter, from 150 to 200 being open at a time, and still plenty to succeed them. It is certainly a charming shrub, which no conservatory should be without. Now that it has been demonstrated that nice dwarf plants with fine heads of flower can be produced grown in 6-inch pots, its popularity will be largely increased, and the appearance of such plants as familiar at Christmastide as those of the gorgeously coloured, but scentless Poinsettia. —*Irish Farmer's Gazette.*

A TEMPERANCE NUT.—The virtues of the Kola nut, as a rival to the celebrated Coca of South America, in the possession of the property of enabling persons partaking of it to endure prolonged fast and fatigue, are pretty well known, but this peculiarity does not by any means exhaust the list of the wonderful properties possessed by this West African product. Mr. Christy, Fenchurch Street, has had specimens of this nut submitted to analysis, and reports that it has been found to contain the same active principle as coffee, viz., caffeine, only in greater proportion than the best coffee, while it also contains the same active principle as cocoa, but less fatty matter. He therefore thinks that with proper treatment it might be able to compete successfully with those beverages, for the nuts are used to form a refreshing and invigorating drink throughout a large portion of Tropical Africa.

THE OLIVE IN CALIFORNIA.—It appears that Mr. Cooper, of San Barbara, San Diego, and other places, has demonstrated by his cultivation of the Olive that the tree thrives well and bears well in California, and also that it is profitable to cultivate it. The trees begin to pay at three years, and when five years old will pay all expenses of tillage and harvesting with a surplus, while the sixth year the crop will pay for the land, the trees, and the tillage for the five years previous, and, with good care, the increase is larger from year to year for a century longer. Indeed, there are now alive in Asia Minor trees known to be upwards of 1200 years old, and they are still in full bearing. In a pamphlet published by Mr. Ellwood Cooper, the statement is made that some of his best trees, eight years old, produced 2000 gallons of berries to the acre, and the European standard is eight gallons of berries for one gallon of oil, so that this gives a product of 250 gallons of oil per acre. The oil finds a ready market at £1 a gallon, which gives an income of £250 an acre for the best eight-year-old trees in an exceptionally good year.

Soil for Eucharis amazonica.—Would any reader of THE GARDEN kindly tell me what is the best soil for this plant and the best time for repotting it? I have got two large pots full of good-sized bulbs, one of which has at the present time got a flower-spike, but there is no sign of more flowers, and this is the first that has appeared during the last twelve months. At present they are supplied with a fair amount of bottom-heat. —J. W.

FRUIT GARDEN.

SUCCESS WITH FRUIT.

A YOUNG cultivator asks us to name or describe the essential points of success in planting a collection of fruit trees for the supply of a family. He also wishes to know if he can connect with such a plantation an orchard for market. In answer, we may state that all localities will admit the growing of fruit for home use, by a proper selection; but for profitable marketing such localities are to be chosen as have proved themselves peculiarly adapted to certain fruits or certain varieties, in order that after deducting all the necessary expenses of shipping and sale, a fair profit may remain. But in planting for home use these expenses are not incurred, the owner finding the market on his own table.

To the novice who is about setting out a collection of fruit for family use, we would recommend in the first place an examination, so far as may be practicable, of the orchards and fruit gardens in the same or similar regions of country, to see what fruits grow and succeed well under fair culture, and then choose these for similar ones. This will save much labour and expense in planting and then losing such kinds as are unadapted to that locality. Next, select a good piece of ground, and if not naturally well drained, provide good artificial drainage. Thirdly, prepare it well by deep cultivation, and if practicable by subsoiling, applying and working in manure as the soil may seem to need it, although the manuring given to previous crops will generally be best. This work having been done in autumn, the ground will be all ready for planting in spring. Or if there is time, a part of the planting of the hardiest kinds, such as Apples, may be done in autumn, lessening the labour of spring.

Fourthly, a very important part of the work is selecting and procuring the trees. In making the selection, depend on three or four sources for information, as for example, the experience of good fruit-growers in that part of the country, the catalogues of reliable nurserymen, your own personal observation, &c. Get old proved sorts, and avoid costly new varieties which may prove valuable or not, unless you have money to spare for experiments. If you purchase of nursery agents, deal with those only of known probity, or who can show late and ample credentials from nurserymen whose character you know to be well established. If you buy trees in autumn to set out in spring, heel them in well by filling with fine earth all possible interstices among the roots, and raise a bed of smooth earth around the whole to exclude mice.

Fifthly, in setting out, little instruction is needed by those who know that the roots should be evenly spread on all sides, and the earth packed closely among them. Young, or one or two-year trees, if 4 feet or 5 feet high, are better than old, stiff, heavy-topped ones. The small ones have better roots in proportion to their size, grow freely the first season without check, and if well cultivated will overtake the old-set ones by the end of the second or third year. It is well to shorten back all the one-year shoots when setting out the trees—Peach trees most freely, Cherries and Apples more sparingly.

Sixthly, and lastly, comes the most important work of all, namely, taking good care of the young orchard after it is set out. Keep the whole ground clean and mellow, and allow no weeds and Grass to grow. You may plant a hoed crop, such as Potatoes, Cabbages, &c., if you keep that crop clean by cultivation. The difference in the growth between cultivated trees and those which are neglected, is not unfrequently ten to one. But you must exercise your observation and judgment. If the growth is rank, cultivate less; if feeble, top-dress with manure in autumn besides cultivating. It is well to cease cultivating all half-tender trees before the end of summer, that the wood may ripen and prevent winter-killing. As a general rule, young trees should grow 2 feet or more yearly, and if they much exceed this, check

their growth early; and if they do not reach it, employ both cultivation and manure. If you attend to all these requisites, namely, well prepared ground, well selected varieties, careful transplanting, and good cultivation, you can hardly fail in having an ample family supply of fine fruit before many years have passed away; and if by that time you choose to plant more largely for market, you can judge by your own experience, and by the success of the most promising sorts, which to select for this purpose.—*Country Gentleman.*

PRUNING ORCHARD HOUSE TREES.

THOSE about to commence the culture of orchard house trees would do well to purchase fruiting trees in pots to begin with; but I have found that in the course of a few years some of the trees get scraggy and unsightly, and in replacing these it is best to purchase trees one year from the bud. I get mine in November, and as soon as they come to hand they are potted. We plunge them in Cocoa-nut fibre, where they remain until January, which is a good time to prune them. The question is, whether the form of tree is to be bush or pyramid. I prefer a few of each. In some positions the bush form works in best and in others the pyramid, and to fill up spaces in the centre border of large span-roofed houses standards come in well. A tree that has made one year's growth from the bud has a straight centre stem and usually a number of lateral branches. In order to form a pyramid about a third must be cut off the main stem and the side growths should be cut back, those near the top close to the stem, gradually leaving the lower ones longer until the lowest side growth is reached, which should be the longest, so that the tree will be of a pyramidal form to start with.

A bush tree is formed by cutting the main stem down to within a foot of the bud, and cutting back any side growths to 4 inches or 6 inches from the stem. It is easy enough to form standards by cutting the side or lateral growths off close to the stem, leaving the latter the entire length. The trees ought not to be placed in a forcing temperature, but be allowed to grow on slowly with plenty of air; under those circumstances they will break freely, but they grow most freely from the highest part of the trees; and to prevent these growths from taking more than their due share of nutriment their points should be pinched off at the fifth or sixth leaf; this allows the lower growths to run out more strongly, but they also ought to be stopped in the same way. The second growths will not be so strong as the first, but they will be strong enough to produce fruitful wood—the object in view. The strongest growths will require to be pinched a second time, and the weaker ones must not be pinched at all. Anyone acquainted with Peach and Nectarine trees in pots (and it is these only with which I am now treating) will know that weak growths are furnished their entire length with blossom buds, the terminal bud only being a leaf-bud, and if that terminal bud is removed there will be no young growth beyond the fruit. The strong shoots are furnished with triple buds as well as leaf-buds, and usually the centre one will be a leaf bud, and the two side ones blossom-buds. If the strong shoots have to be shortened, it is always best to cut to a leaf-bud. Pear, Plum, and Cherry trees may be pinched, pruned, and trained in the same way, and they may be pruned at any time and cut to any bud. J. DOUGLAS.

Pruning Vines.—The note (p. 547) as to pruning Duke of Buccleuch and Golden Champion varieties of Vines is in exact accord with my own experience. Spur pruning, as that term is generally understood—that is, the cutting back of the side shoots to within one or two eyes of the previous year's pruning—does not ensure either as many "shows" or as fine, as does pruning on the long-rod system; and I am told that Mr. Thomson himself finds it necessary to have a goodly length of new wood every year, to which fact no doubt must be attributed at least some portion of the credit of these varieties doing so well at

Clovenfords. This peculiarity is not, however, confined to the varieties named, as Gros Guillaume (Barbarossa) can only be kept in good fruitful condition for a number of years by constant renewal of the rods. Mrs Pince, Chasselas Musqué, and the white Frontignan also in a lesser degree possess the same peculiarity, but with enthusiastic Grape growers this will not be accepted as a valid reason for neglect of culture of these varieties, the exceptional treatment needed to obtain the best results being an incentive to their extended culture rather than otherwise.—H. W.

PEAR GROWING FOR PROFIT.

ALLOW me to assure Mr. Bridgeman (p. 575) that I do not claim to have a monopoly of knowledge on this subject. On the question of cordon Pear growing I simply recorded the results of my own practice, and as "S. S." particularly asked for the names of the best late varieties, those only were named that have never failed with us. Our soil is very much the same as that with which Mr. Bridgeman has to deal, and yet the "pretty toys" of which he speaks cover the wall, and have been loaded with fruit for twelve years consecutively; moreover, at present they manifest no disposition to give up the ghost; therefore the question of light soil not suiting the Quince stock falls to the ground. I have indeed proved that the Quince is a suitable stock for Pear growing on any description of soil, provided the cultural treatment is adapted to the requirements of the particular kind of soil to be dealt with; for instance, on our light sandy soil we find it necessary to give heavy manurial mulchings every autumn; this remains throughout the year, and sometimes, in dry, hot weather, a supplementary mulching of long stable litter is given, and artificial watering when time can be afforded for applying it. Added to this, we every alternate year remove the whole of the mulching, prick up the surface soil, and add about 4 inches in thickness of new soil, again mulching with rotten manure. Of course in heavier soils there would be less of such work, and the trees would probably be longer lived, the only advantages. The success of "R. A." (p. 545, Vol. XXII.), who for twenty years has had good crops of fruit on his cordon trees, ought to be sufficient evidence of the merits of the system and suitability of the Quince stock were it not that we gardeners are such notorious copyists, that we take for granted—without proving for ourselves—the saying of some would-be-great authority that the Quince stock is only suited to heavy soils. W. W. H.

LATE GRAPES IN COOL HOUSES.

A GENERAL opinion prevails that really late Grapes, to keep in prime condition, fit for dessert after Christmas, require a great amount of fire-heat to bring them to perfection, and thus many owners of gardens are deterred from planting not only the most valuable of market Grapes, but, what is of more importance to many, the only varieties that can be kept for mid-winter desserts, the very time when home-grown Grapes are most appreciated. There is no lack of Vines or vineries, but in nine cases out of ten Black Hamburgs, or other equally thin-skinned Grapes, are planted; and in October and November, during the damp, muggy weather that usually accompanies the fall of the leaf, these kinds turn mouldy and drop off, no matter what precautions are taken to preserve them, for although a dry, buoyant atmosphere will do much to lengthen the season of even these popular summer Grapes, it will not make the supply of good sound Grapes a certainty after the beginning of December, when home-grown Grapes are practically over, even in many fair-sized gardens. Now, this is intolerable after the number of years during which really good late keeping sorts have been before the public, and, where judiciously managed, have done away with the necessity for very early forcing. After trying and testing most of the late sorts in cultivation, I find Lady Downes to be the best late black Grape in cultivation, and the true Mus-

cat of Alexandria the best white companion for it. As a proof that these can be kept in good condition until the new year, I send a small bunch of each from a vine that is in the usual meaning of the term unheated; it has only a flow and return 3-inch pipe in it, and these are a long way from the boiler, a saddle one of by no means recent date, and which, having to heat a quantity of piping besides, those in the vine are never anything more than warm; therefore the maintenance of anything like the temperature supposed to be necessary for the varieties of Grapes mentioned is out of the question. Yet as regards any loss from decay I can safely say that there has not been a dozen berries cut out of the entire house, though it contains a heavy crop of moderate sized bunches. I would by no means recommend the use of 3-inch pipes in vineries or in any other houses, larger ones being better. The examples of fruit sent are merely to show the possibility of having home-grown Grapes fit for dessert early in the new year with simply ordinary appliances such as are available in most gardens. But I may add that really late Grapes should have compartments to themselves. There should be no pot plants in such houses, and if this were done there would be no difficulty in keeping the fruit sound, for that in question had no fire heat at all until many consider it time for late crops to be ripe, and then, as has just been explained, heat was applied, but in a very mild form.

Seafeld, Gosport.

JAMES GROOM.

[Better Grapes than those sent to us by Mr. Groom could not be desired. They were as plump and fresh looking as Grapes just ripe, and their flavour excellent.]

Strawberry Pelissier.—In the *Revue Horticole* for 1880 (p. 298) there is a note about this Strawberry by M. E. A. Carrière, who says that the variety was obtained by a gardener at Lectoure of the name of Pelissier. It is said to be a large-fruited and long-bearing Strawberry. Dr. A. Miran, of Lectoure, states that it was obtained about 1873 or 1874. It likes a half-shaded situation, in which it yields larger and more fruit than in the full sun. It bears from April 15 till August, and again in October. It came first into the trade in the autumn of 1880. We have it, but have not yet been able to judge of its merits.—J. H. KRELAGE, *Haarlem*.

Mealy bug.—"Cobham" should give his Vines a thorough cleaning when at rest; paint them with Fir tree oil at the strength of half a pint of the oil to a gallon of warm water. When they have started into growth give them another dressing of the same, but be careful not to allow it to get on the young growths; when the berries are set, tie a small piece of cotton wool round the stem of each bunch which will prevent any bug from getting amongst the fruit. If time can be spared, it is well to hand-pick the Vines once a week. This done year after year will thin their numbers considerably; but in the case of old Vines it is impossible to clean them. Lime is a useless remedy; it does the Vines no harm, but it will not kill the mealy bug. We tried it on a house of old Vines some four or five years ago, and the year following the experiment the bugs were as numerous as ever.—J. R.

—"Cobham" will find a mixture consisting of a quarter of a pint of paraffin to four-gallons of water perfectly safe and effective; an ounce of soft soap added is an improvement, as it causes the mixture to spread over the plant instead of standing in drops, as it does if paraffin and water only are used. In syringing with this mixture, the syringe must be drawn full and again discharged into the vessel, then quickly refilled and discharged on the plant, repeating this until all is used; as the oil rises to the surface immediately the mixture is still, it must always be kept in motion. When I came here I found a vine badly infested with mealy bug. The fruit was just ripe, so I got it cut as quickly as possible, and commenced syringing with paraffin and water, thoroughly saturating every part of the house and everything in it. This was repeated

twice a week for some time, then once a week, until the leaves were off the Vines. After pruning, two ounces of soft soap were dissolved in two gallons of water, and a quarter of a pint of paraffin was added; one person kept this mixed with a syringe, while another dressed the Vines with it, working it well into all crevices, and round the spurs with a large paint-brush. The wood and glass were washed, the wall coated with hot lime wash, and before the Vines were started the house was again syringed with paraffin and water. As the season advanced a few bugs began to appear; the Vines were then looked over frequently, and every bug that could be seen was killed. If not well looked after at this season, they increase so rapidly that they are soon as plentiful as ever. After the fruit was cut, the same treatment as that given the previous year was commenced, and the number of mealy bugs seen the following summer was very few indeed, and for the last two years not one has made its appearance.—W. CRANE, *Quartern Park, Mallow*.

PROPAGATING.

AZALEAS.

WHEN Azaleas are forced early into bloom the young shoots produced at that time strike root far more readily than when growth takes place at the natural season, a remark which also holds good as regards many other subjects; indeed, a common practice, and one justified by results, is to place the plant from which cuttings are wanted in a somewhat higher temperature if possible than that in which it has been growing for two or three weeks before taking the cuttings off, just to draw out the young shoots a little and weaken them, as roots are produced more freely in that case than on stout succulent shoots. In the case of subjects that strike root easily, such as Fuchsias, Pelargoniums, &c., of course good stout cuttings are preferred, as they naturally form a more vigorous specimen than that from the weaker shoots, but with difficult subjects the case is different, the principal aim being to get the cutting to push forth roots. Azaleas cannot be classed amongst plants very difficult to root, nor, on the other hand, do they belong to the easiest to manage in that respect; but, as has been stated, cuttings from forced plants strike more readily than those taken from shoots produced later in the season. They should consist entirely of the current season's growth; catch it between the finger and thumb, then pull it steadily downwards, when it will come clean away as it were from a socket, thus giving a good base for the cutting from which roots are produced in less time than if cut off. Of course if the entire shoot is of an inconvenient length it must be cut to reasonable proportions; but, in any case, leaves that would be buried either wholly or partially when inserted, must be removed beforehand; on no account, however, take off more than is absolutely necessary. An extreme length of 5 inches or 6 inches is quite sufficient, and even then it will, no doubt, be found that the smaller cuttings strike first. In

Selecting the pots, those 5 inches in diameter will be found a convenient size if they are to be put in a close case, but if under bell-glasses of course the pots must be chosen to suit the glasses. As it is necessary to keep the cuttings perfectly air-tight, they are more commonly covered with bell-glasses than otherwise. The pots should be filled to within 2 inches of the top with broken crocks, rough at the bottom, and gradually becoming finer, till the uppermost layer consists of pieces that pass readily through a sieve with a quarter of an inch mesh, but from which the dust is removed. For soil, take peat, sifted through the sieve just named, and add to it a liberal quantity of sand—the amount will be influenced by that which the peat naturally contains, but in any case the soil should be very sandy. The compost must then be pressed down firmly in the pots,

leaving just room enough for a slight layer of sand on the top. All is then ready for the

Insertion of the cuttings, and care must be taken that the base rests solidly—that is to say, do not make the hole with the dibber so deep as to leave a vacancy just at the base of the cutting, as in that case it is very likely to shrivel up; also take care to press the soil firmly about the buried portion, as attention to these little matters tends greatly towards success. Where bell-glasses are used a good way is to press the edge of the glass in the sand before commencing to insert the cuttings, as the mark thus formed serves as a guide as to how near the edge the cuttings may come; but even then do not let them come too close, as, should the foliage spread out a little, it will be difficult to take off and put on the glasses without bruising some of the cuttings, although I have often noticed this peculiarity that those crushed down by the glass have been the first to root. When finished give a thorough watering through a fine rose to settle the sand and fill in any interstices that may exist. After such a watering leave the glasses off for a little time to enable the foliage to get somewhat dry, when they must be put on, or if in a small frame the lights must be shut down. The cuttings, when callused, will do well in a stove with a little bottom heat, but as the season advances and shoots are produced in a lower temperature, a proportionately less degree of heat must be maintained for the cuttings. A safe plan is to keep the latter in a slightly higher temperature than that in which they have been grown at whatever time of the year they are put in, and in all cases the same principle should be carried out. When rooted they must be hardened off by degrees and then potted in peat soil, using small, well drained pots.

Insects.—When preparing the cuttings keep a sharp look out for thrips, as if but two or three are allowed to remain on them they increase so rapidly in close cases as to soon do a great deal of damage. The pretty little *Azalea roseiflora* is readily propagated in this way, and plants so obtained form dwarf dense bushes, and are far more attractive than when grafted on a bare stem some inches high, although by the latter method the rate of growth is quicker. T.

AMERICAN NOTES.

Ill-flavoured Tomatoes.—Many complain that their Tomatoes are sour. All Tomatoes are sour, if we may judge from our own experience, that are grown in rich soil. We want a maximum of fruit and a minimum of leaves and stems if we would have sweet Tomatoes—by which is meant not sweet literally, but less acidity. Tomatoes raised in light, rather poor soil in a sheltered or warm situation are always sweet in favourable seasons, while those raised in rich soil or in partial shade are always sour. A rank growth of foliage shades the fruit densely and interferes with the development of the saccharine principle. Tomatoes raised in poorish light soil will ripen also ten days earlier than those raised in rich soil. We know this from actual test during the present season. If large, showy Tomatoes are wanted, regardless of flavour and time of ripening, then the rich soil and the rank growth are needed.—*Rural New Yorker.*

Pinching back Peas.—The *American Garden* gives the experience of H. J. Seymour in pinching back Peas to increase their productivity. They had already begun to show blossoms, when six hundred plants were counted off in a row and decapitated. New branches came out abundantly near the ground, and from the axils of the leaves. They blossomed and fruited more abundantly than their neighbours, although a week later. They were saved for seed, threshed, winnowed, and carefully measured. The six hundred pruned plants yielded five plump quarts, while the six hundred unpruned ones in the adjoining row yielded but four scant quarts. The

advantage was in increasing the crop and prolonging the season. The result would doubtless vary with variety, soil, season, and depth of planting.

Cure for scale.—Ordinary bar soap scraped and rubbed into a paste at the rate of 20 parts of soap to 10 parts of water, 30 parts of kerosene, and 1 part of fir balsam, will make, when diluted with water, an emulsion good enough for all purposes, as the slight cream which in time rises to the surface, or the flakiness that often follows is readily dissipated by a little shaking. Soap emulsions are, however, less satisfactory and efficient than those made with milk. Emulsions with milk may be made of varying strength, but one of the most satisfactory proportions is two parts of refined kerosene to one part of sour milk. Ordinary condensed milk may also be used by thoroughly stirring and beating in an equal or varying quantity of kerosene. The diluted emulsion when prepared for use should be finely sprayed on to the insects to be killed, its strength varying for different insects or plants, and its effect being enhanced when brought forcibly in contact with the insects. Of mucilaginous substances, that obtained from the root of *Zamia integrifolia*, a plant quite common in parts of Florida and from which the Florida arrowroot is obtained, has proved useful as an emulsifier. These emulsions have been used with success against the cotton worm without injury to the plant, but their chief value depends on their efficacy against the different scale insects which affect Citrus plants. Experience so far shows that such plants do not suffer from its judicious use, but that it must be applied with much more care to most deciduous fruit trees in order not to injure them.

Keeping fruit under water.—Dr. Hexamer says that some years ago when he had more Apples than he could store, he hired a cellar of a neighbour and put in it several hundred barrels. When he came to take them out he found water in the cellar 3 feet or 4 feet deep, and concluded they were a dead loss, till he examined them. Some weeks afterwards he found them in excellent condition, better than those which the water had not reached. The result was ascribed to the low temperature and exclusion of air, to which we would add a uniform degree of cold and freedom from the fluctuations caused by air currents. We suppose the water was near or at the freezing point.

Well up in botany.—Yes, she visited the country and considered herself superior to ignorant common cultivators. She was learned in botany, and with lofty airs told farmer D. she knew every plant that grew. The farmer coming from the field one day plucked a cluster of blossoms and carried them to the house. "Do you know these blossoms?" he asked of her. "Oh, yes, of course I do," she replied. "They are very rare, and so beautiful; too sweet for anything. I am familiar with these flowers; these grow on trees in the woods." "What is their name?" asked farmer D. "Why—really—I can't recall their botanical name just now; but I suppose you have some vulgar name for them." "Well," replied farmer D., "we ignorant farmers call them Potato blossoms."

The buyers all want red Apples.—They say they sell the best. This fancy for colour has given Baldwins a boom, as they are red and handle and ship well. There is another advantage for the fruit—the tree is hardy and a constant bearer. I do not like the Apple to eat, but on account of its market value and the hardness of the tree and strong bearing propensity; in an orchard of 100 trees I would plant seventy-five Baldwins. Too many varieties of fruit are a nuisance. They make an endless amount of work, and many kinds, while they have a value for home use, are unsuited for keeping or shipping. They do not pay. The *Esopus Spitzenburgh*, I think, is the daintiest flavoured Apple that grows.

Fences must go.—Village improvement, as discussed by Mr. Parsons, is well worthy of more space than has been given to it by the press. One thing only do I want to dissent from in Mr. Parsons' article: it is his commendation of "agreeably-designed fences." I live near one of the

neatest villages in New England, with plenty of nice fences—stone, iron, and wood. But by far the most tasteful streets are those where fences have been entirely discarded. The change is so great an improvement that it spreads rapidly and yard fences "must go."

Cole's Quince Apple.—The Red Astrachan succeeds from Montreal to New Orleans. I do not know how far south Cole's Quince Apple is found profitable, but it originated in Maine, and is reported favourably on all the way across to the plains. It seems quite hardy here in Northern Vermont, a good grower and bearer, with large and marketable fruit when on a strong soil, which it requires. It is one of the finest cooking Apples, and when very mellow is tender in flesh, mild and rich, with a distinct Quince flavour and aroma.

The Champion Quince.—So far as a brief trial indicates, this Quince stands high as regards value. It bears early, and the fruit is large and handsome. It is later than the Orange Quince by nearly half a month in the average of seasons, which gives it an important advantage, except so far north that it will not ripen in short seasons. Mr. S. Anderson, of Union Springs, N.Y., says he has had specimens weighing 18 ounces.—*Country Gentleman.*

OBITUARY.

THE death, in her ninety-sixth year, of ELIZABETH HARRIET COOKE has recently been recorded. The deceased lady was the widow of George Cooke, the well known engraver, and mother of E. A. Cooke, R.A., the marine painter. She had the sorrow to lose her son at an advanced age a few years ago at Glen Andred, in Sussex, where she resided with him. She took as much interest as most others in current events, and within the past few years sent some verses on flowers to THE GARDEN.

All editorial queries should be addressed to the Editor of THE GARDEN; by directing to individuals delays are incurred.

SOME of our correspondents who are applied to privately for information on subjects on which they have written in THE GARDEN complain that the inquirers forget to enclose a directed and stamped envelope; and we are asked to remind them that that should in all cases be done. We therefore hope that no one will fail to comply with so reasonable a request.

Naming plants.—Four plants, fruits, or flowers only can be named at one time, and this only when good specimens are sent. Readers who desire our help in naming fruit will kindly bear in mind that several specimens in different stages of colour and size of the same kind greatly assist in its determination. Local varieties should be named by local growers, and are often only known to them. We can only undertake to name four varieties at a time, and these only when the above condition is observed. Unpaid parcels not received.

Hunt's vaporiser.—Will any reader of THE GARDEN inform me where this can be procured?—R.

Mowing machine (W. L. O.).—The Excelsior is a good machine, but surely the one you have ought to answer. A new machine always works stiffly. Oil it well and give it another trial.

Slugs (B. W.).—The slugs which you have forwarded are *Testacella halistidus*; they are very useful in gardens, and should never be destroyed, as they are animal feeders. They will certainly destroy and eat earthworms, and will probably treat wireworms in the same manner. Unfortunately these slugs are not common; they may always be distinguished from other slugs by the flat shell near their tails.—G. S. S.

Names of plants.—E. T.—*Miltonia Clowesi*.—D. E.—1, *Scutellaria Mocciniana*; 2, *Centropogon Lucyanus*.—J. M. B.—*Oncidium fuscum*.—Orchid.—1, *Dendrobium secundum*; 2, *Oncidium tigrinum*; 3, *Miltonia Clowesi*; 4, *Masdevallia ignea* (fine form); 5, *Vanda tricolor*.—G. L. (Smalley).—*Choisya ternata*.—G. K.—*Eriophorum polystachyum*.—S. P.—*Erica hyemalis* (winter-flowering Heath). Not hardy, but requires protection in a greenhouse. Do not disturb it, and keep it moderately dry.—S. C.—We do not recognise the Orchid.—J. E.—The Apple you send is apparently Golden Noble.

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"This is an ArtWhich does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.***A BIT OF GARDEN.**

MAN is by nature a gardener. We will go in one mental bound from Paradise to the gardens of our childhood, planted with twigs and wild flowers; from Chatsworth to a modest tea-pot in a garret window, from Burford Lodge to *Orchis maculata* in a nook of the rockery. These are long strides, but they comprise such a variety of grades as go to prove the statement, if indeed it needs any proof, that man is by nature a gardener. Wherever we may go we find him almost inseparable from a garden of some sort. I suppose this connection is inevitable, because we draw nearly all our sustenance from mother earth, directly in most cases, and where not directly, then only once removed by the interposition of herbivorous and graminivorous animals, and birds which feed upon cereals and other fruits, becoming themselves the food of man. Between the two, vegetable and animal, he finds everything he wants for his support, everything necessary without taking as food either carnivorous animals or birds, and even fish may be excluded as unnecessary. It is no wonder, then, that man should be assiduous in his cultivation of the soil. We find, however, each gardener showing a distinct preference for the useful or the beautiful in his garden, or one trying to see the beautiful in the useful, whilst another cultivates his plants in the hope of finding the useful in the beautiful, or both. One neighbour may say, "Give me some Cabbages and Cauliflowers, Lettuce and Leeks, Pears and Plums, something we can eat. Never mind Roses; I can buy beauties, fresh with dew, at four a penny, off a costermonger's barrow in London streets, and yours cost you more than that." Another may reply, "True, and give me but one bloom of Marie Baumann, Baroness Rothschild, or Harrison Weir of my own growing, from that visit to the nurseries one Saturday afternoon to the half-regretful snip of the scissors, and it is worth a barrowful of your Cabbages, which, equally with you, I may say, may be bought much cheaper than you can grow them." This doing a thing oneself enhances the cost and enjoyment of many things, I may remark, far removed from the garden.

Each of the disputants is right, each in his particular preference and hobby. Lord Bacon is credited with the saying, "Give me a man with a hobby," but I wish he had added, "and, if possible, let it be a garden." The hobby is comprehensive enough to hold us all in degrees upwards (or downwards) from the crippled youth with his window-box, who, as he watches his plant grow wondrously from seed to flower, is thankful for his bit of garden, to the scientific gardeners, whose works we read, who having wealth and space at command, busy themselves with microscopes and chemistry in the search for more light, often finding each new ray, each new process brought to light in the cells of the plant, revealing deeper and darker chasms of ignorance than they had hitherto believed to exist, just as the astronomer with each more perfect telescope finds objects still more remote, and which, by their movements, indicate the existence of stars still further off. These great teachers may say too, like the boy at the window, "Non nobis Domine." In our gardens we may occasionally hear some such remark as this, "Surely that man watches his plants grow. He and his long pipe are never out of the garden. What is he peeping at with a watchmaker's lens in one eye and a needle in his hand?" We can imagine the reply to be, "He is seeking, madam amongst the newly opening growths of spring for 'the worm i' th' bud,' and we only hope he is equally assiduous and anxious after the mental ones. He is perhaps thinking how one thing preys

upon another throughout the whole world, even man upon man, and if he is to have his pets in the garden he must protect them and be vigilant in quest of their enemies." When a neighbour locks his door for the night on some lovely summer's evening, and the white and yellow flowers are pouring forth their perfumes, bidding for the services of the *Lepidoptera*, and appealing to a far keener sense of smell than man possesses, our friend is in his garden. Next morning, when the said door is unbolted he is there, and is greeted with a jocular, "Have you been there ever since?" To him at that early hour the Rose has its sweetest perfume, its only dewdrops, and its most lovely tints. He thinks seven hours of sound sleep quite sufficient without spending half his life in a bedroom, and says, as each day comes round, "Give us health, happiness, and a bit of garden; let others have the wealth, power, and ambition." His pleasures, however, are not unmixed. There is an almost comical (if it were not painful) side to the question; but as the pains of gardening only serve to enhance the pleasures, I must not omit a few of the former. There is first and foremost the lumbago and rheumatism which seem to me inherent in gardeners, unless it be produced by so frequently "stooping to conquer," and persistently finishing that bed in a gentle Scotch mist, which we afterwards found had penetrated more rapidly than we thought of. So "at the peaceful midnight hour" our friend the enemy is at work—the slug feeding on his seedlings; the worm dragging things into his lair, which carry treasures along with them; the earwig eating his blooms, and then hiding securely in the seed capsules of Foxgloves or Irises, whence to dislodge him means wasting the seed. The *Coleoptera*, too, and all manner of creeping things, woodlice, wireworms, &c., are busy in many unseen ways, feeding on goodness knows what, but we know they are death to our plants if not kept in check. We take up a bush of *Gloire de Dijon*, wondering what on earth is wrong beneath it, to find a furrowed apple-like fungus on its roots in various stages of luxuriance, the root fibres eaten off probably by woodlice, and the very heart full of wireworms. We then cease to wonder why the most vigorous of its kind fails to flourish within three yards of its seedling daughter, Madame Berard, which is positively plunging along. Jack Frost also contributes very freely to the gardener's discomfiture, but we may overlook a good many of his mischievous pranks on account of the good he does us in other ways, although we have given him too much credit in the past as a grub destroyer. Then there is the viviparous aphid, with its long tandem of progeny, each with its beak pushed through the soft epidermis of the young shoot.

We read in our scientific works that if we encourage the enemies of our enemies, we do our best to assist our friends, and therefore resolve to spare the lady-bird and the ichneumon fly to help us as insecticides; we will also encourage small birds to visit us and build their nests in our shrubberies, so as to help us in keeping down grubs, caterpillars, and pests of all sorts when the young birds are on hand. But, alas, there are other people who are equally bent on keeping down mice in their houses, and tortoise-shells, greys, blacks, and whites form spots and groups in our gardens of harmonious neutrals so far as colour is concerned, but positive discord indeed as to sound. Should cock-robin, thrush, blackbird, or homely sparrow-eating small bird dare to show himself in the shrubbery, be it merely in search of temporary accommodation (seeking lodgings), or be he on an expedition prospecting for building-sites, he is forthwith warned off, or incontinentally (to use a slang expression) "run in." Pussy's friends say, "Look how carefully she walks up the paths and steps over the plants; she is as cautious as many of your visitors." True; but what about the amateur gardening of tabby, the efficient digging and filling up of holes in the seed bed? What of Lavender bush slept in till all its branches are broken off, and everything of an aromatic nature amongst our plants literally rolled in? Really one has serious thoughts of letting people who desire cats have them all within half a mile radius

assembled in their garden simultaneously by dropping a quantity of Valerian root "over the garden wall." Nature has disclosed to us one of her secrets—how to bring cats into gardens; would that she revealed the converse. Sum up the whole disadvantages and ask a veteran who is a martyr to lumbago to weigh them all against one single truss of good bloom he has raised from his own seed, and I am much mistaken if he will not say, "Give me a bit of garden."

Horsforth, near Leeds.

R. A. H. G.

COLOUR IN THE FLOWER GARDEN.

I WILL now endeavour to describe as briefly as possible consistent with clearness a few simple combinations, which will enable those whose colour faculty is naturally a little weak to arrange their flowers so as to avoid discordant combinations. I may premise, however, that those combinations are not by any means the best which can be carried out, but better ones can only be carried out, and perhaps could only be seen by those whose perception of colour is strong. This perception of colour is really at the root of all the differences about colour. The amount of colour perception possessed by one individual as compared with another is an extremely difficult matter to get at, we have so few means of comparison. One fact will be sufficient to show this. Country drapers complain that London warehousemen cannot match delicate shades of colour, and anyone living in the country near London can see the reason of this. On taking a delicately tinted water colour drawing from the clear country light into London, even in the height of summer when the air is purest, all the delicate shades and harmonies of subdued tints on which the whole beauty of the drawing depends totally disappear; a dozen delicately related greys merge into one even tint, and the same with all the other colours. It is just these last subtleties of colour which make all the difference between refinement and coarseness. Now to anyone whose perception of colour is in the least weak I am certain that these last refinements of colour are totally invisible. This certainly has been arrived at in a very peculiar, but sufficiently conclusive, way. Several years ago I was asked to look at an oil painting by a lad who was wholly self-taught. The drawing showed some perception of the forms of Nature, but the colouring was very peculiar; it was all yellowish bronze, brown, purple, blue, and grey. I tried to account for it by supposing it to be painted by gaslight, but that did not seem to explain it. What puzzled me most was a sort of purplish edge on the shadow margin of all the leaves in the foreground. I came to the conclusion that the lad's colour perception must be wrong. This last summer, through a slight ailment, I had several attacks of total blindness to red, each lasting about a minute. The first two were on bright sunny days, and I was surprised to see the landscape assume the colours of that poor lad's painting, even to the purplish edging to the sides of the leaves farthest from the light. As it was some minutes before I could again see red with ordinary distinctness, I could watch my scarlet flowers gradually merge from deep blue-black almost, first into brown, then maroon, then deep crimson-red, and so on to their true colour. All delicate shades of colour were indistinguishable; all the other colours were duller—in fact, yellowish bronzy greens, shaded with brown and an inky purple, with a faint blue in the sky, were the colours of the landscape. That was during the severest stage of the attack, when the scarlets appeared nearly black; there was every stage between that and my ordinary colour perception. Ever since I have been very lenient with errors in colouring.

The above experience will, I think, explain why red-blind people are unable to distinguish between red and green. Red-blind people may still be able to distinguish red although they do not see it as colour. Even when I could only see scarlet as black, there was a hot quality about it, just like the appearance of a piece of cooling iron when the red disappears, and before it turns blue. If the

perceptions of people who have weak colour sight are anything like mine as above described, they can only distinguish colour as such when in its brightest and purest forms, with the single exception of yellow.

If a person whose colour perception is weak gets talking about red, for instance, to one whose colour perception is strong, they are sure to differ, as what the one sees as bright scarlet, the other sees as dull red; and to the first all talk about the more delicate differences of colour will seem so much gibberish.

There is one test of keen feeling for colour that Mr. Ruskin mentions which may be useful here. He says a fondness for the contrast of orange and black distinguishes good colourists among artists from those who are even only slightly inferior. It is curious to note in our National Gallery how this is borne out. Turner and Leslie fairly revel in the contrast, other artists think it, even at the expense of truth. A curious instance of this may be seen by comparing the panthers in Titian's *Bacchus and Ariadne* with the painting of the jaguar's skin in the picture of "The Conversion of the Incas of Peru;" in the one case the spots are black, in the other brown.

The nomenclature of colour is so vague, that it is necessary in describing it to assume definite meanings for words which they do not possess in ordinary conversation in order to express one's ideas distinctly.

Colours harmonise or discord with each other when they touch each other, or when a patch of one is placed upon a ground of the other. If they discord, that discord is reduced in intensity if the colours are not allowed to touch, but are separated by a neutral which harmonises with both.

For colours to harmonise or otherwise, they must be seen together, so that the rays of light from the whole group enter the eye at the same time. We cannot strictly say that a carpet harmonises with a ceiling; neither can we say that the flowers seen in front of us in a garden harmonise with those we have to turn through a right angle to see. When the word "contrast" is used, I mean it to refer strictly to combinations seen together. There is another way in which colours affect each other. On looking at a patch of bright colour for some time it loses its freshness to the eye, but this freshness can be restored by looking at a patch of some other colour for a little and then looking again at the original colour. Colours which affect each other in this way I shall always call foils to each other. They are generally discords when placed together, and so should be used successively along borders or the margins of walks.

Blue and green are the only two colours Nature seems to intend us to gaze at without fatigue. The blue sky, the sapphire waves of the coast of Brittany, the green grass, the deep green of the North Sea waves are always delightful. Green Grass turf is perhaps the last feature of an English garden we should care to give up. Unfortunately green is the worst possible contrast for red, and through that we meet with our first difficulty. If we were content with just that amount of red Nature gives us in our temperate zones no difficulty would occur. But we hunt up all the red flowers that will grow in our gardens and place them together. We oblige our raisers of new varieties of flowers to advertise now and then a "march towards scarlet." Even our Pansies have lately caught the scarlet fever, as we have now tolerably pure crimsons and orange-reds, and everything which can be called red in new annuals is advertised as crimson or scarlet.

It is useless attempting to stem this sanguinary torrent, although all those who care for good colour should avoid it as much as possible. I will first endeavour to describe briefly a few colour combinations which will be really harmonious in beds on the Grass, and then show how the largest amount of red possible can be introduced consistently with good taste.

When any colour is introduced in great quantity, as Grass turf in a garden, that colour rules by its mass, and brings all others into subordination;

all our flower-beds on turf must be gems in a green setting; there is no help for it. The best contrasts to place on a grass-green ground are the bluer shades of green, blue, yellow, white, and tinted white, the colours of our native spring flowers, but we can use other colours if well separated from the Grass, as will be seen presently. The bluer greens we do not have except in such pale form as in *Echeveria secunda* glauca and Pinks and Carnations. If we were able to surround our flowers with a broad band of greys and deep blue-greens, we could arrange our colours with more freedom. The best bedding combination that can be made is to surround the beds with a broad band of greenish grey. This band can be relieved by a line of yellow, brown, purple, or blue, margined by a line of white on each side. The centre of the bed can be treated in a variety of ways; for small beds, lines parallel to the edges or the beds or wavy bands across them would be the prettiest. Where the bordering line is yellow the centres will be best mauve and white, peach and white, or pink and white, or two shades of those colours; with brown, blue and white or purple and white, or two shades of purple or blue will come best; with purple, scarlet and white or bands of white, pink, and scarlet will come best; and with blue, white and primrose, orange-brown and crimson, or green and creamy white with pink would be suitable.

With hardy plants picturesquely arranged we are at once relieved of the necessity of separating our flowers from the Grass. We have still to avoid discords, and especially the red and green one. The simplest way of doing this is to keep our red and yellow dwarf spring flowers towards the back of the borders, where they will be seen against the shadows of the shrubs, bringing a few towards the front to contrast with deep purple and white, relieving, for instance, a mass of purple Pansies, with a patch of white ones surrounding a clump of flaming scarlet double Anemones. Another colour arrangement which can be carried out with hardy plants almost as easily as it can be thought of is shading related tints into each other, and relieving them by points of emphasis and contrast. Take a mixed lot of Pansies or Auriculas, or Primroses and Polyanthus, for instance; we can shade the colours of the first from blue through purple to black, and then contrast the black with a patch of white surrounding crimson, yellow, and brown. In the same way we can shade the Primroses from lilac through rose to deep crimson, and relieve that with white and yellow or white Polyanthus and scarlet Anemones. That is how Nature uses colour—the strongest light against the deepest shadow; most intense orange and scarlet against the purest white and the deepest black. But these points of emphasis are only used here and there, and supported by lesser points of emphasis and quieter contrasts and masses of related tints, fading and changing into each other. That is the only kind of arrangement of flowers which can really be called natural, it being the only kind of colouring we find in Nature, especially in sunrises and sunsets, where she means to be gorgeous. The best way to get the colours in a garden of hardy flowers arranged harmoniously is to keep the spring flowers which are evergreen about the front of the borders, and interperse those which require to be shaded in summer and those which disappear when out of bloom with the taller plants which bloom later. This allows the spring flowers to be massed, and at the same time prevents bad contrasts between Tulips and Anemones and the fresh greens of the springing summer and autumn flowers. Wherever a puzzle occurs, it can be got over by planting white flowers.

Spaces can be left in the front of the borders for summer flowers to brighten what would otherwise be foliage only. If these are placed next things with grey or very neutral foliage, such as *Achillea*, *Iberis*, *Alyssum saxatile*, *Aubrietia*, *Arabis*, and the mossy *Phloxes*, pinks, reds, crimsons, and yellows can be used and all discord avoided. Neutral-tinted foliage, whether grey or green shading into brown, harmonises with all colours. Nature has two ways of changing green

into red in autumn, both of which avoid discord. The green either changes to yellow, salmon-pink, and scarlet in succession, or into dark grey, purple-grey, dull red, and so up to crimson and scarlet.

In large gardens many different kinds of colour arrangement should be carried out. In one section of a border blue might rule, in another scarlet, in another crimson, in another yellow, in another white. There is no end to the beautiful combinations which could be carried out if people would only set about it in an intelligent way without shirking any small difficulty which may occur at first. Now with regard to the introduction of masses of red in bedding, as red and green are a discord, bright red can only be introduced in any quantity in large beds, and the further it is separated from the Grass turf the brighter and better it will look. I should always surround a bed of scarlet *Pelargoniums* with a very broad band of neutral greens and greys relieved by white and dark blue, dark maroon, or dark violet *Petunias*, and separate the scarlet from the border by deep maroon; dark, rich purple would be better, but that we do not have. The best contrast with scarlet is the almost invariable Indian one—full magenta-pink. A good harmony of red, blue, and yellow, with red as principal, could be arranged in a group of seven beds, all bordered alike with neutral foliage relieved by a line of contrasting colour. The centre one and two smaller ones might be reds with a blue line in the border; another two might be blue with a red and brown line in the border, and other two yellow and orange, with a deep purple line in the border; other two might have their centres white and green, and other two pink and white or pale purple and white. The fault of all the combinations commonly seen under the bedding system was not only discord, but crudeness. The designers of parterres were evidently destitute of knowledge of the first rudiments of colour treatment; even when they stumbled across a harmony they spoiled it by not knowing how to treat it. They also used far too much red and far too little blue, and ruined their reds by using intense magenta-crimson and intense scarlet together, which should always be kept separate. Their combinations were crude through their not leading up to their pure colours through quieter and more neutral related shades. This was no doubt owing to their beds being cut out on grass green, which they tried to overpower by using a quantity of red which rendered good colour impossible. In the few instances where the beds were divided by gravel and no grass came in with the flowers, some of the bedding combinations were simply faultless in colour, although such a style of gardening could never be defended on any reasonable grounds. I will now, in conclusion, recapitulate the

Discords which should be avoided: Red—green; yellow—purple; orange—blue; brick-red—blue; orange—olive; purple—citrine; green—russet. These last three are beautiful as Nature uses them, with the two tints shading into each other; they are objectionable only as patches of flat colour placed together. Scarlet and blue are passable, but not good. Red and yellow should never be placed together, but may shade into each other. Red, blue, and yellow are bad, also orange, green, and purple; green and purple are passable. In the discords of two colours, the two colours act as foils to each other; thus, although orange and blue discord, to look at blue is a good preparation for seeing orange, and *vice versa*, so that in arrangements which cannot be seen together, but will be seen in succession, these colours should follow each other.

I will now leave the readers of THE GARDEN to test the value of these combinations in their own gardens, and will only say, in conclusion, that the most important matter of all is for each and all to endeavour to test the amount of colour perception they are possessed of. No one can design colour unless they see it, and it is most important that we should be relieved of all criticism of, and all interference with, colour arrangements by those who neither see nor enjoy it. J. D.

THE NEW YEAR.

It almost seems as if vegetation was somehow conscious of the lapse of time—the death of the old year and the birth of the new. Practical men conversant with forcing find an amazing difference in what may be called, for lack of a better term, the moveable force of vegetation after the turn of the season. Less heat and less time or both are needed to produce the same results in the new year than in the old. The same amount of force yields, perhaps, double the produce in January than it does in December. Doubtless there are obvious physical causes at work to produce and explain the difference, such, for example, as more and clearer light, and a greater readiness of vegetable fluid to respond with more alacrity to the stimulus of warmth and the more insidious allurements of moisture. But who shall say that the new-born year with that fiery zeal that mostly inspires youth, and with all its work before it, has not something to do with the more impressionable and excitable state of vegetation? Neither is the quickening influence of the new-born year by any means confined to vegetable life. Possibly all forms of life are more or less affected by it. Assuredly, horticulturists, even more than horticulture, are quickening and, as it were, re-inspired by the new year. The time of rest, if indeed there be such a time in modern horticulture, is past. Hard necessity is laid upon horticulturists to be up and doing, for should we take further rest, Nature will not; and if we would lead and guide her either with ease or profit we must seize the reins vigorously at once, for it is a fact that horticultural success cannot be commanded by pushing behind. Vegetation may be led, not driven or pushed into beauty, fruitfulness, or profit. This difference is vital, as most cultivators have found to their cost in these days of rigid retrenchment and ever enlarging demand. Spend less and get less and give us more is the unceasing cry that is arising from not a few centres of horticultural light and leading on the dawn of the new year 1883. With little time and less inclination to quarrel about the unreasonableness of such demands, most horticulturists are doing their very best in both directions. Never were they so severely handicapped within the memory of the oldest cultivators. Horticulture used to be recognised as the leisure profession. Leisure is now one of the last things to be found in its pursuit. It has become more of a race than a staid business. Of course amateurs may find a delightful, learned leisure in its pursuit; but practical gardeners and commercial horticulturists might as reasonably search for a pin in the ocean as for leisure in their business. Horticulture has become more than ever a race of seasons, of novelty, and for mass flowers. Fruits and vegetables in season have lost their old relish and significance. Early and late have now little or no meaning. The best of everything always in season is the imperious demand of modern fashion and luxury, and the wide world, with all its various products, is now the only limit known to horticultural seasons and products.

Thus the race of novelty is as, or even more, exacting than the one of seasons. Hardly has a good variety of anything been established than it is pushed aside for a so-called better, and so on and on, for ever apparently. Those who enter in this race have, indeed, a feverish time of it, and never find real satisfaction in their horticultural pursuits. The race for mere mass is still more exhausting. Hundreds are constantly superseding tens, thousands hundreds, and single thousands giving place to tens and hundreds of thousands. All this shows that horticulture is full of energy, life, and vigour. There is perhaps no art, science, nor practice advancing with such rapid leaps and bounds. But it would assuredly be at once more safe and wholesome were the progress a little less feverish, and the pace somewhat less killing. A race now and then is all very well, but to be always going at full speed makes short work of the runners. One way of getting a little breathing time on the journey is to see to it that we

start fair with the year, and keep well abreast of time as well as opportunity all through it.

D. T. F.

ROSE GARDEN.

ARE SCOTCH ROSES WORTH GROWING?

Of course "A. H." has never seen them, or the question could never have been asked. And yet it is astonishing how little they are grown out of Scotland. Those who only or chiefly know show Roses would not think the Scotch species worth growing, and yet they are beautiful, fragrant, and most useful for decorative purposes either as cut flowers or on the plants. But in masses or groups on lawns or shrubberies few plants are more ornamental or interesting than Scotch Roses.

And few Scotch gardens are without them. Once planted, too, they mostly last a lifetime. They are of course grown on their own roots and propagated by suckers. Any of the Edinburgh or other Scotch nurserymen would supply lists of sorts and prices. The leaves are remarkably neat and beautiful, as different from other Roses as the flowers, and the two together would make a fairy dinner table or room decoration as unlike as anything well could be to the prevailing fashion.

There are two or more pure white varieties, Iris and Celeste; the Princess is also a blush white, two yellows, Mary Stuart and Josephus, and numbers of red, pink, purple, and lilac sorts. From eighteen to twenty-four varieties may be had by name in the Scotch nurseries. As these Roses seed freely, those who grow a few sorts may soon have almost any number of shades of colour; they are mostly double, the flowers being small, round, almost globular. The Scotch Rose is a distinct native species—*Rosa spinosissima*, and a more suitable name could not possibly have been given, for the spines are far more formidable than would appear from their size, while the whole of the wood is covered with them.

There are two so-called perpetual flowering Scotch Roses, the Scotch and the Stanwell, with much larger rosy blush coloured fragrant flowers than any of the other Scotch varieties; these also bloom twice or oftener throughout the year and seem true hybrids.

D. T. FISH.

ROSES AND THEIR CULTURE.

Position and soil.—The first requisite in the culture of Roses is the selection and preparation of a suitable place for planting. This is very important, as all that follows depends upon the care used in this first step. To begin with, then, choose the best place you have in the garden, a place where you can offer sufficient protection by means of hedges or board fences from bleak sweeping winds. When fences are used, their general ugliness can be more appropriately clothed by Roses themselves. A warm, sunny position is also requisite; if so situated that there is an exposure to the morning sun, and the hot rays during the afternoon are in part or wholly shaded, all the better, but a certain amount of sunlight is as essential to a Rose's welfare as to our own, though many of us do not show our appreciation of the blessings of sunlight as gratefully as do our Roses. Besides scattering them through our gardens, Roses may be made very effective planted in borders about our lawns, either individually or in groups, and also planted in beds on the lawn. Thoughtlessness often leads people to plant Roses under the shadow of overhanging buildings, or close to large deep-rooted trees, and then there is inquiry and wonderment why the plants are always covered with mildew; and why they do not blossom and grow as those in a neighbour's yard, where there are always beautiful Roses to be seen. There is much more in common, or should be, between animal and plant life than is practically acknowledged by most of those who strive to grow Roses. Both demand for their perfect development a sufficiency of nourishing food and drink,

a pure atmosphere, a temperature as equable as possible, and thorough cleanliness. Let every one who plants Roses bear this in mind and we shall find a wonderful improvement in the quality and quantity of the flowers. Some, having heard that a free circulation of air and abundance of sunshine are essential elements of success, select a spot which would be excellent for a windmill, observatory, beacon, or Martello tower; and there the poor Rose trees stand, or, more accurately speaking, wobble with their leaves, like King Lear's silver locks, rudely blown and drenched by the to-and-fro contending wind and rain. Others who have been told that "the Rose loves shelter, peace, and repose," have found "such a dear, snug little spot," not only surrounded by dense evergreen shrubs, but overshadowed by giant trees. Rest is there assuredly—rest for the Rose, when its harassed life is past, when it has nothing more for disease to prey upon, no buds for the caterpillar, no foliage for the aphid—the rest of a mausoleum! I was taken not long ago to a cemetery of this description which had been recently laid out, and there was such a confident expectation of praise in the pretty face of the lady who took me, that I was sorely puzzled how to express my feelings. I wished to be kind, I wished to be truthful; and the result was some such a dubious compliment as the Sultan paid to the French pianist. The Frenchman, you may remember, was a muscular artist, more remarkable for power than pathos; and he went at the instrument and shook and worried it as a terrier goes in at rats. His exertions were sudorific; and when he finished the struggle, with beads on his brow, the Sultan told him, "that although he had heard the most renowned performers of the age, he had never met one who—perspired so freely!" Nor could I, with my heart as full of charity's milk as a Cheshire dairy of the cow's, think of any higher praise of the plot before me than that it was an admirable place for Ferns; and therefore, when my commentary was received with an expressive smile of genteel disgust, as though I had suggested that the allotment in question was the site of all others for a jail, or had said, as Carlyle said of the Royal Garden at Potsdam, that "it was one of the finest fog preserves in Europe," then, without further prevarication, I told the truth. And the truth is, that this boundless contiguity of shade is fatal, and every overhanging tree is fatal as an Upas tree to the Rose. The Rose in close proximity to a forest tree can never hope to thrive. In a twofold sense it takes umbrage; robbed above and robbed below, robbed by branches of sunshine and by roots of soil, it sickens, droops, and dies."* In connection with a choice of location, we must see that Roses are provided with a proper soil. They will do well in any ordinary garden soil that is free from standing water and well drained. When there is too much clay, the soil can be made sufficiently friable by the application of wood and coal ashes, lime, burnt earth, &c. When, on the other hand, a soil is sandy or too light, we need to bring clay, muck, leaf-mould, &c., to obtain sufficient body. This soil must, of course, be thoroughly manured and worked; frequent spading will do a great deal toward lessening the stiffness of a heavy soil. On no account attempt to make Roses grow in a wet spot; if there be such a place which it is desired to use, let the soil be thoroughly drained by sinking tiles to a depth of 4 feet, or provide in some other way for carrying off the water. Where it is impossible to find a position capable of being drained by tiles from the ground being too flat, the soil may be removed to a depth of a few feet and stones, bricks, debris of any kind thrown in; but whenever the water can be carried off in tiles it is better to do so.—ELLWANGER, on "The Rose."

Badly-shaped blooms of Niphetos Rose.—Niphetos mostly come well shaped in bud, but beyond that there is little to be said in favour of her form. But this is not what "E. M." means, I presume. If the greenhouse is a cool one, the coolness often more or less mars the forms of the

* Canon Hole's "A Book about Roses."

buds even. This is really a tender Rose, but for that matter 60° may be looked upon as the proper average temperature for the perfect blooming of Roses. We all know they will flower fairly well at much lower temperatures, and that a few of them, such as *Homère* and *Souvenir de la Malmaison*, come in better form in a cool rather than a warm temperature. That, however, is by no means the case with *Niphetos*, which frequently comes out of form in a temperature of from 40° to 45°. A good deal may at times be done to improve those malformed buds by relieving and rearranging the petals left. Such expedients are quite allowable for button-holes, and I have found it necessary at times to reduce the bulk and improve the form of a *Niphetos* bud before converting it into the centre of a button-hole, and fringing it round with a few *Marie Louise* Violets resting on their own leaves and a sprig of *Maiden-hair Fern*, the *Niphetos* having one of its own freshest leaves in the foreground of its blanched purity.—D. T. FISH.

BOOKS.

THE ROSARIAN'S YEAR BOOK FOR 1883*

HAS just reached us. It contains photographs of Mr. G. Baker and Mr. E. R. Whitwell, winner of the Amateur Challenge Trophy, and the following useful articles, viz.: What is an Amateur? Tea Roses in the Perthshire Highlands; The Rose Weather of 1882; Tea Roses on Ridges; My Box of 24; The Rose Season of 1882; Shall we Manure our Roses? The best Roses for Exhibition; Rose Shows and Rose Judging; altogether a good shilling's-worth. From the article

On manuring Roses we extract the following: "The system of Rose culture," says the Rev. H. B. Biron, "must to a certain extent vary according to the accidents of soil, and I may say, too, the choice of stocks. In a rich, retentive loam Roses on the Brier will thrive upon light diet, while in a poor, hungry soil the same plants would die of exhaustion, unless abundantly supplied with meat and drink. I have known both these soils, and ere this is in print I hope to have commenced experience of a third, which promises to try patience if there is a spot in England that will do so, for it is situated on the top of a hill, with no shelter save the tower of Dungeness lighthouse between it and Demerara. But before manure is thought of even, there are other operations in Rose culture that are paramount. In the first place, it is a *sine qua non* that the soil must be perfectly drained, either naturally or artificially. Next, that it shall be deeply trenched—the deeper the better. Without these precautions all the manure in the world will have but little effect for good. On poor soil I say, without hesitation, that whatever be the stock used, abundance of good manure is necessary. Now how shall we administer it? Shall it be 'for outward application only,' or taken internally? Shall we dig it in or leave it on the top as a mulching? Personally I am inclined to the latter, as the rain will gradually wash the ammonia into the ground, where the little rootlets, like fledglings in their nest, are waiting open-mouthed for the expectant draught; or, should dry weather prevail, the mulching will keep the ground cool and preserve the Rose from that thirst which it so much dislikes. I think it is Anthony Trollope who, in his advice to the intending Nimrod, reminds him that 'it requires a pack of hounds to kill a fox.' Some so-called rosarians seem to need similar advice, viz., that roots are a necessary part of a Rose tree; and yet I must, though I do so in awe and trepidation, assert that they may have some grounds for supposing that Roses do not need roots, if they gain their experience from such club-ended specimens of standards as I have sometimes seen sent from the nursery. To have good flowers above, you must have abundant rootlets below; and as these require abundant nourishment, I hardly see how this is to be supplied, save by the use of manure. Some of my brother rosarians advocate

"Chemical stimulants, and they are very well in their way, but yet I fancy that a Rose which has known no other food will, towards the afternoon of a show, hang down its head in exhaustion, and look about as happy as did Mr. Verdant Green on the morning after Mr. Small's 'quiet party.' Chemicals are very well as stimulants, but a Rose can no more live entirely on them than can a rosarian thrive on nothing but gin and water. Still, I must allow the benefit of nitrate of soda, sulphate of ammonia, and other chemicals, but only as assistants to the farmyard manure, with which the Rose loves to be fed. I believe that nitrate of soda intensifies the colour of the Rose, and certainly adds to the beauty of the foliage. Amies' manure, the component parts of which I know not, I have seen used with great success, and this season I was well satisfied with the results of spent hops and malt-dust, the whole having previously passed through a bath in a liquid manure hole, but the smell was something 'too awful'; still, I think I was repaid, as never since I left the Wealden clay have my Teas been so good. I must here except *Maréchal Niel*, which has been very poor with me this year; indeed I do not remember being struck with it at any of the shows I witnessed, either early or late. Reynolds Hole, Xavier Olibo, Louis Van Houtte, and other dark Roses also failed with me, burning ere the sun had been on them half-an-hour—indeed, sometimes without any sun at all."

EUROPEAN BUTTERFLIES AND MOTHS.*

THIS work on the butterflies and moths of Europe will fill a place in our libraries which has not hitherto been occupied. A good book at a moderate price, giving coloured plates of British and Continental species, has long been wanted by collectors of Lepidoptera. Those already published being confined to the insects of some particular country, and all those relating exclusively to British species are now out of print and very expensive. To study any branch of natural history intelligently we must do more than confine our attention entirely to such species as are indigenous to some particular country. Every day the necessity of this is more apparent; greater facilities are afforded for travelling, and for obtaining specimens from other parts of the world. Mr. Kirby's work will be most useful to all collectors of butterflies and moths, and particularly to those who have opportunities of studying European forms. A description is given of every species found in Europe, with the exception of those belonging to the following groups of small moths (the micro-Lepidoptera)—Pyrales, Tortrices, Tineæ, Pterophori, and Alucitæ, which are passed over with six pages of letter-press and two plates. Speaking of these groups, the author says: "Although fully as beautiful, and in many respects at least as interesting as the macro-Lepidoptera, yet their small sizes, and the consequent difficulty in collecting and preparing them, cause them to be regarded with much less interest even by collectors than the larger species; it therefore becomes impracticable to describe the species in a popular work like the present, but not wishing to omit the micro-Lepidoptera altogether, we have figured a number of the more interesting species belonging to various families in our two concluding plates, as a considerable amount of information has already been given in our introduction."

European Lepidoptera is beautifully "got up." The paper and printing are everything one could wish, but the binding is too ornamental for a book of this description, which is scientific as well as popular. From an external point of view one would imagine it was only popular. Gilded butterflies are indigenous in fairy tales and transformation scenes, but nowhere else. This work is illustrated with sixty-two plates, sixty-one of which are coloured. Most of the figures are very

good, considering the price of the volume, but some are not so good as the others. For instance, the butterflies on plate 6, where the large and small tortoiseshell and the peacock butterflies are drawn from very badly set specimens, and the colouring of this plate and of some others is crude. Nearly all the British butterflies are figured, and a large proportion of the moths. There is an omission in this work of considerable importance, if the comfort of the student be taken into consideration, viz., there is no indication at the foot of the plate or on the opposite page of the names of the insects figured; consequently, anyone comparing a butterfly or moth they may have found with the plate must turn to the explanation of the plates at the beginning of the book or search in the letterpress before they can find the name or description of the insect under examination, both of which are troublesome operations. The numbers of the plates do not run in their proper sequence in every case. For instance, plate 3 is followed by plate 51, plate 12 by plate 52, and nine others are wrongly numbered; this is particularly inconvenient. Take, for example, plate 51, which faces page 6, and on which ten butterflies are figured; the letterpress describing them is on various pages from page 3 to 65. How is the reader of the descriptions to know where plate 51 is without consulting the list where the plates are placed even if the plate and figures were quoted? but they are not in all cases. In the description of the Brimstone butterfly (*Gonepteryx rhamni*) on page 10 the figure of the male (plate 4, fig. 9) is quoted, but no mention is made that the caterpillar and chrysalis are figured on plate 51. Again, on plate 52 butterflies are figured and no allusion is made in the letterpress to them, though other figures of the same insects on plate 14 are quoted. With plates 52 to 59 the same thing occurs; the figures or plates are not mentioned in the descriptions of the insects. All this shows a great want of care on the author's part. Having pointed out these mistakes, which can easily be remedied in a future edition, we revert with pleasure to

The introduction, which contains a vast amount of valuable information. It commences with a description of the formation of insects generally, then treats of the peculiarities of butterflies and moths, with a description of their organs. A plate is given showing their various parts very clearly, to render the letterpress more easily understood. The eggs, caterpillars, and chrysalides are then described with much interesting matter. "The habits and functions of Lepidoptera" are then discussed, but the author is unable to throw any light on the curious power that the males have of discovering the females which have not paired at a great distance, and when entirely hidden from their sight even in a collector's pocket. Probably the female makes some sound, which, though inaudible to our ears, is easily heard by the male. There is no reason for imagining, as so many do, that insects with few exceptions are mute. Our ears are only capable of hearing sounds caused by vibrations of a certain number per second, any vibrations above a certain number or below another per second being lost to us. Human ears differ in this respect; some are unable to hear the cry of a bat or chirp of a grasshopper. At page 23 is some interesting information on "Injurious Lepidoptera," which we wish, for the sake of horticulturists, had been fuller, but many destructive species are mentioned; few are injurious to man directly, but the hairs of some caterpillars have most annoying stinging qualities, being sharp and covered with very fine hooks. The author recommends rubbing with oil as the best antidote. Very full directions are given for

Collecting and preserving specimens, which are well worth studying. The plan of attracting moths by sugaring trees at night is well known to all collectors, but another, and in some respects a more convenient, way is that of using dried slices of Apples strung on a string, the method of preparing and using which is detailed, and will perhaps be new to some. The instructions for rearing caterpillars and chrysalides are very clear

* "European Butterflies and Moths." By W. F. Kirby, Assistant in the Zoological Department British Museum, and Secretary of the Entomological Society of London. Cassell, Petter & Galpin.

* London: Bemrose & Sons.

and practical. In his remarks on the arrangement and management of a collection, the author seems to prefer cabinets to boxes for keeping insects in; no doubt there is much to be said on both sides, but we are inclined to favour boxes which can be arranged on shelves like books, for the following reasons: as the collection increases it is much easier to introduce a fresh box where more room is required; if specimens are attacked by mites, &c., the presence of the enemy is at once detected, as their droppings fall to the bottom as dust, instead of underneath the specimen, where it is not noticed until the latter is moved. Drawers do not generally fit as tightly as boxes, unless very well made, when they are very expensive, whereas tight fitting boxes can be obtained very cheaply. The descriptions of the insects are necessarily very short; they include the caterpillars as well as the perfect insects, and give the time of year and the countries where they may be found. An asterisk is placed before the names of British species, so that the reader can at a glance distinguish which species are natives of this country and which are not. We recommend anyone who is in want of a book on butterflies and moths to obtain this work. Anyone who has a garden and takes any interest in the insects they see flying about in it will easily be able by means of it to name the butterflies, moths, and their caterpillars which they may find from it. S.

NOTES FROM A MARKET NURSERY.

ONE of the chief among the multitude of florists' nurseries from which the London markets derive their vast supplies of plants and flowers is that belonging to Mr. Maller, in Burnt Ash Lane, a few minutes' walk from Lee Station. A marked feature which almost every establishment of this kind exhibits is plenty of bustle and business, plenty of dirt in winter and very little time to spare, so that anyone desirous of a "look round" must make good use of the little time grudgingly allowed him. However, if the visitor makes good use of his eyes he will see much to interest him, and he must also keep his ears open, for he will find in the market florist not only a matter-of-fact individual, but also one who is able to impart a good deal of valuable information in a few words. As a rule, he seems to possess a keen discriminative instinct respecting the merits of plants and flowers. His opinion is wholly unmixed with sentiment, and he invariably regards the plant or flower in the light of its market value. Questions respecting plants one would expect to find in a market nursery are met by such curt answers as "it is not free enough," or "it wants too much doing," or, with regard to flowers, "they won't stand cutting," or "they haven't substance enough." Thus it may be seen that the market florist does not value a plant for its beauty or rarity, but simply for its adaptability for market purposes. When once a plant is proved to be a "good thing" it is taken in hand and "done" as only London market florists can do them. This accounts for the little batches of odds and ends one usually sees in nurseries of this kind. These, as a rule, have been "bought in" on the recommendation of someone, but no steps are taken to propagate them largely until they have been thoroughly tested. Though there is such a strong family likeness in most of the market florists' establishments, the majority of them have one, if not more, distinct specialities, that is, certain plants that are done better than others and receive the best share of attention. One may pretty well tell what this speciality is as soon as he is inside the nursery, and in the particular establishment now under notice one may at once see the chief feature is

Heath culture, and for his success in this Mr. Maller is now well known. Heaths everywhere occupy the greatest share of the crowds of houses, pits, and frames to be found here, and they may be seen in all stages from those in a marketable condition to tiny cutting plants. The present, however, is the very worst time of the year to see a Heath nursery, for the bulk of the flowering stock was cleared out for the Christmas

markets, and it is too early to see the succession stock "ranged" on the Heath ground. Pit after pit is filled to overflowing with plants struck last year, and now mostly in 3-inch and 4½-inch pots. The potting time for these has just commenced and will occupy some weeks, as many thousands of pots have to go through the potter's hands. The plants are mostly potted in 6-inch pots and replaced in the pits which they previously occupied there to remain until about April, when they will be removed to the Heath ground, where they are arranged in oblong beds consisting of some thousands of plants each on a good foundation of ashes. The best time to see the Heath ground is August, when the plants are well developed in vigorous health and dense masses of verdure. In September and October they are cleared out of the nursery if possible, generally by means of auction sales. Even now, however, a Heath collection possesses some interest, for several are in bloom. There are thousands of sturdy little plants of *E. gracilis* covered with myriads of tiny magenta coloured blossoms; *E. persoluta* alba and *C. caffra*, both pretty kinds, are likewise in bloom, and so is that most useful of all winter Heaths, viz., *E. hyemalis*, which largely preponderates. In looking over this vast assemblage one cannot help wondering where they all go to year after year. It is evident that they die, for of all popular market plants Heaths are the least understood by the general cultivator, who invariably kills them through excessive watering. It is doubtless the marvellously cheap price at which they are sold that keeps up the popular demand for them, and it is only when they are grown on such an extensive scale as here that their growth can be remunerative. There are about a dozen kinds which seem to predominate, viz., *E. cerinthoides* coronata, a beautiful autumn and winter kind, with large scarlet flowers; *E. hyemalis*, ventricosa and its varieties, mammosa, gracilis, caffra, persoluta alba, arbuscula, colorans, and Wilmoreana. Epacris are also grown here on a large scale, and amongst them we noticed the beautiful candidissima, with wreaths of snow-white blossoms now finely in flower. Amongst other plants are

Pelargoniums, which here, as in most florists' nurseries, occupy a good share of room. The decorative or market varieties are represented by a healthy stock, all in marketable condition. One called Madame Charles Koenig is a great favourite, and receives a good deal of attention. It has large pure white flowers, with petals of great substance, that is, they are firm and stand out well, and are produced in good sized trusses. What makes it valuable as a market variety is the fact that the blooms retain their petals and do not require gumming. The plant is also a free bloomer. Those who want a good winter flowerer cannot do better than make a note of this one. Zonal Pelargoniums do not seem to be grown largely, and what there are are confined mainly to one variety, viz., West Brighton Gem, a sort remarkable for its free and continuous flowering character and dwarf, compact growth. The flowers are glowing scarlet, produced numerously in big trusses, while the stems are invariably white or at least very pale. This rather new variety seems to be gaining favour wonderfully about London; we have met with it in various places, and it will probably supplant the old Vesuvius and others.

The old double white Primula forms, as it were the backbone of the cut flower trade here, at least as regards white flowers. A capacious span-roofed house is filled with it, and the plants flower without intermission for months together. The flowers, so pure white, last a long time in a cut state, and they are peculiarly well adapted for bouquets, wreaths, and the like. It has not been surpassed yet by any of the new double varieties that have been raised of recent years. There is also a purplish-pink kind in this nursery the exact counterpart of the Double White except in colour. It seems to be a valuable sort with which we do not remember meeting before. The Double White Bouvardia is found a very useful subject for cutting, and the new Double Pink sort, President Garfield, is being tried.

The Arum Lily (*Calla æthiopica*) is grown largely here, but we were assured that it is a profitless plant except during the Christmas and Easter season, when its ivory-white spathes are greatly in demand for church decoration. Therefore the great aim in the culture of these is to get a quantity of them in flower a week or so before Christmas, and to retard the others till Easter. A houseful of these plants, with their handsome foliage and ivory white spathes overtopping the leaves, is a pretty sight.

Fielder's white Azalea is the favourite sort here for supplying cut blooms. It is considered to be greatly superior to the old white variety, now scarcely grown at all. We saw the two side by side in flower, and the difference between them is remarkable. Fielder's white has larger flowers of firmer texture, more plentifully produced in bigger trusses; the foliage is larger, and the plant is altogether a more vigorous grower. Yet, for all that Fielder's white is still an obscure plant in private gardens, and is not as a rule enumerated in trade lists.

Variegated plants.—Among these the most prominent appeared to be the golden-striped leaved variety of *Ophiopogon Jaburan*, called aureo-striatus, an elegant and pretty plant having grassy foliage, produced in a tuft, and gracefully recurved on all sides. Being evergreen, it is a capital winter plant for the greenhouse. *Aspidistra lurida*, appropriately named the Parlour Palm, is a conspicuous plant here, and so is the variegated leaved form of it, though it seems the demand for it far exceeds the supply; indeed it is one of those plants that appears to be becoming very popular for room adornment, and unfortunately it is not one of the freest to propagate. A well-grown plant of it, with a dense tuft of broad foliage, strongly banded with creamy yellow on a green ground, is very striking. Another variegated plant worthy of note is *Eurya latifolia* variegata, a Japanese shrub with handsomely marked lanceolate foliage. It is an excellent plant for the greenhouse in winter, but apparently not much known. It is almost if not quite hardy, but it is one of those plants that are always grateful for glass protection. The variegated-leaved form of the African Lily (*Agapanthus umbellatus*) is likewise a noteworthy plant here, although somewhat scarce in gardens. A variegated form of *Anthericum comosum* is also grown numerously, and an elegant plant it makes.

Ferns are grown pretty largely, especially *Phlebodium aureum*, which always finds a ready sale on account of the distinct silvery look its fronds possess. Besides the popular Maiden-hair (*Adiantum cuneatum*) there are two or three others grown extensively, viz., *A. pubescens*, *hispidulum*, and *concinnum*, all elegant forms and very suitable for supplying a continuous demand for cut fronds. *Doryopteris nobilis*, *Onychium japonicum* are among others grown largely in this nursery.

Other plants which we saw worthy of note were the double Mignonette, the pretty variety so prominent at London exhibitions last year under the name of *Reseda odorata prolifera alba*. It is indisputably one of the finest sorts of Mignonette yet raised. Laurustinuses in pots make attractive little bushes when covered with clusters of white bloom. They are, we understand, imported from Belgian nurseries, where they are largely grown as pot plants. The little *Lithospermum prostratum* is grown, too, in pots, and extremely neat and pretty it looks, and are even now studded with its sky-blue flowers. Genistas are grown by the thousand, as are also such plants as *Grevillea robusta*, *Cyperus alternifolius*, both green and variegated; and *Gardenias*, both intermedia and radicans. *Centropogon Lucyanus* has just been taken in hand; it is one of the brightest of winter flowers, the colour being a vivid rose-magenta. The Fairy Rose is found to be extremely useful in the cut-flower trade, as it is so continuously in flower throughout the winter. Camellias, especially the old double white, Tuberoses, and a host of other things are likewise grown extensively for the large cut-flower trade done here. Besides

the market and cut-flower business, an important branch is hardy evergreen and deciduous shrubs and trees, Roses, &c., to which an extensive acreage is devoted. W. G.

TREES AND SHRUBS.

TREE PLANTING IN IRELAND.

A CORRESPONDENCE on this important subject continues to be carried on in the *Irish Farmers' Gazette*. Dr. Lyons, M.P., gives the following account of his visit to the Galtee ranges:—

I had the honour to telegraph to you this day from Cahir, at the foot of the Galtee ranges, the result of two days spent in exploring the plantations on those historic mountains, carried out by Captain Smith-Barry, Count Moore, M.P., Lord Lismore, Lady Margaret Charteris, Captain Massy Dawson, Mr. Murtagh, Mr. Buckley, and many others now celebrated as Irish foresters. Under the guidance of Mr. Hartland, of Cork, who in the third generation of practical foresters is now planting on these slopes, I was enabled to see the results over some 10,000 acres of forest in all shapes, from the mature woods of forty years and upwards, now ready for the woodman's axe, to the youngest plantations of yesterday, and I had further the happiness to see large gangs of planters actually at work holeing, fencing, draining, and planting hardy three-year-old seedlings on the barest and otherwise most barren hillsides. I have seen probably some 10,000 acres planted from base to summit on a forest belt, which carefully protects and reserves every half or quarter acre of available oasis which will profitably grow a crop of Oats or Potatoes. Surely it was a healthful and cheery sign to see gangs of men who came two and three Irish miles to their work associated in reproductive labour of the most wholesome and manly kind. I could well have wished that my good and valued friends, Lord Spencer and George O. Trevelyan, had seen them at work, and learned by inquiry from those proprietors around, who had practical experience to guide them of 25 and 40 years, how infinitely better it was and more certainly profitable to the State to see them—men and boys, too—working zealously and healthily in every respect on the open hillside than shivering outside a workhouse. From the noblemen who blush to find themselves famous by their forest labours in the glens of Aherlow and the slopes of the Galtees, I appeal to those who hold the many hundreds of thousands of barren acres on the hillsides of Donegal and Mayo, Galway and Clare; to the Government I appeal for reproductive work to avert the impending crisis in Ireland, on the model of the works which, with unstinting hand, they are carrying out on the forests of India, on which, over a district of more than 60 millions of acres of forests, they now raise a revenue of more than £700,000 for the year 1881-82, which, after all expenses, leaves a nett profit to the State of more than a quarter of a million sterling per annum. As I have already fully explained in the House of Commons and on many other occasions, I ask no gratuitous boon at the hands of the Imperial Government. I ask only what we are fully entitled to as a right—an imperial guarantee, based on those revenues, to which we fully contribute our share, on all Irish loans made for State purposes in Ireland. Reafforesting will, as I have shown, after 40 years repay from £50 to £100 an acre on an outlay which may be stated as a maximum of £10. Let those who doubt my statement visit for themselves the Glen of Aherlow and the slopes of Galtemore. Mr. D. Sym Scott, Tipperary, addressed the following practical and suggestive letter to Dr. Lyons: "I cordially agree with you in your project of reafforesting Ireland. Timber once planted very soon becomes recuperative. Indeed, land planted with a crop of trees is like money laid out at compound interest, and is still ready money to lay hold of at any time. There are in this country immense tracts of land lying comparatively unproductive which would under a crop of trees, properly managed, become a terra felix from terra sterilis; a mine of wealth to the owner, and a source of happy employment to the rural labourers. It must not be inferred, how-

ever, that because the ground is waste any sort of plant will do to plant anywhere on any kind of soil. The great secret of success is the correct distribution of plants—adapting trees to soil, subsoil, rocky formation, and situation. The science of arboriculture is not simply planting *in situ* what may occur to the operator as timber. It is attained by planting the ground with a crop which will increase the value of the land occupied to the highest possible value at the least possible expense, and in the shortest period of time."

Mr. J. M'C. Meadows, in giving an account of work in the Glendalough plantation, says: "I take leave to say that the Glendalough plantations of the Mining Company of Ireland are a good example of what may be done with bleak mountain tracts, as advocated by Dr. Lyons. They have the advantage of being easily accessible, and if I limit myself to giving their history as narrated by the late Thomas Bewley, when chairman of that company in 1868, your readers will have materials for judging and gauging the merits of the question as a commercial one, on the authority of that gentleman. At the half-yearly meeting in July, 1868, Mr. Bewley gave the particulars as follows: There is a topic which, I believe, has never yet been alluded to, viz., the Glendalough estate. Those who were proprietors some seventeen or eighteen years ago will remember the great annoyance we received from the proprietors and farmers in the neighbourhood. We found it impossible to get the produce of our mines from the mine to the dressing floors in consequence of not being allowed a right of way through certain property. That ended in our purchasing up the whole of the property, about four miles in length. We have planted between five and six hundred acres of Larch and Scotch Fir. We commenced planting about twelve years ago. I think it has been a great success, and a more beautiful plantation I never beheld. From this time I expect we shall be receiving a moderate income from the sale of the timber. Up to the present we have planted about one million of trees, and we expect to plant 250 acres more, making altogether about 800 acres. We have an estimate made on the assumption that at the end of the twenty-fifth year the timber would be in a marketable condition, and the calculation is that at the end of the twenty-fifth year the thinnings will have realised about £18 an acre, and that the value of the timber standing will be from £22 to £24 an acre. This is done at a cost of £7 an acre, so that we will have been repaid the whole of the original outlay with interest up to the end of the twenty-fifth year, and there will then be standing on what would be otherwise worthless property timber to the value of £23 an acre. Of course, if we go to fifty years the value will be much increased, but, perhaps, for most of us fifty years would be rather too long a period to look to. It has been a most fortunate commercial speculation. Those who come after us will realise a very large advantage, whilst we in a short time will be getting the commencement of the benefit."

"In this instance we may find that the example set now twenty-five years ago by the Mining Company of Ireland upon mountain sides at the Seven Churches and its results may lead others to go and do likewise, when employment for those whose lot it is to ask leave to toil is so sorely needed."

THE HOLLY.

UNDER the form "holm," the name of the Holly enters into many of our early English place names, such as Holmwood, and no one has ever doubted the indigenous character of the species, which occurs from South Norway and the Highlands of Scotland to the Caucasus, and which is still represented by ancient trees in the oldest portions of our English forests. On the poor, sandy soil of the Millstone Grit in the old forest of Kingswood, now better known as the Bristol coal-field, the Hollies flourished so luxuriantly, that chatty old Aubrey suggests that they derive benefit "from the effluvia of that mineral." The Speech house in the centre of the Forest of Dean is surrounded by ancient Hollies, boughs cut from which used down

to within the last fifty years to take the place of the Testament in every oath sworn in the Verderer's court. In fact, Mr. Bellows has brought forward much evidence to show that the said Speech house is a most ancient rendezvous, and that the Holly was planted as a sacred tree round the villages of Kelts even on the bleak downs of Cornwall. The New Forest is also noted for its Hollies, and one of the largest in the kingdom is probably that at Claremont, 80 feet in height, which, considering the extremely slow growth of the tree, may be a relic of the primæval forest of North Surrey. The Holly will grow in any soil in which water is not absolutely stagnant, but it prefers a rather dry, sandy loam, and, whilst it not only "outdares cold winter's ire," but seems to flourish in the bleakest situations, it does not do well under the shade of other trees. It is generally from 10 feet to 40 feet in height, and not more than 2 feet or 3 feet in girth, but Hollies at Bleak Hill, Shropshire, are stated to attain a circumference of 14 feet. The slow-growing, even, and hard-grained wood is, except at the centre, as white as ivory, and is valued in turning and inlaying. It stains well, and is, therefore, used in place of ebony for the black handles of tea-pots, whilst for engraving it is, perhaps, second only to Boxwood. One of the great charms of the Holly is its silvery bark. Smooth on the old stems as in the Beech, and without the glossy sheen of the beautiful Birch, it yet affords a most pleasing contrast to the dark foliage. The young twigs are light green and slightly downy. It is the foliage, however, contrasting alike with the bright greens of surrounding trees in summer and with their leafless branches in winter, that gives the chief picturesque value to this "incomparable tree," as Evelyn terms this handsomest of our native evergreens. The glossy green leaves are associated in Shakespeare's lyric with the pleasures of forest life:—

Heigh-ho! the green Holly!

This life is most jolly.

Southey's well-known poem has popularised the fact that the leaves on the lower boughs are more spinous than those on the upper, suggesting a reason in accordance with that newer teleology which has been explained by the teaching of Darwin. The spines of the lower branches do, indeed, protect them from cattle, though not from deer; whilst a sort of innate tendency to spinousness must account for the one terminal point of the entire upper leaves. Still, besides deer, the Holly has enemies, a species of aphid (*Aphis ilicis*) living on the young shoots, and a fly (*Phytomyza ilicis*) burrowing in the larval stage under the epidermis of the leaves.

Holly berries.—From May to August the tree bears clusters of small, wax-like, white flowers, which seem peculiarly attractive to bees, and as the species is almost dioecious, that is, has on one tree flowers in nearly all of which the ovary is aborted, and on another those in which the four stamens bear hardly any pollen, it is by these insects that fertilisation is mainly effected. This is also, of course, the reason why certain trees, being male, never produce berries, though an opinion has been expressed that male Hollies become female with age, a point deserving further attention. Many of the variegated forms in cultivation produce little or no fruit, though one of these (*laurifolia*) bears a profusion of fragrant flowers. This absence of fruit argues a certain want of vigour, which is borne out by the fact that variegation is apparently produced by a deficiency of potash in the soil. Whether, as has been suggested, this ornamental partial "chlorosis," as it is technically termed, be or be not due to some internal parasitic alga, and whether, as Mr. Jenner Weir has suggested to me, it be contagious, are points yet to be decided. The berry is generally red, but sometimes yellow, white, or, without the aid of frost, black; but the four-chambered ovary with its four seeds are so distinct from the five-chambered berry of the Ivy, with the "ruminated" albumen of its seeds that the idea once suggested of hybridism or grafting between the two plants is, of course, ridiculous. The fruit, though eaten with impunity by birds, may be said to be poisonous to man, being

extremely emetic and cathartic in its effects; but, owing to a bitter principle, ilicin, which they contain, the leaves were formerly used in fever and rheumatism.

Holly hedges.—Though beautiful anywhere, it is as a hedge-forming tree that, since the days of Evelyn, the Holly has been most valued. "Is there under the heavens," he asks in his "Sylva," "any more glorious and refreshing object than an impregnable hedge of about 400 feet in length, 9 feet high, and 5 feet in diameter, which I can still show at any time of the year in my ruined garden at Sayes Court (thanks to the Czar of Muscovy), glittering with its armed and varnished leaves blushing with their natural corale? It mocks the rudest assaults of the weather, beasts, and hedge-breakers." For this purpose the variety known as Hodgen's Holly, or latifolia, is the best adapted, as it has fine, broad, and deep-coloured leaves, and a close, compact habit, without that tendency to become thin below and to run up into standards that marks some common varieties. Hollies can be readily raised from cuttings, which are preferably set in April or May; but, as Evelyn says, seedlings are better, especially natural and well-established ones from the woods. The berries for seed should be mixed with sandy loam for a twelvemonth, as they do not germinate till their second spring. The boughs of the Holly, like those of the Ash, are not unfrequently "fasciated," or grown together into broad, band-like masses. This is particularly common on the poor soil of Bagshot sand in the Wokingham district, and, though interesting, cannot be said to add to the beauty of the tree. Few objects on a lawn are more beautiful than a Holly bush or clump of Hollies, with red or yellow berries peeping from among the glossy leaves flecked with ivory-white, while a Brier Rose clambers with pink and white sprays among its boughs, or the autumnal glories of Virginian Creeper relieve the more sombre green.—*Journal of Forestry.*

FRUIT GARDEN.

ROOF PITCH FOR VINERIES.

MR. MACKIE (p. 546) has, I think, given excellent advice as regards the pitch of the roof of vineries, both as regards early and late houses. I would go even further, and say the pitch of a vinery roof should be equal in degrees to the latitude of the place in which it is situated. I am so convinced of the truth of this that I am about to erect two span-roofed houses 190 feet long at a pitch of 59°. These houses are intended for early pot culture. Of course 10° or 20° more or less do not make any appreciable difference in the number of rays of light admitted throughout the year. I am building at a steeper pitch than 52°, the latitude of Cambridge, to give me a little more rafter; my houses are 12 feet wide, with an 11-foot rafter.

According to Bouguer's table of the rays reflected from glass, of 1000, when the angle of incidence is—

1°, 25 rays are reflected	50°, 57 rays are reflected
10°, 25 " "	60°, 112 " "
20°, 25 " "	70°, 222 " "
30°, 27 " "	80°, 412 " "
40°, 34 " "	85°, 543 " "

From this it will be seen that at angles of incidence from 1° to 30° the number of rays reflected is nearly the same. The roof of a house may therefore be as much as 30° higher than that in which the sun's rays would fall perpendicularly without any important diminution in the light transmitted to the interior. In latitude 54° the angle of the roof may be as high as 74° or as low as 34° without the transmission of light being materially affected. Therefore, between these limits we may choose any angle. Houses such as those I am about to erect having no bottom ventilation must necessarily have a steep pitch to assist the circulation of the air. As regards houses for any one particular season of the year, the late Mr. Robert Thompson said, "It may be desirable to construct a house with a slope to which the sun's rays shall be perpendicular at any given period of

the year, say on August 15, at a place in latitude 54°. The rule given by the Rev. Thomas Wilkinson in the Transactions of the Horticultural Society is to make the angle contained between the back wall of the house and its roof equal to the complement of the latitude of the place, plus or minus the sun's declination for the day on which we wish his rays to strike perpendicularly. From the vernal to the autumnal equinox the declination is to be added; from the autumnal to the vernal it must be subtracted. Thus we have 90° - 54° = 36°, the complement of the latitude, and adding to this 14°, the sun's declination on August 15, we obtain 50° as the angle between the back wall and roof. It is true we have only to subtract this from 90° and we have the angle of elevation, 40°—the angle of elevation which a roof ought to have in order that the sun's rays may fall perpendicularly upon it on August 15, nearly eight weeks after the longest day; and it may be observed that they will do the same about April 28, or eight weeks before the longest day." As regards Grapes colouring better in a house with a steep roof on account of their receiving more light, it may be so, but I have always found Grapes to colour as well under the shade of the leaves of the Vine as they do in full sunlight. G. A. PASSINGHAM.
Milton, Cambs.

PEACHES IN DELAWARE.

TAKING a summer vacation, I went on board an Old Dominion line steamer at New York for Lewes, to spend a week among the Delaware orchards, about August 20. Of course, everywhere through Delaware Peaches were in profusion. Wherever I stopped evaporators were at work, each establishment using anywhere from 100 baskets upwards daily, and taking many which could not be shipped except at a loss, and by thus taking up the surplus, allowing better prices for those shipped. In the course of my trip I fell in with the Williams, Alden, Automatic, and Phillips evaporators, and, so far as I could judge from the finished article, there was no important difference, all doing good work. But my chief errand was to see the orchards, with their bending loads of fruit, and so I proceeded on, from point to point, everywhere meeting double-decked waggons loaded with Peaches and nothing else. In short, during my stay in Delaware outside the cities I hardly recollect meeting a team loaded with aught but Peaches. At Milford there were not less than twenty waggons at the station, either unloading or waiting for an opportunity to do so, and as fast as a half-dozen teams went away empty, as many more loaded came up behind.

There is an appearance of age, health, and maturity in most of the Delaware Peach orchards that would lead one to say, How is this? Well, first, the soil is well suited to the Peach. The surface in most of the peninsula is level, the soil only moderately fertile; but it is composed of coarse sand, mixed with clay and loam in such proportions as to make it very friable and easily worked; indeed, I think there is just enough calcareous and saline matter to make it a good soil for the Peach; and on just such a soil, anywhere from Georgia to Maine, I believe, with Delaware management, the Peach will succeed; and yet, in this soil of Delaware with bad management the Peach does sometimes fail. I saw large orchards well cultivated and managed, in which I failed to see a single diseased or unproductive tree. In one orchard—that of Mr. Phillips, of Milford—I found trees whose girth was 36 inches, 37 inches, 43 inches, 43½ inches, 44 inches, and having a proportional head, all loaded with beautiful, delicious fruit, a large proportion of which went to the owner's three evaporators which, like huge monsters, were using up Peaches as fast as they could be provided, and the finished article was almost equal in quality to the luscious fruit in his orchard which it left two hours before. Such wonderful speed in drying fruit would have been thought impossible ten years ago. In nearly every instance where I supposed I had found diseased

trees, I found, on examination, the borer at the base of the tree. This year's Peach crop, however, has injured many trees by breaking them down and exhausting their vitality; the orchards will need one or more years' rest, with good culture, to regain vitality sufficient to produce again. The best kinds this year were Mountain Rose, Crawford's Early, Crawford's Late, Oldmixon Free, Reeve's Favourite, Moore's Favourite, Ward's Late, Stump the World, and Smock. Mary's Choice I found all the way from very poor to best, according to circumstances. With good care and culture, and not too heavy a load for the tree, it is fine; when overloaded, like all others, it is poor. Where persons find Peaches shy of setting a crop, I should say try Mary's Choice, and thin out if necessary—a thing, however, that very few will ever do, though those who have done it admit it is a paying practice always, when needed. The Shakers at Enfield, Conn., last year thinned their Crawford's Early, so that 140 made a bushel, and received at their nearest market 8 dols. per bushel cash; when they have a crop they will try it again. Let all remember that fancy fruit brings fancy prices; it is the poor article that begs a market.

The Mountain Rose takes the place of the Early York now. The Oldmixon Free is regarded as having many good qualities, and can be raised probably more cheaply than almost any other Peach, and is excellent for canning, except that the fashion now runs to yellow-fleshed Peaches. Hence Reeves's Favourite, Crawford's Late, and Smock take first places for canning. Richardson & Robbins, of Dover, use these varieties largely for canning, and a look through their establishment from the receiving-room onwards would satisfy the most fastidious epicure. Richardson told me that the Susquehanna Peach would beat all others if it were only more productive. He who can raise fine Susquehanna Peaches may set his own price for them.—*Rural New Yorker.*

Marie Louise Pear.—We have an old tree of this, fan trained, which covers about 24 feet of west wall. Its roots are under a gravel walk; therefore, they get neither mulching nor artificial watering, and yet during the eleven seasons I have known this tree, the average annual crop has not been less than 3 bushels; once it was over 6 bushels. As regards quality, I may mention that its fruit was exhibited twice at Hereford and stood first in its class on both occasions. Would the cord-on system of training give equally good results?—A. G. BRIDGEMAN, *Marlon.*

Peach bloom and ants.—We are forcing Peaches, and on December 21 last the first blossom opened, which I watched closely. The following morning others opened, although the weather was dull and foggy. Next morning, the 23rd, I further examined the bloom, and found all the pistils eaten off and lying on the ground, but the petals were left, as though nothing had happened. On looking farther I soon discovered that they were infested with ants. I therefore got some warm water and thoroughly soaked the borders in all the driest places, and all round the pipes, back and front. I then got some treacle, put some in saucers round the tree, also some up the stems, and here and there all over the house. I find by so doing that the ants are not only trapped, but detained from going further up the trees; they stop and take their fill of the treacle, and return to hide and take rest. I have done this for nine consecutive days, and now I think I have quite overcome my would-be difficulty. I may add that I have had them on the fruit, and to get rid of them was a great difficulty, but it was overcome in the manner just described.—W. A. COOK, *The Cedars, East Sheen.*

Josephine de Malines Pear.—According to most manuals and catalogues this delicious Pear is ripe from February to May, but with us this year it is doing good service now, and has been doing so since the middle of November. I should like to know if any fruit grower has noticed this change of season, and why this fine Pear should be so much earlier this year than usual.—R. A. HOLME LACY.

PLANTS IN FLOWER.

FINELY-GROWN ARUM LILY.—Mr. Gumbleton informs us that he has a plant of *Calla æthiopica* in his conservatory at Belgrove, Queenstown, now carrying no fewer than fourteen fine spathes.

ANEMONES IN WINTER.—A bunch of *A. coronaria* in various colours is an uncommon occurrence in the first week of the year. It has been sent to us by Mr. Dean, of the Bedford Seed Grounds, Hounslow, who seems to make a speciality of these and other spring flowers.

EARLY PRIMROSES.—I send a bunch of common Primroses which I gathered this afternoon (18th January) from a bank facing due north to show you how early they are. Isolated flowers of them are common here and there along the hedgerows, but I never remember seeing such full and perfect-grown flowers so early.—A. DEWAR, *Hall Court, Botley, Hants.*

NARCISSUS MONOPHYLLUS.—Herewith I send you a flower of the charming white Hoop Petticoat Daffodil, and I am pleased to tell you that I have hit the way in which to manage it. In 1881 I had a quantity of roots from Algiers, and at once had them planted in my bottomless pans, plunged in a cold frame, and protected during severe weather. Now I am promised an abundant show of these beautiful flowers, judging by the appearance of numerous buds, some of which I will send you next week.—P. BARR.

HÆMANTHUS ALBUS MACULATUS is a singularly modest plant in point of colour, but one that may be used with good effect in winter floral decorations. From between a pair of large thick green leaves spotted copiously with white it produces a stout erect flower-stem some 6 inches or more high, ornamented by a dense cluster of white flowers with yellow-tipped stamens. It is a direct contrast in colour to the bright red *H. coccineus*, also flowering now. These are now in bloom in the rich bulb collection in the Pine-apple Nursery, Maida Vale.

KENNEDYA MARRYATTIANA—There are not many brighter greenhouse climbing plants that habitually flower at this season than this one, some beautiful flower-sprays of which have been sent to us by a correspondent. It is at once distinguished from other *Kennedya*s by the broad, roundish trifoliate leaves covered with a dense soft down on the under surfaces, and by its umbelled clusters of flowers about the size of Sweet Peas, of a bright, glowing red, with a conspicuous blotch on the dorsal petal. In a selection of greenhouse climbers we should always include this fine Australian plant.

NEW YEAR'S DAY FLOWERS.—I cut the following this morning from plants in the open, viz., African Marigolds, Chrysanthemums, Daisies, scarlet Pelargoniums, yellow Primroses, Polyanthus, Pansies, *Pyrus japonica*, Roses (Gloire de Dijon, La France, and others), Brompton Stocks, Wallflowers, Veronicas, Violas, and Violets. I have never before had such a variety of bloom on New Year's Day. My garden is on the high ground of a river valley, facing the south and very much exposed to the north-west, from which quarter we here get most of our gales and cutting winds in ordinary winters.—E. W. SOUTHWOOD, *Heathlands, Fakenham, Norfolk.*

ECHVERIA RETUSA.—Some well flowered specimens of this succulent plant exhibited by Mr. Barron on Tuesday last, from the gardens at Chiswick, showed admirably what a useful winter plant this is. For greenhouse and conservatory decoration it is much superior to *E. secunda*, so much oftener met with. *E. retusa* has whitish powdery foliage and flower-stems some 6 inches or 9 inches high, producing numerous orange-red blossoms which continue in perfection for a long time. There are several varieties of it, and one of which we made a note some time ago, called *speciosa*, seem- to be one of the best, but the original is nevertheless a beautiful plant.

CHRYSANTHEMUM MRS. C. CAREY.—This beautiful late flowering variety is as valuable at this season as *Elaine* is in October, and, singularly enough, both of these sorts resemble each other. It is of the Japanese section, having numerous long pure white florets loosely arranged in moderately large heads. The foliage, too, is bold and massive, and sets off the flowers admirably. Those who require one of the best late flowering Chrysanthemums should make a note of this one. Some excellent blooms of it have reached us from the garden at Nash Court, Faversham.

PAVONIA WIoT.—This plant, which is allied to the *Hibiscus* and *Abutilon*, has been now some years in gardens, but we never saw it well flowered till the other day, when we met with it in Mr. Maller's nursery at Lee, carrying a fine head of about a dozen blooms in an umbel-like cluster, and it had a strikingly bright appearance amongst the fine-foliated plants with which it was associated. Its chief beauty is the involucre bracts which immediately surround the flowers. These are very numerous, narrow, and erect, and of a bright magenta, while the corolla is a dull, heavy purple. Flowering as it does in winter, it is a valuable plant, and one quite out of the ordinary run of plants.

APHELANDRA NITENS AND AURANTIACA.—These two brilliantly flowered Acanthads are among the showiest plants in the stoves at Messrs. Henderson's nursery, St. John's Wood, at the present time. The first is remarkable for its polished surfaced leaves of a bronzy hue and its glowing vermilion-scarlet blossoms, produced in a dense erect clustersome 4 inches or 5 inches in length. *A. aurantiaca* is a larger growing species, and the colour of the blossoms is more orange, but equally as showy as in the other. Both are valuable winter plants; flowering but when a few inches high. Here they are found extremely useful in floral decorations, for one or two are sufficient to light up a group of plants. *A. Roezli*, a newer, but commoner kind, is likewise in flower and highly attractive.

EARLY OPEN-AIR FLOWERS.—Herewith I send Primroses of many hues, winter Aconites, Snowdrops (*Galanthus Imperati*)—always first here—an opening bud of *Sisyrinchium grandiflorum*, *Crocus vernus* and *Imperati*; Pansies; one or two; *Helleborus niger* *atrorubens*, *colchicus* and *odoratus*, the lovely milky cups of *Saxifraga Burseriana*; Cowslips, Hepaticas, single blue and double red; *Scilla sibirica*, and a spray of sweet-scented Jonquil; this from a cold house in pots, forced last year, grown on until ripe, and kept in a cold frame all the summer, until they started naturally in autumn, when they were taken to their present quarters, where they have been blooming since October, quietly throwing up spike after spike, and will continue to do so for some time to come.—T. SMITH, *Newry.*

FLOWERS FROM CORNWALL.—I send you a box of flowers to-day (Jan. 8), most of which, in fact all but the Chrysanthemums, have been gathered out of doors. The *Veronica* sent is the prettiest and most floriferous with which I am acquainted, there being few months throughout the year in which we cannot gather quantities of its bright magenta coloured flowers. Of Primroses we have large quantities, especially the single red variety, which seems the earliest of all; some plants of this used for dinner table decoration each bear from 20 to 30 expanded blossoms. They look very pretty under artificial light, and appear quite at home in their new quarters. The *Anemone apennina* opened a few of its lovely sky blue blossoms in time to welcome the new year; it is even earlier with us than the Snowdrop. The *Aponogeton* blossoms sent are slightly discoloured owing to the few degrees of frost which we have lately had. The winter *Heliotrope* I am afraid I shall be obliged in the course of a year or two to term a nuisance, as it is finding its way towards the hardy flower border quite fast. Our Christmas Roses have seen the best of their days for this season; the clump from

which the two unexpanded blossoms sent were gathered has been especially fine, and I have gathered a great number of grand blossoms from it. The weather has been very mild and wet here for some time past, but now seems changed a little. The wind has set in from the eastward, and to-day is very biting. However, "its an ill wind that blows nobody good;" we can get on to-day with fork in hand to ground that has been like a "slough of despond" for months past.—JOHN C. TALLACK, *Prideaux Place, Padstow.* [The flowers sent with this were truly charming, especially the Primroses, four kinds of which (lilac, white, yellow, and red) were as clear in colour and as fine as if they had come from under glass. The Christmas Rose was also good, as was the *Veronica*, which we take to be *meldensis*. Such a fine collection at this time of the year serves to show how suitable the climate of Cornwall must be for the growth of outdoor flowers. From the open air at Highgate a correspondent has also sent us a Rose shoot nearly 4 inches long in full leaf, and a Pear blossom from a tree which a few days more of the same temperature would make a mass of white.]

DAHLIA ARBOREA.—The most remarkable exhibit at South Kensington on Tuesday last was some flowers of this Mexican *Dahlia* shown by Mr. Green from Sir George Macleay's garden at Pendell Court, Bletchingley. The plant somewhat resembles in growth the better-known *D. imperialis*, but is very different as regards the flowers. These are some 3 inches across. Normally the flowers have ray florets of a soft rose-pink and disk florets of bright yellow, but singularly enough Mr. Green's plant produced two kinds of flowers on the same plant; some are normal or single, the others with an outer row of narrow and flat ray florets, and the rest tubular or quilled. The double flowers are the showiest, and if the sport could be perpetuated it would be the most singular *Dahlia* we have, not excepting the *Cactus Dahlia* (*D. Juarezii*). The Pendell Court plant is 9 feet in height, and even without the flowers handsome, as the foliage is so fine. In the same house with *D. arborea* Mr. Green has a plant in bloom of *D. imperialis* which is 23 feet high.

BILLBERGIA MORELI.—Among the numerous cultivated species of *Billbergia*, one of the most beautiful genera in Bromeliaceæ, none surpass in attractiveness the subject of this note, now finely in bloom in the Pine-apple Nursery, Maida Vale. The characteristic features of this fine plant are: a vasiform tuft of long recurved leaves, not marked in any way, but wholly of a bright green. From the centre of this tuft a long flower-spike is produced, and hangs over the side of the plant. The spike is furnished for fully half its length with long, pointed membranous bracts of the most brilliant carmine tint, and from the axils of these the flowers are produced. The blossoms are about 2 inches long, half yellow and half a deep bluish purple, and the calices being whitish, there is a strange association of colours. It is, indeed, a bright plant, particularly in mid-winter, at which season it habitually flowers. Unlike several of the *Billbergias*, this species flowers when in quite a small state—a desirable quality where space is a consideration. Having regard to the fact that the culture of Bromeliaceous plants is so very simple, it is not a little surprising that they remain in such obscurity as they now do, at least in this country.

Coleuses for winter decoration (p. 4)

—I do not think the reason why these are not oftener used than they are for the purpose is far to seek. Most of us have very little spare room in winter in houses in which these can be grown. Indeed, we think ourselves lucky if we are able to keep cuttings of them over winter. Then, again, they are not by any means so useful in winter as in summer, as they will not bear changes of temperature, and cannot be used for table work or decoration in the house; this alone is very much against them.—JOHN C. TALLACK.

CACTI AND THEIR USES.

THE avenue of gigantic Cacti shown in our illustration is such as is not unfrequently met with along the Mediterranean coast lands, where these plants have long become naturalised, and where in some gardens they are cultivated with excellent effect among plants and trees of a more leafy nature. The whole of the Natural Order Cactaceæ belongs, with perhaps only two exceptions, to the New World, where, from California down to Chili especially, they are found in abundance. *Opuntias*, *Cereus*, *Phyllocactus*, and the dozen or so other genera constituting this Order all hail from this quarter, Mexico, perhaps, being the country where they are most abundant, although they are

or astonished by the unplumlike appearance of most of its inmates. From the small *Selaginella*-like *Haworthia* to the thick, post-like *Cereus* and *Euphorbia*, and from the Sea Anemone-like, foul smelling *Stapelia* to the large night-flowering *Cactus* there is much which to the general visitor appears highly interesting or amusingly ugly. Viewed for their forms alone, such plants are deserving of more favour than they meet with here, while if we add the beautiful, gigantic, or curious flowers borne by most of them, their claim is doubled at least. Such plants as the *Phyllocactus* and *Epiphyllum* are fairly well known and generally cultivated, but the mass of the plants of the Order are not much troubled about. In a collection of

the gardener to take the unwary in; the curious looking *Opuntias*, whose appearance is something like a number of green battledores placed one above the other, and so on all through the house. I have been told that American visitors almost invariably express high admiration for this collection, and two of them who are excellent plantsmen once told us that this house was worth coming from America to see. To most English plant cultivators this may seem hardly creditable, but we must not calculate taste in all countries to be as our own. Mr. Loder and several other correspondents of this paper have done much to awaken a love for some of the choicer Cacti, and it is to be hoped that their endeavours may pro-



Roadside vegetation in Mexico.

to be found now quite at home in various other parts of the globe. Some indeed, such as the *Opuntias*, on which the cochineal insect is cultivated, are grown in large numbers in Northern Africa, the Canary Islands, and the East Indies, as well as in Europe, where the manufacture of cochineal is conducted. The tree overhanging the *Cereus* in the right-hand corner of the illustration is apparently the Cochineal *Opuntia*. The *Echinocactus* is eaten by the mules of South America, after removing the spines with their feet, and the fruit of the *Opuntia* (Prickly Pear) is used in colour making, besides being relishable as a desert fruit. As contrasted with the grotesque form and singular appearance of most of the members of this family, their economic properties are insignificant, and it is as garden plants that we would draw attention to them here. The succulent house at Kew has always been one of the principal attractions of the place. Few people can walk through a house such as this without being amused

plants it certainly would seem proper to have represented the curious as well as the beautiful forms of vegetable life, and although a house of well bloomed Orchids will always find more admirers than a mountain side of Cacti, there seems no reason for excluding them altogether from our collections. In this, however, as in all other matters where taste is the pivot on which favour turns, there is little use in remonstrance; we must await the turn of fickle fortune. Meanwhile it is with great pleasure that we look through our fine national collection at Kew, and hear people acquainted with such matters say that it is the finest in the world. Here are the spiny dumpy *Echinocactus*, which looks like a Vegetable Marrow, thickly studded with rows of brown pins; the small *Mammillarias* covered with spines arranged in stars and looking like thousands of insects; the Turk's-cap Cactus (*Melocactus communis*), whose red crown is always viewed by juveniles with suspicion, as looking like a trick of

duce good results. There is much to be learned yet in regard to the cultivation of many of the species, the orthodox heat, sunshine, and lime rubbish system of growing them proving in a number of cases the reverse of successful. The Order has a wide geographical range, and therefore we must manage our plants so as to give them a temperature and treatment similar to what each enjoys naturally.

The climbing species of *Cereus* are remarkable for the size, colour, and fragrance of their flowers, and in some cases for their expanding only during night time. *C. nycticalus*, *C. grandiflorus*, and *C. triangularis* are large-flowered, sweet-scented, night-blooming kinds, well adapted for cultivation in a stove or warm greenhouse; *C. Mallisoni*, *C. Napoleonis*, and *C. Macdonaldiae* are smaller flowered, but very free day blooming kinds. A handsome species is the Rat's-tail Cactus, *C. flagelliformis*, of which there is a fine specimen in the succulent house at Kew. It is grafted on a climb-

ing species, and the long stems hang down from the rafter in a large cluster in a very graceful and striking manner. *C. speciosissima* is an old gorgeous flowered kind sometimes met with in old-fashioned collections, and where known very much admired. Like the *Phyllocacti*, it is a very easy plant to grow and flower, and along with the last-mentioned there are few plants which prove more satisfactory than these old Cacti. The great variety of form which distinguishes the Order *Cactaceæ* cannot be better exemplified than by selecting some of them, such, for instance, as *Rhipsalis*, *Epiphyllum*, *Pereskia*, *Disocactus*, the *Yucca*-like *Leuchtenbergia*, which do not bear the slightest resemblance in general appearance to the *Cereus*, *Echinocactus*, *Mammillaria*, &c. It is well known that most of the genera will graft one upon the other, the *Epiphyllum* on the *Pereskia* being perhaps the best known instance of this. We heard a day or two ago that *Epiphyllum* had been grafted on *Euphorbia splendens* and was found to do well. It seems highly improbable that such a thing should happen, and we shall be glad to hear from anyone who has tested this whether or not it could be practised with success. B.

FLOWER GARDEN.

THE GLADIOLUS FAILURE.

"DELTA" says (p. 570, Vol. XXII.), "I am able by taking care of the spawn to keep many varieties that I should otherwise have lost." Now, according to my experience, this statement contains the whole secret of success as regards *Gladiolus* culture. I cannot do much more with the old corms than "Delta." I plant to all appearance sound, healthy bulbs, and some arrive at the flowering stage and do well, while others die off both before and after flowering in a mysterious manner. Spawn and seedling plants are both much more encouraging, and, moreover, the *Gladiolus* failure is not so universal as "Delta" would make us believe. Not many miles from where I write there is a very successful amateur grower (Mr. Dobree, of Wellington), who not only grows the *Gladiolus* in perfection, but takes the highest prizes with it at all the shows in the West of England at which he exhibits, as well as at the Crystal Palace and other large exhibitions. This I think sufficient to prove that although "Delta" has been unsuccessful, it does not follow that failure is universal. "Delta's" most surprising statement is that one grower lost 50,000 bulbs in two years. Surely there must be some mistake as regards these figures. I write rather confidently on this subject, because I am an old grower, and since the 1st of November last have passed through my hands over 2000 bulbs that flowered last year. I mention this to show that at least I ought to know something about *Gladioli*. My course of management, both with young bulbs raised from spawn and seed, is as follows, and I will begin with

Soil. In the elaborate preparation of which I have no faith. A deep staple, not over drained, but at the same time not water-logged, will suit them, if not wholly of a peaty or sandy character; but it must be dug up at least 12 inches deep, and good down to that depth. If at all poor, it must be well manured in November with good farmyard manure, well rotted, and a good portion of the manure should be placed in the bottom of the trench as the digging goes on. This is indispensable, for the plants must be generously fed. I have found in practice that I get the best bulbs where their roots have found their way down to a lump of manure, and, further, a depth of 12 inches of good soil is necessary to have the bulbs a sufficient distance below the surface. It is my opinion that half the *Gladioli* planted in this country are not put deep enough; every bulb when planted should be at least 4 inches under the surface, and in light, well-drained soils 6 inches is not too much. I have in my time planted in all manner of expensive mixtures, but the results were no better than now when I plant in the ordinary soil of the garden. The only

difference is that I use considerably more manure than when I expended my strength on preparing a costly compost. By confining myself to young stock I have no reason to find fault with the results; but it is proper to remark that I often change the position of the beds, because I believe that a change of soil is good for them. This plan is adopted by Mr. Kelway, in the deep rich soil of whose nursery very little manure is used. There need not be a doubt that an early preparation of the soil in winter is beneficial to *Gladioli*. Our land, on which we hope to plant many hundreds in the spring, was heavily manured and dug up early in November. Before planting time this will be lightly forked over, and all large lumps broken to pieces with a fork.

Raising seedlings.—Perhaps it may be well to say that I write from the reputedly favoured county of Somerset, where no doubt the summers are longer than in more northern districts, a circumstance which may in some measure add to my success. For the most part, I save my own seed, and to insure its being of good quality, I fertilise the best flowers. I attribute a good deal of my success in raising seedlings to a proper selection and preparation of the soil. It is much more necessary to have it rich and fine in texture than when dealing with bulbs, and it must be understood that I sow my seed in open borders in the kitchen garden. I select a warm position, where the soil is both light and rich, and get the surface fine by raking it over rather deeply. About the middle of April I sow the seed in drills an inch in depth and 8 inches apart. The seed is covered with sifted sandy soil. To secure a good growth, the first year the seed must be sown very thinly, and then under ordinary circumstances, with no more care during the summer than that usually given to similar subjects, two-thirds of the bulbs will, if properly managed during autumn and winter, flower the next year. In our strong soil and in mild autumns they will keep growing until the middle of December, and unless severe frost sets in I do not usually lift seedling plants before that time. I think it may be accepted as a fact that the majority of *Gladioli* are lifted too early in autumn and kept out of the ground too long. I had last year more than 80 per cent. of my seedling bulbs in flower; that is to say, they flowered the next year after being sown. Young bulbs should always be cleaned and stored away in dry sand or earth, and not be allowed to lie about and get withered up by the air, thereby weakening them.

Raising bulbs from spawn.—When the large roots are taken up in autumn, a number of little bulbets will be found round the base of the large corm, and as some varieties produce more spawn than others, it is a good plan to mark those that it is desired to preserve, and then the inferior sorts may be destroyed if not wanted. In this matter the *Gladiolus* is an easy subject with which to deal. If a pure stock of first-rate kinds is desired, it is not much trouble to label them and keep each sort separate by placing them in small pots. Having secured the spawn, that of different sorts may be stored in the same way. Early in March prepare a place for them under the same conditions as I have advised for sowing the seed. Let the ground be dug deeply, heavily manured, and exposed to the winter's frost; in a word, treat them generously without any coddling, and I feel sure a sufficient reward waits those prepared to throw away their old bulbs and to confine themselves to young stock. A period of only two years is all that is required to place anyone in this position, and when once obtained there will be no difficulty in keeping up plenty of healthy corms. At the end of the first season's growth, lift the roots about the middle of December (unless severe frost sets in before that time) and store them away in the manner described. The cooler their quarters during winter the better, provided they are not exposed to actual frost. I omitted to mention in its proper place that it is desirable to have the drills for spawn deeper than for seed; a drill 2 inches deep is not too much. I merely sow the spawn thinly along the drill. I would emphasise the word thinly because, if the

young plants are crowded they will not get large enough for flowering the next year. It will not be much out of place here if I say that it would never surprise me to hear that some one had made the *Gladiolus* an annual plant, and flowered it from seed the first year. In our own garden the young bulbets come up quite promiscuously, and flower frequently the first year without any attention.

Treatment of the bulbs the second year.—If the seedling plants and young spawn have been liberally grown, the majority of the corms will flower the second year. But I must say here, and I wish to do so in the most explicit manner, that this course of management will not produce spikes fit for exhibition purposes. I am not an exhibitor, although an admirer of *Gladioli*; my business is to grow them for garden decoration only, and therefore I do not aim at producing large spikes of bloom; I grow them for the fine display they make. I select positions for them in any convenient places that do not interfere with the general scheme of decoration. I do not consider the *Gladiolus* a suitable plant to work in in a position where there is any attempt at harmony and effective arrangement. It is a very suitable subject for isolated beds and for clumps in mixed borders; but if *Gladioli* are to be grown successfully a properly prepared bed is the best place for them. Having selected the position and prepared the bed, choose the early part of the month of March for planting. The bulbs should be 6 inches apart all over the bed, and they should be planted in drills 4 inches deep, and if the largest corms are selected the majority of them will flower. The small ones may be planted in another situation to get larger for another year; but if any of them should push up a flower-spike it should be cut off without being allowed to open a bloom, for I feel sure after a bulb has once flowered there is no certainty as to its future behaviour. Someone may ask what is to become of the bulbs after they have once flowered. My advice is that if exhibition flowers are wanted they must be retained and cultivated in the best possible manner, chancing whether they will grow in a satisfactory manner or not. In a suitable soil I know no reason why a certain portion of them should not do well. But for garden decoration there need be no risk if the cultivator works in the way here indicated, and confines himself to young stock only. J. C. C.

NOTES FROM SCARBOROUGH.

SOME of our *Primulas*, both of seed I got from Huber's and some of our own saving, are turning out remarkably good, so good that I feel they should be in professional hands for propagation. One pure semi-double white with Fern leaves and fine pyramidal habit seems to me the prettiest thing I have seen. A curiosity has just bloomed with me — an *Anemone*-flowered *Dahlia*, like *imperialis* in growth, with flowers like *D. arborea*, but with quilled centre florets instead of stamens, and with good lilac guard petals. If its habit were better it would be an acquisition, but it is too tall and lanky for England. I got it from Nice. *Canna Ehemanni* is undistinguishable from *C. iridiflora* I brought from Nice last spring. It has bloomed freely lately with us. A fortnight ago we had one night with 11° of frost, which, alas, has killed *Gazania*s, *Nice Daisies*, and all such tender things, except where I was able to protect them for the nonce, but I hope I shall preserve a few old out-door friends for another season. One dwarf, shrubby *Veronica*, with rose-magenta blooms of the Blue Gem type, has proved hardier than other varieties, inasmuch as its flowers are quite untouched by that sharp frost, while other kinds are much paler in bloom, or have ceased to flower. It will be a distinct gain, and I must propagate it as much as possible; it has bloomed since you were here. I think I brought the cuttings from Marseilles. Under the glass copings there will be several nice *Tea Rosebuds* for the new year; *Marie Van Houtte*, *Wassilitchikoff*, *Falcot*, *Comtesse Riza du Parc*, and *Mdme. Lambard* still bravely struggling on against dark days and

wet, alternating with occasional hoar frosts and gleams of sunshine. We have, however, had some charming days lately, and things begin to peep up in quite a spring-like way. I send you a little box of winter Heliotrope, now in abundant blossom; it really scents the air these sunny mornings; also a specimen of what a simple glass coping will do for the Tea Rose. For January such a Rose bud is not to be despised outside. Also the two first blooms from the rockwork of *Crocus Imperati*, which are earlier than usual (in proportion), as no Snowdrop has yet put in an appearance above ground.

E. H. W.

A NEW DAFFODIL.

(GERTRUDE JEKYLL.)

AMONGST the boldest and most beautiful of the

Aldborough Daffodils, this is one of the best, and I think the best of all those which I have actually seen. It was raised by the late Mr. J. G. Nelson, who sent me a fresh flower of it on March 20, 1882, a short time only before his death. Unfortunately for myself, I never saw Mr. Nelson, but his letters are treasured as those of a friend, and I cannot do better than quote what he said of the plant: "I send you one of my seedling Daffodils, of which I think you will approve; it is a chance seedling, but I think *N. cernuus* had something to do with it. It is to me a most pleasing flower and most distinct—a good substantial Daffodil, and of an uniform colour. Mr. Peter Barr calls it Gertrude Jekyll, he, good man, having got into a mess by naming one *Narcissus* after two ladies. I got him out of his trouble by giving him leave to name mine after one of them." Of all the new seedling Daffodils now known, this is one of the most pleasing in form, and it is unique in colour, and to certain minds it has another charm, being in point of fact as rare as it is beautiful. Even Mr. Barr does not as yet quote it in his newly-issued catalogue, in which Daffodil lovers may find one or two of their favourites priced as highly as half a guinea a bulb. What would dear old Parkinson say to this if he could only return to find the *Narcissus* he loved and wrote about so knowingly early in Charles I.'s reign of so much accounted value in this Victorian era? Our great-grandmothers, fond as they were of hardy flowers, rarely purchased them, but if perchance they did so, a silver groat did duty for the crowns and half guineas of our own times.

The Daffodil of which we now write, however, is so beautiful in form and its colour so delicately soft and pure, that one cannot but regret that it is so far unobtainable "either for love or money." As to its characteristics of distinctness and beauty, nothing short of a full study in colour by a good flower painter, say by Mrs. Duffield or Miss Mutrie, or by Mr. Muckley or Mr. Moon, could give an adequate idea of the plant as it opens its soft maize-coloured blossoms in defiance of all the winds of March. Our engraving shows the gracefully nodding flower, the cup-like manner in which the perianth segments cluster around the corona, and the relative length of the latter organ, which is peculiarly long and cylindrical, with a most elegantly frilled mouth.

As Mr. Nelson said, perhaps *N. cernuus* "had something to do with it." The graceful poise of the blossom on the stout scape is singularly suggestive of that species, but then the segments are of more substance and the whole flower larger, and the foliage also is stouter and broader, so that while looking at the blossom one must needs think of

Mr. Leed's seedling, yclept *N. bicolor sulphureus* (Barr), which in colour and size most nearly approaches our plant, and yet actual comparison enables us to note many differences in the nutant pose and in the form and colour of the two.

It is very interesting to know that Mr. Nelson's seedling *Narcissus* were not the result of actual manipulative hybridism, but simply, as he puts it, "chance seedlings," and yet but few of those who have raised Daffodils from seed have been so fortunate as was he in obtaining really distinct varieties.

F. W. B.

THE CARNATION AND PICOTEE.

Exhibiting.—Exhibitions are held by the National Carnation and Picotee Society every year in July, the secretary, from whom schedules may be obtained, being Mr. E. S. Dodwell, late of

this stretch some shading material, which will protect the flowers from the burning sun (half an hour of which would destroy every bloom for show purposes) and from the rain by acting as a sieve. The best flowers should be cut at 4 a.m. the day before the show (either six, twelve, or twenty-four; I should recommend amateurs to begin with two sixes—six Carnations and six Picotees). On this day they must be "dressed" for exhibition, and spend the night in a cool cellar, so as to reach the show next morning quite fresh. They are shown in boxes containing six, twelve, or twenty-four, the dimensions of which are given on the schedule published by the Society. Nature produces the flowers with the largest petals mixed with the smallest, with self-coloured or plain petals here and there, and the colours unevenly distributed; the florist's care is to

remove these imperfections, and so dispose the petals as to look their best. The points of the petals should be reversed with a pair of steel dressing tweezers, and any petals dead, mutilated, lacking colour, or ground must be pulled out, for if left in they would disqualify the entire stand. A white circular card with a hole in the middle, sold by Meek, Crane Court, Fleet Street, is then slipped over the bud so as to support the petals, and the largest are drawn with ivory tweezers to their fullest extent, and arranged in a circle on the card. The next largest are then arranged over them, and so on to the middle petals, which should just fill the centre of the flower nicely without crowding or confusion, the object of the operation being to distribute the colour evenly throughout the flower and hide any defects therein, so as to come as near as possible to the standard of perfection. The best flowers should be at the left hand top corner of the stand, and the smallest at the right hand bottom corner. The tweezers described may be had of Mr. B. Simonite, Rough Bank, Sheffield. The flowers should contrast as favourably as possible with one another, i.e., two crimson 'bizarres' or two purple flakes should never come together, nor two red edges or two scarlet in Picotees, &c. But a single lesson from anyone used to dress the blooms would be worth a volume on the art of "getting up" the flowers (I shall always be most happy to give any reader within calling distance the benefit of my experience, such as it is). When the flowers are on the plants it is a good plan to support them with Carnation pins, which are pins with ring heads (easily made by anyone handy), which take the bud, are fixed into the supporting stick, and prevent the flowers drooping or getting bruised by wind, rain, &c. The flowers after being dressed should never be touched by the hand or otherwise disturbed.

Propagation by seed.—The proper time to sow seed is about April or May. Prepare a little of the compost prescribed in last week's GARDEN (p. 7) with a little extra silver sand. Sift it fine, mix it well, and fill a quantity of 3-inch pots with it—as many as you have sorts of seed—to within an inch of the rim. Sprinkle each with a fine rose, flatten the surface, and put down each seed separately with the point of a knife, about half an inch apart; cover them very lightly with very finely-powdered compost, and put them in a cool frame or house out of danger of frost. When they have made three pairs of leaves, prick them out round the edges of 5-inch pots filled with the same compost, about 2 inches apart, and keep them still in the cool house till there is no longer serious fear of frost. When about 3 inches high, prick them out into beds about 4 inches apart. The beds might



Narcissus Gertrude Jekyll.

Chatham Terrace, Larkhall Rise, Clapham. If you grow for exhibition do not commence crossing for seed or layering till the show is over; it will take all your time guarding the blooms from insects, &c. As soon as the first bud shows colour spread an awning all over the plants. If your plants are, as recommended, under the shelter on the north of the south wall of your garden, the awning may be constructed as follows: Erect a little framework 4 inches high along the top of the wall, or let in two posts 6 feet high at the two south corners of the area, covered by the pots, with a cross-bar along the top. Erect two posts 8 feet above the surface soil at the two north corners, with a cross-bar between them. Connect the 6-foot frame and the 8-foot frame by rods with a 2-foot slope from the one to the other, and lay rafters from one to the other 4 feet apart; over

just be enriched with a little sand and manure if convenient. In the autumn they will be nice little plants, and may be put into beds. When they flower, which will be next year, keep and name as pot varieties anything really good in colour, form, &c. Throw away at once anything single. The rest, fancies and selfs, may either be given or thrown away, or put into the borders and beds for cutting from.

By pipings.—When the plants throw up too many shoots to layer, or the root is attacked by disease or other calamity occurs, the shoots may be taken off and piped as follows: Take hold of the shoot above the fourth or fifth joint from the top, and, with a sharp pull, draw it out from the socket formed by the next joint, which it will pull away with it. Make a little upward slit in the cutting just through the joint, and thrust it firmly into a pot filled with the compost prescribed above for seeds to within an inch of the top, and the rest with silver sand. Water the pot and plunge it in fibre under a hand-light for three or four weeks, when the pipings will be rooted. They may then be potted off singly or bedded like layers, and will flower next year. Remember plants struck like this are never so good as those propagated by layers, but to save a good sort or get up a stock it is a useful expedient.

By layers.—This is the best and most generally accepted method of propagating Carnations and Picotees. It should be set about immediately after the shows, or at latest the last week in July, and should be all finished by the second week in August, and is performed as follows: Having prepared the compost, having got it near to hand, get the pots up one after another on the potting table, and proceed as follows: First scrape out (I use an old broken table knife for the purpose) the earth to a depth of 2 inches, and replace it with the compost flush up to the brim; then strip each shoot up to the top three or four joints; go all round the pot, doing this before proceeding any further. Then, with a fine sharp knife (a surgeon's dissecting scalpel, with a pointed straight edge and long thin handle is the best), pierce through the shoot just above a joint, make a slanting cut down through the joint, bringing the knife out just below it; take a peg with a hook to it and thrust it into the fresh compost just above the tongue, so that it catches it as it comes down and pegs it into the earth. Then cover it with a little more compost, and the layer is finished, and so go on all round the pot, and so on from pot to pot till the entire stock is layered. The best pegs are those made of the fronds of the common Fern; but as these must necessarily be limited in quantity, hundreds may be made in a short time out of galvanised wire with a pair of pliers. In about a month the layers will be rooted, and by the second week in October all the young plants ought to be in their winter quarters. When the plants are in beds the procedure is exactly the same; the compost is spread round the plants 2 inches above the surface of the ground, and the shoots tongued and pegged into it.

Diseases.—Carnations are subject to three fatal diseases—canker, mildew, and gout. Canker is produced by damp, and the first symptom is either the grass turning colour or the non-formation or stoppage in the growth of the shoots. The roots will be found rotted through and decay creeping up the centres of the shoots, which should be taken off well above the affected part and piped. The only safeguard against it is to have the compost sweet and well mixed, and not to give too much water early in the year; and it should be here remarked that water should never be given unless, on stirring up the soil 2 inches below the surface with a sharp stick, it seems dry; mere surface drought should never be relied on. Mildew is of two sorts, the white and the black. White mildew appears like flour on the Grass, and should be sprinkled with water and dusted with sulphur one morning, and the sulphur carefully washed off the next morning. Black mildew appears as little black specks on the Grass, and means death. It is the Carnation grower's cholera. The instant it appears every shoot bearing the lightest spot

should be cut off and burnt with the root and earth, only the shoots quite untainted being piped and saved; if not, it will spread like wildfire and ruin the whole stock. Gout is generally the result of twisted stems and damp atmosphere. The soft wood just above the ground swells into a cavernous *goutre*. It does not seem to spoil the flowers, though a gouty plant can never be layered, so should have all the shoots cut off and piped. Damp is the greatest enemy of the Carnation, producing in the first instance all these ills, so must be very carefully guarded against, especially when the young plants are in the frame in winter. I have lost hundreds by a single injudicious watering in winter.

Insect pests have always been the most serious ill which (Carnation) flesh is heir to, because they cannot be guarded against. Lime spread under the pots or round the pedestals of the stages will keep off creeping evils, but not aerial ones. The chief ones are wireworm, earthworms, earwigs, thrips, and green fly. Red spider will attack them if kept too hot and dry, but not unless. Wireworm is the most deadly enemy of all; it is a copper-coloured worm, an inch long or less, hard and tough as wire, whence its name, which gets into the pots or soil and eats its way up the centre of the stem, showing no sign of its presence till the plant absolutely dies. All earth used for potting must be carefully searched before use. If in beds, slices of Carrot, Apple, or Potato thrust into the earth and taken up every morning will be found full of them. A skewer or piece of wire may be attached to them, by which they may be pulled up for examination. Earthworms must be carefully sorted out of the potting earth; if they do get in a dose of lime water will drive them out; if the plants are on an ash bed, it must be thick enough for no worm to be able to get through; if infesting beds, frequent doses of lime water will generally rid you of them. Earwigs are a most persistent plague when the plants are in bloom; they eat their way through the pod into the seed vessel, which they destroy after eating away the roots of the petals. The best traps are pipe bowls, which, if inverted on the tops of the supporting sticks and searched every morning, will catch hundreds. Perseverance is the only guard against them. Thrips is a serious annoyance to the florist, being a tiny black insect only just visible, which eats into the bud and infests the expanded flowers, biting the colour out of them and spotting them with white in a most woeful manner. Green-fly plays the same game, and these must be searched for at the end of June and early July, and on the slightest trace being found, carefully washed off with Gishurst compound or some other good insecticide.

Running.—The most annoying and unavoidable freak of the Carnation and Picotee is that which is termed by florists "running." Without rhyme or reason, a plant which should be a flake or bizarre becomes a self, or a flake on a coloured ground. It has been so often asked what is the cause of this, that I cannot do better than give you a short extract from some voluminous notes on the subject from the *Florist* for 1876. This article relates the experiences of many good cultivators who produced good results in some cases with rich and in other cases with poor compost, and, again, bad results with either compost. But the whole goes to show that in the poorer composts were found the best results. As Mr. Dodwell says in that volume, "Sound, healthy life, whether in the animal or vegetable kingdom, is quite inconsistent with the habitual use of a highly stimulating diet." Your only chance is then to suit your compost to your situation, and have it thoroughly sweet and well mixed, using lumps of charcoal in it. It stands to reason that in unsuitable positions the plants will naturally want more stimulating diet than if natural causes were in their favour.

Weeds on lawns.—My lawn is infested with Daisies and Plantains. I should esteem it a great boon if any of your readers could inform me as to the best means of destroying them without lifting the Grass turf. Is the Daisy killer any good?—OLD SUBSCRIBER.

GARDEN FLORA.

PLATE CCCLXXI. MARTAGON AND OTHER LILIES.

(WITH FIGURES OF L. MARTAGON ALBUM AND L. DALMATIUM.*)

THE accompanying plate represents two of the most distinct varieties of *Lilium Martagon*, the common Turk's-cap Lily, so named by Parkinson on account of the peculiar way in which the petals recurve. The Turk's-cap term is frequently applied to all the Lilies in which the petals reflex; thus we have the Canadian Turk's-cap, the scarlet Turk's-cap, and several others, but which do not belong strictly to the Martagon group. In some cases they are even called Martagons, but in speaking of the Martagon group proper I shall confine myself exclusively to the varieties of the common Martagon, which is one of the oldest Lilies in cultivation. The two varieties figured are the best and, I may say, two of the most distinct of the genus. It is a curious fact that the white Martagon, "which in the time of Parkinson (1650) was a common variety," should have become so scarce: as we usually find that plants or bulbs are pretty plentiful which take care of themselves, and, on the contrary, those that are particular as to soil or situation usually succumb sooner or later. Philip Miller, a century later than Parkinson, describes a number of varieties of Martagon Lilies, and among them a double white and double purple. The latter is still in cultivation, but the former I have never seen. *L. Martagon* is common throughout the centre of Europe, and is exceedingly variable, varying from pure white to deep purple, but not so dark as the Dalmatian form, which varies from dark maroon to almost black. As a rule they are all more or less spotted, the spots varying from minute specks up to large, irregular blotches, some of which have a peculiar appearance. I have seen a few varieties without any spots. I should consider this Lily as one of the most variable, as it would be an easy matter to make a collection of fifty varieties of it more or less distinct; for general cultivation, however, the black, white, purple, and double purple are the best. All the varieties will grow in any good sandy loam, moderately moist, not wet, and increase very freely by division of the roots, which ought to be done every three or four years to keep the bulbs healthy and vigorous. In some soils I have known them to stand for many years, and never disturbed, but I believe all Lilies should be moved occasionally, provided it is done at the proper time, viz., as soon as the stems begin to die off. They should be shifted and planted at once, dividing the large roots, taking off all the small bulbs and loose scales, and replanting the large bulbs in clumps, and the small ones in a bed by themselves until they are large enough to flower. By doing this you keep your bulbs healthy and increase your stock, and, as they take but little room, space could easily be found for them between shrubs, &c.

L. dalmaticum, herewith figured, differs from the common Martagon Lily principally in

* Prepared from plants in the Hale Farm Nursery, Tottenham, in June last.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



2

THE WHITE AND BLACK MARCAISON LILIES
LILIUM MARCAISONI ALBUM & NIGRUM

colour and growth. When established it grows from 5 feet to 6 feet high, with about thirty to fifty flowers on a stem, and varied slightly in shade, but the lightest in colour is much darker than the darkest form of the ordinary Martagon. There are numbers of other beautiful Lilies adapted for loamy soil, having a vigorous constitution, and easily grown in any ordinary well-drained border, and I will briefly enumerate a few of the most distinct, and such kinds as can be grown with a certainty of success in a rich, friable loam in any well-drained situation, provided they are planted early and are in good condition at the time of planting. When the soil is stiff and heavy, leaf mould, road sand, or Cocoa-nut fibre should be added to make it light and open. The bulbs of nearly all Lilies suffer from excessive moisture, and when the soil is wet and heavy the beds should be raised, so that the bulbs lie above the ordinary level of the ground, so as to be drier than when planted on the level; this is a very important point in Lily culture. When planted among shrubs you get these conditions, although in a different way, the roots of the shrubs absorbing what the Lilies do not want, and the foliage affording protection to the young growth in spring and partial shade in summer. To grow Lilies successfully the most important point is to plant early in autumn; whereas most persons plant in late autumn and spring, and then complain if they are not successful. I contend that most Lilies can be grown in any ordinary border without any elaborate preparation or expense, provided that they are planted at the right time and a judicious selection made.

L. bulbiferum.—A very free-flowering species, and one rarely met with. The flowers, which are not so large as in the varieties of *davuricum*, are of a crimson colour shading to orange, and with numerous bulblets in the axils of the leaves.

L. Browni.—One of the most chaste of all known Lilies; flowers 8 inches or 10 inches long, interior pure white, exterior brownish purple. This grows freely in light, sandy loam, but must be in a well-drained position.

L. candidum is too well known to need mention; one of the oldest, but still one of the best. The double variety is very effective in hot situations, flowers well with me in hot summers, and appears to want more heat than other varieties of this class. The variegated form is also very pretty during the autumn and spring, the leaves having a broad, heavy band of yellow on the edge.

L. carniolicum, though not so bright as some, is still worth growing, as it flowers very early.

L. giganteum, a majestic species, growing in suitable positions 8 ft. to 10 ft. high, has large leaves and long trumpet-shaped flowers, white inside, and striped with purple on the outside. This species must be planted early in the autumn, protected the first season from frost, and then left to take care of itself. Select a dry position, and one where the young foliage will get protected from the spring frosts.

L. chalcedonicum, commonly called the scarlet Turk's-cap, is a grand species. The colour is marvellous, of the most intense fiery scarlet; there are several varieties of this in cultivation, some flowering earlier, some spotted, while others have no spots, but all are beautiful and well worth cultivating, even though the garden is only a few feet square; this kind is particularly fond of a well drained position.

L. croceum, the old orange Lily, is as well known as candidum, and quite as effective, flowers early, very free blooming, and makes a garden look gay, even if there is nothing else in it.

L. davuricum (umbellatum and spectabile of some).—There are five or six good varieties of this and all worth growing; they are dwarf, take up but little room, produce an enormous quantity of bloom, very bright colours ranging through the various shades of scarlet, crimson, orange, &c., and increase very rapidly. Good clumps of these dotted about are very effective for about a month. They like a sandy loam and well drained.

L. longiflorum and all its varieties must not be omitted, although there is more difficulty with these than with any previously mentioned, but the difficulty is not so much with soil as with climate. They make a very precocious growth, which, if injured by frost, gets virtually spoiled for that season. The only way to get over this difficulty is to lift the bulbs in the autumn; keep them comparatively dry in silver sand, dry peat, or any other material which will keep the bulb from shrivelling, yet must not contain sufficient moisture to make it start, which it will do if not looked after. Plant the bulbs in January or February and you will flower them easily and increase your stock. This is the only Lily that I know of that should be treated in this way.

L. monadelphum var. szovitzianum (colchicum).—A species of great beauty, large and fragrant, early blooming, very variable in colour from primrose to golden yellow, and one of the easiest to grow. Select six of the finest Lilies and this must be one.

L. pardalinum, although usually considered a peat Lily, can be grown in light loamy soil, but planted in a damp, shady position. This should be planted among shrubs, as it usually grows 7 feet to 8 feet high. (Figured in THE GARDEN, Vol. XX., p. 528.)

L. pomponium verum.—In colour rivaling chalcedonicum, flowering about three weeks earlier; very graceful slender habit, foliage dark olive-green, reaching to the ground, and bearing from twelve to eighteen flowers on a stem. One of the best and most effective of Lilies. (Figured in THE GARDEN, Vol. XX., p. 420.)

L. pyrenaicum.—A small early-flowering species; flowers yellow, freely spotted; also a red variety, but neither can be very strongly recommended for their beauty.

L. speciosum (lancifolium).—This is a large group comprising about twenty varieties, all more or less distinct, and all flowering in the autumn, while all previously mentioned are summer flowering. I cannot attempt to describe them, but would refer anyone interested in autumn-flowering Lilies to peruse a catalogue of any good grower of this class of plants. If I were to make a selection of say six of the best I would select *Kratzeri*, *punctatum*, *Melpomene*, *multiflorum*, *rubrum verum*, or *purpureum*. There is no difficulty whatever with this group. All are easily grown; they like a good, rich, sandy loam, plenty of room, and to be every divided three or four years.

L. testaceum (excelsum or Isabellinum).—A stately plant, in general appearance claiming a close relationship with *L. candidum*, but having charming apricot-coloured blossoms. This will grow 6 feet high, and prefers a rich, sandy loam and moderately dry.

L. tigrinum and its varieties are autumn bloomers, stately in habit, brilliant in colour, very

profuse blooming, well fitted for terminating the procession of this gorgeous and lovely group. The best are splendens, jucundum, plenum tigrinum, or japonicum.

There are others I might enumerate in this list, but there are now quite sufficient for anyone to select from. They are all hardy, easily grown and increased, and very beautiful when in bloom, and with a little care in planting, selecting suitable positions, &c., there is no reason why every garden should not possess a few of this family. P.

THE CHRYSANTHEMUM AND ITS CULTURE.

THE Chrysanthemum is, of all flowers, one of the most effective, and its many good qualities recommend it to cultivators of every grade. It is robust, hardy, easily increased by cuttings and seeds varied in form, colour, and even in fragrance, and it blooms naturally at a season when other flowers are proverbially scarce. So strikingly effective are its blooms, that they are equally well suited for exhibition stands or as cut flowers for the drawing-room, and so also the plant is amenable to severe and formal training into "specimen" shape; or it may be, as we think, more wisely allowed to assume its natural habit of growth, and so become especially well suited for greenhouse and conservatory, or even room and window decoration. During the past year or two especial attention has been paid to the culture and selection of the early summer blooming as also the very late blooming varieties of the Japanese and incurred types, so that now we may count on having Chrysanthemums in bloom from July until nearly the end of February, a period of at least seven months. We have but few other garden flowers so valuable for all purposes, and still fewer that may fairly be called an everybody's plant. It is as well fitted for the cottage garden, for a sunny corner beside the porch, as for the marble-floored conservatory. Every cottager, every artisan may grow it to perfection with but little trouble or expense. Oh! that you men of Lancashire, born gardeners and florists by nature as you are, would but take up the Chrysanthemum in the same earnest spirit as that which prompted you to take up the Auricula, the Onion, and Leek, the big Gooseberry, and the Celery as objects worthy of your cultural devotion and skill. Would that "merry Sherwood" men ("Nottingham lams" if you like) could be induced to make the Chrysanthemum their winter queen, even as they have long enthroned fair Rosa as their summer one. We look to the artisans of Coventry—the city of art weaving—and to the flower-loving people of Norwich; these are the men into whose hands we would fain trust our favourite. Beautiful as the Chrysanthemum now is, there yet remains open a wide field for improvement. The summer blooming or early flowered section lacks size and form as yet, and vivid colour and fragrance may be still further increased even among the types which now possess these attributes in the highest degree. In some cases grafting weakly rooting kinds upon robust growers as stocks may be practised with advantage, and

The question of seed saving in our own climate is as yet far from being exhausted. Under good treatment the finest of home-saved seed may be produced in a properly constructed house fully exposed to spring and early summer sunshine, and heated with a flue, the latter being preferable in this case to hot-water pipes. Home growers have been too lethargic in the matter of seed saving, and yet no other cultivators could possibly beat them in this field if a beginning be once made on proper and well defined lines. If we once could but induce people to raise seedlings as well as grow beautiful blooms, we should be on a fair road towards enhancing colour and probably emphasising that fragrance which a few kinds possess. We must not be too restricted in our ideas as to what are and what are not good kinds. Instead of trying to limit varieties to one or two standards of perfection, our

object should rather be the extending of the boundary lines of variation. All tastes must be consulted. The florist or exhibition grower must have his incurved Anemone, Japanese, and Pomponé varieties, but the artist also must have his bits of twisted fringe and glints of colour in tassel and frill of varied kinds. The botanist, too, must have structural peculiarities and forms of floret the most varied and distinct. Even the aesthetes must have their whims gratified with single or Daisy-like blooms, for it is not wise to restrict our admiration to those kinds in which reduplication of florets is the rule, and it is in the direction of single-flowered kinds that we are likely to gain most in vivid colouring, beautiful alike for artistic and decorative uses. I am firmly convinced that if raisers of seedlings will but widen their sympathies, and not throw away their single-flowered seedlings, as they hitherto have done, we shall soon be surprised at the immense variety of type and form and colour which raisers may produce. We have hitherto worked in narrow grooves, and the immense capacity for variation, of which the Chrysanthemum is possessed, has as yet been scarcely dreamed of, even by those of us who are most sanguine. As tending towards the desired increase in that direction, which in this, as in other cases, may become most charming, I most earnestly counsel all growers of the Chrysanthemum to raise a few seedlings every year, even if it be from imported seeds. The raising of seedlings is said to be the "poetry of gardening," and if this be so, then it was never more true than in the case of the popular flower now under notice. But the heyday of all that beauty and variety, of which the Chrysanthemum is by nature and art capable, will, I feel persuaded, only come to us as the result of patience and labour in the growth and culture of the produce of home-saved seeds—the results of our own ideas and desires rather than in the growth of plants from seeds saved abroad, as is now supposed to be best. Another important point as regards seed saving, and one on which too much stress cannot well be laid, is that cross-fertilisation has been but rarely resorted to, too much reliance having hitherto been placed upon inherent tendency towards natural variation.

History of the Chrysanthemum.—Of all flowers that which has been said to represent "cheerfulness under adversity"—the Chrysanthemum, or "Golden Flower" of the Greek—may fairly be called the "queen of autumn," six varieties of which were described by Breynius as being cultivated in Holland two centuries ago. Originally introduced to England from the Celestial Empire in 1764, it seems first to have been cultivated by that celebrated gardener, Miller, of Chelsea, but was soon afterwards lost by some unfortunate accident. Again introduced, this time by way of Marseilles in 1789, it reached London in 1795, and in Curtis's "Botanical Magazine" for 1796 we find a coloured figure of Chrysanthemum sinense (there described under the name of *C. indicum*)* the result of the second advent. Phillips, in his "Flora Historica," published in 1824, tells us that the new plant was sold at a high price soon after its introduction, but that it was not until the beginning of the nineteenth century that it attracted attention as a florist's flower. "Then," says he, "like the Roses of China, Chrysanthemums soon escaped from the conservatories of the curious, and as rapidly spread themselves over every part of the island, filling the windows of the cottagers and the parterres of the opulent with their autumnal beauties, that now vie with the China Aster in variety of colour glory."

Amongst other peculiar modes of culture resorted to by Chinese gardeners in Chrysanthemum culture is the engrafting of cuttings on to a strong-growing species of *Artemisia* (*A. indica*) as a stock.

* The figure in the "Botanical Magazine," vol. x., t. 387, represents a double bloom, with quilled florets of a maroon-purple colour inside, and of a silvery or rose-purple outside. Dr. Sharpe, a modern reflexed variety, very closely resembles this figure in all ways. It is in reality the Chinese Chrysanthemum (*C. sinense*), and not *C. indicum*, which is the type of the Pomponé or small-flowered race.

The idea of grafting is suggestive, as some of the more delicate rooting kinds might be best grown by being grafted or inarched upon rooted cuttings or sucker stocks of a robust, strong-rooting character. Some may think this idea impracticable, but I know that Chinese gardeners rarely take any special trouble in plant culture without a sound reason for so doing, and cultivators at home will, I hope, leave "no stone unturned" in this respect. One reason why grafting might be useful is that by its means new sports might in all probability be obtained. Fortune tells us of the beauty of the Chrysanthemum in oriental gardens, and how banks of the gorgeous blooms are illuminated at night with lanterns, and how that even gigantic effigies are made up entirely of their lovely flowers.

Even when the Chinese emigrate to other lands, this their favourite flower is carried with them and affectionately cultivated. Here is an instance of this practice. I once went to see the late Consul Whampoa's garden at Singapore,* the entrance to which is a long bow of the most superb tropical flowers, waving crimson-stemmed Palms, and climbing plants of great beauty. Here the "Sacred Tree of Heaven," *Amherstia nobilis*, bends under the weight of umbrageous leafage and pendent wreaths of the most gorgeous crimson and golden blossoms. Every pool and stream, of which there are many in this garden, are filled with the rarest of Water Lilies and Lotus flowers. After our host had shown us all this—all the tropical treasures of Kew or Glasnevin in the open air and sunshine—he led us triumphantly to a little sheltered spot and showed us, with pleasure beaming from every wrinkle of his smoothly shaven face, not Orchids of curious structure, nor Water Lily of a loveliness divine—neither Palm nor Fern of filmy beauty—nothing more nor less than a bed of Chrysanthemums, the one flower of his heart, reminding him of home and country. That the artists and poets of China and Japan have lavished much of their finest and best thought and labour in representing this flower in all pleasant aspects to the senses is now a matter of history, attested by ceramic wares and textile fabrics of many kinds. The Japanese more especially possess voluminous illustrated works in which the Chrysanthemum, in all its phases of race and colour, is ably portrayed. The Rev. G. Henslow has well described how

The transformations in the corolla are brought about—the two principles of hypertrophy and atrophy both conspiring to effect the remarkable changes. Thus, while the corolla enlarges, to change from a five-toothed minute disk-floret into a broad, flat-petalled ray-floret, two petals are gradually dwarfed and finally disappear; while a corresponding atrophy takes place in the essential organs, for the stamens are totally arrested, and the pistil changes its form, the style-arms becoming much reduced in size. The tubular condition of the corolla may remain while the tube itself elongates without any or much splitting—hence the quilled and tasselled forms are arrived at, both representing a more or less arrested stage in the process of change into ray-florets. The ligulate petal may be broad—which gives rise to the incurved and recurved ball-like forms; or it may be greatly elongated and narrow—whence the Japanese linear-petalled forms; or it may be expanded at the mouth, and the teeth multiplied—which gives the trumpet-like so-called Dragon Chrysanthemum. Lastly, if the disk-florets enlarge, but remain more or less tubular while the ray retains its distinctive character, the Anemone form is secured.

The first Chrysanthemum that ever flowered in England flowered in Colville's nursery, in the King's Road, Chelsea, in 1795, the plant having been obtained originally from M. Cels, the celebrated nurseryman, of Paris. At this time, and for some little time afterwards, botanists had a contest as to its botanical position; some of them

* Mr. Whampoa was a Chinese trader, who early in life left China and settled in Singapore. He rose to affluence, and was a C. M. G.

contended that it was one of the Camomiles (*Anthemis*), whilst others declared that it was unmistakably a *Pyrethrum* or *Feverfew*, but at last it was decided that it should be called *Chrysanthemum*, from *chrysos*, gold or golden, and *anthos*, a flower. Sabine, who was secretary to the Horticultural Society at the beginning of the present century, says, however, that Chrysanthemums had been grown and flowered in Holland nearly as far back as the year 1688; but, singular to say, in 1821 no gardener in Holland knew anything of them. In 1808 their cultivation had increased to some nine or ten varieties, and it went on increasing, many varieties being collected for the Royal Horticultural Society in China and Bengal in 1821 by Mr. Parks. At the end of 1825 the number of varieties seems to have been increased to 48, and in 1826 Sabine writes most cheerily concerning their rapid progress, and of an astoundingly large exhibition of them being held in the society's garden at Chiswick, in which were shown over 700 plants of them in pots.

The first sport from the original variety was noted in 1882, in which year Mr. Colville, of Chelsea, sent to Chiswick a pale pink variety, which had sprung from a sort called Changeable Buff. It is curious to note the names given to some of the varieties about this time. Let one or two be given for curiosity's sake: Early Blush, Park's Small Yellow, Blush Ranunculus, Curled Blush, Tasselled Yellow, Tasselled Lilac, Two Coloured Red, Double White Indian, Yellow Indian, Waratah, Quilled Pink, Pale Purple. These names, which in a sense give the characteristics of some of them, seem to indicate that in what are now called the show varieties, which are largely of the strain of *Chrysanthemum sinense*, there was the same special singularities as are to be seen now, only that now these idiosyncracies are positively classified. We often hear of incurved flowers, and recurved or reflexed flowers, of quilled flowers, of tasselled flowers, and of Anemone flowers, besides the Pompones and Japanese. Well, the incurved flowers are those whose flat florets curve or bend in towards the centre of the bloom; the recurved or reflexed bend backward from the centre (the recurved moderately, the reflexed more so); the quilled has the edges of their florets involute and coherent, so that they look like small pipes or tubes; the tasselled are the loose long and flat petalled flowers not coming under the other definitions; and the Anemone flowers are those kinds having a cushion-like centre of tubular disk-florets, surrounded by a ray of flat or strap-shaped florets of the usual kind.

Origin of the Pompones.—In 1845 the late Mr. Robert Fortune, who was sent to China in 1842 by the Royal Horticultural Society, brought home with him from Chusan (an island on the east coast of China) a semi-double reddish or light brown small Chrysanthemum, which was called the Chusan Daisy. The Horticultural Society propagated it, and sent it out amongst its members. From some of these members it was sent to M. Lebois, a perfect enthusiast in Chrysanthemum growing, in Paris. He seeded it, the autumns of France being more favourable to that operation than the cold foggy ones of England, and from this seed he raised a great many good varieties, which got into the hands of Mr. Salter, late of the Versailles Nurseries, Hammersmith, who in his day did more to popularise Chrysanthemums in England than any other man. Some of the best varieties, not only of Pompones, but of the other larger varieties, were introduced by him. He had a perfect knowledge of what was being done by the French growers, and generally secured their best seedlings. This is the generally received history of the Pomponé varieties of Chrysanthemum, though we may infer from some of the names given to them as far back as 1821 and 1825, Park's Small Yellow, Blush Ranunculus, &c., for instance, that there were small varieties grown then; indeed, in the Horticultural Society's Transactions for February, 1821, there are coloured plates of small, many-petalled varieties, though they were not called Pompones until the French got hold of them in 1845—6. In 1846 a

new era commenced in the history of the Chrysanthemum, for at that time Mr. Fortune brought from China two small-flowering varieties, the "Chusan Daisy" just named and "Chinese minimum." Although Mr. Fortune admired them in Chusan, they were considered too small and insignificant for English taste. The French opinion of them was far different, for immediately upon their introduction, in 1847, into the already well-known collection at Versailles, the little "Chusan Daisy" became a favourite. From these two varieties have sprung all the Pompones now in cultivation. The French growers gave them this name, Pompones, from the resemblance of the flower to the tuft or pompon on the soldiers' caps.

Japanese kinds.—These were brought over by Mr. Fortune on a second visit to Japan about the year 1859 or 1860. The precise date is uncertain, but at least one variety was figured in the *Botanical Magazine* as somewhat of a novelty in 1863, so it must be about the time mentioned that they were introduced. The French and Guernsey growers soon got hold of them, and have improved them immensely. They are with some growers greater favourites than either of the other two older varieties. In 1862 Mr. Salter introduced several Japanese varieties, some of which were spotted and striped; others were of fantastic forms called Dragons, and one, *laciniatum*, was a beautifully fringed white flower, and invaluable for bouquets, having the appearance of a Japanese Pink rather than of a Chrysanthemum. One had petals like long thick hairs of a red colour, but tipped with yellow, looking like the fringe of a shawl or curtain; another had broad white petals striped with red, like a Carnation or Camellia, whilst others were remarkable for their great size and brilliant colouring.

Show Chrysanthemums.—In 1850 we find the Chrysanthemum taking rank as a winter exhibition plant at the meetings of the Caledonian Horticultural Society, which at that time held its shows in what is now the Royal Botanical Gardens, Inverleith. Here we are told that "Chrysanthemums were the principal flowers exhibited. The prizes for single clusters of twelve varieties were awarded to Mr. Young, gardener to Mrs. H. N. Ferguson, of Archerfield, who had *Minerva*, *Duc de Nemours*, *General Moreau*, *Salter's Annie*, *Queen of Yellows*, *Princess Maria*, *Clustered Yellow*, *Queen Victoria*, *Comte de Rantzen*, *Bicolor*, *Queen*, and *Marquis*; and to Mr. Mitchell, for *Temple of Solomon*, *Princess Marie*, *Antoinette*, *Celestial*, *Queen*, *Salter's Annie*, and others. For the most dwarf and finest-flowered plants, the prize was awarded to Mr. A. Sleigh, gardener to the Lord Advocate, Lauriston Castle, the kinds being *Bicolor*, *Queen*, *Mirabile*, and *David*." I give the extract as it stands from the *Gardener's Magazine of Botany* (1850), as not only are the names of the varieties interesting, but also the custom which then was followed of showing the flowers in single clusters (*i.e.*, all the blossoms as produced on one stem) instead of single blossoms, as now.

British kinds.—So popular are the Chrysanthemums of China and Japan, that one almost forgets that there are other species. "Charity begins at home," and so we must not lose sight of the two Chrysanthemums of our own country commonly known as the Ox-eye Daisy (*C. leucanthemum*) and the Corn Marigold (*C. segetum*). Who can say what the Ox-eye of our meadows would produce in a few years if it were cultivated from seed with a little of that faith and persistence so characteristic of the Chinese gardeners? Even our golden Corn Marigold has been neglected, although in its native state it is one of the brightest and best of all annual Composites. Its Algerian relative (*C. coronarium*) has met a better fate, and we have now many varieties both single and double in our gardens. The same may be said of *C. carinatum*, which is likewise a very beautiful annual, although the Chinese use it as a pot-herb, just as their Japanese cousins eat up the succulent bulbs of *Lilium auratum*, thinking more of their use than of their beauty. *C. arcticum*, *C. speciosum*, *C. lacustre*, and *C. atratum* are all well-known hardy

species, the last named being a mere noble and stately edition of the Ox-eye of our meadows. Of all the late-blooming hardy herbaceous kinds, however, *C. (Pyrethrum) serotinum*, also known as *C. uliginosum*, is one of the most effective, producing its green-eyed stars in October or later, and continuing in beauty until cut down by the early frosts of November. The shrubby *C. frutescens*, better known as the *Marguerite* or the *Paris Daisy*, has of late years become almost as great a favourite in English gardens as it has long been in those of the Continent. There are several varieties, *C. tanacetifolium* being one of the best of the white-rayed kinds, and *C. Etoile d'Or*, a seedling from *C. Comte de Chambord*, is the best of the sulphur-rayed varieties. All are beautifully planted out in the open borders in May, or as grown in pots in a sunny greenhouse they bloom throughout the winter months, when their flowers are especially valuable. *C. coronarium*, *C. carinatum*, *C. Burdigeanum*, and other annual species are easily raised from seeds sown in spring like *Mignonette*, *Stocks*, or other hardy annuals. The herbaceous kinds, *C. lacustre* (syn., *C. maximum*), *C. uliginosum*, and others, are best increased by division in the spring or early summer months. *C. frutescens* and other allied 'sub-shrubby' kinds are easily propagated from cuttings. F. W. B.

KILLERTON.

FROM Silvertown Station, on the Great Western Railway, to Killerton is about two miles, but the walk is a pleasant one, especially after one crosses the stone bridge which spans the river Clyst, for the road runs between high banks shaded by trees, Ferns being abundant on the banks, the Hart's-tongue predominating. Killerton is especially celebrated for its grand old trees, and their grouping has been done with rare taste and skill. There are no sharp, hard lines anywhere. The whole place is an illustration of the way in which art can help or mend Nature. Intending planters might learn useful lessons in bold grouping by studying the planting here. Much of it was done or altered by the late Sir Thomas Acland, in combination with the late Mr. Veitch, of Exeter. The soil is very fertile, overlying a stratum of rock called honeycomb rock, which is of volcanic origin. In many places the rock is deeply covered; in others it crops up near the surface, but in such cases it cracks into fissures, and the roots of the trees penetrate to a great depth. A curious instance of this was pointed out to me on the Beech Mount, in the deer park. Here a shifting of the surface on the edge of a ravine showed the fissures in the rock as if upheaved by a subterranean force; the roots of the trees had gone down, and from their luxuriant development they were evidently enjoying the feeding ground provided for them below. In the grounds surrounding the private chapel, built by the late Sir Thomas in 1841 with stones dug on the spot, are many handsome trees. Several of the common Larch are very fine. One I measured was 12 feet in circumference at 3 feet from the ground, and had an altitude of not less than 130 feet. Here also were several handsome Cedars of Lebanon, transplanted some years ago when they were more than 40 feet high. They are now about 65 feet, and suffered but little check from their removal, having been heavily mulched as soon as the work was done. Near here is a very fine scarlet Oak, and a short distance away in an opening stands a handsome specimen of the Lucombe Oak girthing 17 feet 6 inches. In and around the open glade in front of the chapel are many fine trees, although some of them are comparatively youthful specimens. For instance, here is a Spanish Chestnut planted by the late Mr. Veitch seventy-two years ago which girths 13 feet at 5 feet from the ground. The upright Cypress, *C. sempervirens*, and *C. torulosa* are in duplicate 50 feet high; and near the chapel-yard is a hedge of *Berberis asiatica*, and another of common Box. These I notice just to say how elegant they look growing in a free and open manner, without shearing, the only attention given being to nip off long ends with the knife

once a year or so. Standing in front of the mansion and looking southwards across the park, the views are very fine, extending for many miles.

The park is of considerable extent and well timbered; handsome specimens of English Elm abound. To the left of the mansion, and some 300 yards or 400 yards away from it, is a group consisting of the finest specimens of evergreen Oak in the country. One of the largest measures 13 feet round the trunk, and has a spread of branches of 81 feet, and scattered about in this part of the park are many handsome Thorns. A small formal flower garden fills a sort of recess on the east side of the house, and this is the only bit of really formal gardening I saw at Killerton. But the handsome trees and their picturesque grouping are worth going a journey of many miles to see. The mansion is a square building, suggestive of comfort rather than architectural beauty. In a glass colonnade is the usual assortment of flowering plants adapted to such structures; also such plants as *Bougainvillea glabra*, *Acacia Riciana*, *Luculia Pinceana*, *Heliotropes*, and *Abutilon*. *Boule de Neige*, trained on the wall and roof. The latter plant makes an excellent climber, its white flowers being so useful, and produced most abundantly and continuously when planted in a light position. The walls of the mansion are clothed with climbing plants, among which are *Magnolias* and the *Judas tree*, which reaches up to the roof; *Chimonanthus fragrans*, *Banksian* *Roses*, *Akebia quinata* (quite hardy and flowering freely); and last, but not least, there is the old pink monthly Rose. In the flower garden are a pair of nice plants of the hardy Palm, *Chamaerops Fortunei*, and to the west of the mansion and only a few yards from it standing on the open lawn is one of the finest Tulip trees in the country. It measures 17 feet round the bole 5 feet from the ground, and must be at least 100 feet high, and of handsome proportions. There are several acres of dressed ground on the west side of the mansion. Its surface rises upwards like an amphitheatre, and it is embellished with trees and shrubs of the most varied and interesting character. Handsome groups of trees, wide stretches of closely shaven velvet turf, deep glades running far back up the hillside with an unseen, unknown termination, are evidences of taste on the part of a bygone generation. Away far back, many feet above our standpoint is a large, bold group of common Beech, which thrives amazingly here, intermixed with the wild Cherry, which also forms a timber tree, and must be especially ornamental when in flower in spring amid the delicate tints of unfolding foliage. In front of the deciduous trees are masses equally bold of *Wellingtonias*, *Taxodius*, *Cupressus Lawsoniana* and *C. macrocarpa*, with the funereal Cypress jutting out into the foreground, and variegated Hollies and lighter tinted low-growing shrubs in front. *Rhododendrons* also abound, as do many other flowering and evergreen shrubs, which lack of space compels me to pass over. In a secluded spot with an open space of turf in front is the conservatory, chiefly filled with handsome specimen Camellias, some being as much as 15 feet high and well furnished. East of the conservatory is a small enclosed garden devoted to hardy herbaceous plants called Miss Acland's garden, and a most interesting spot it is. As we ascend the hillside we come upon a handsome specimen of *Thujaopsis dolabrata*, the best furnished example I have yet seen; it is 17 feet high and of proportionate diameter. Then we come upon a Scotch Fir with a straight and massive trunk 33 feet to the first branch, though the branches are drooping to the ground. The bole is 12 feet in circumference and as straight as an arrow; next a *Picea cephalonica* in cone, a handsome specimen. But the grandest feature in this part of the grounds is the group of *Cedrus atlantica*, at least 90 feet high, furnished down to the ground, and showing the beautiful silver tint for which this Cedar, when well grown, is remarkable. *Pinus insignis*, many years old, was green as a young plant, and a fine *Araucaria*, 54 feet in height, healthier and better coloured than usual, feeling the benefit of the warm sea air.

One of the features of the grounds at Kilmington, and a very pleasing one it is, is the mixed groups of climbing Roses, Honeysuckles, Thorns, and other shrubs which mingle in a wild, graceful manner. The outlook from a rustic summer-house, which occupies a retired spot on the side of the hill, is a most delightful one. Dartmoor, some 25 miles away, is distinctly visible, looming up dark and drear. To the left is the break in the chain of hills called Sidmouth Gap, through which the sea is visible. Westward are the wood-crowned Woodbury Hills and Woodbury Castle, whilst we have a foreground that cannot be surpassed in the tastefully-planted park. We leave the dressed grounds, and ascend higher up the hill, and come upon a rockery formed principally from the natural rock, and wild and bold with steep banks and ravines planted with Bamboos, Azaleas, Ferns, and other appropriate plants. Far up 40 feet above is also a large natural self-sown bed of the Evening Primrose (*Enothera biennis*), which here seeds and grows abundantly, giving a bright and pleasant character to the place. Foxgloves might be added to keep them company with advantage. Further on we emerge upon an open space where there is a rustic seat, in front of which is a monument erected to the memory of the late Sir Thomas Acland by a few of his friends. It is in the shape of a Maltese cross, and occupies a pleasant site amid leafy glades, and commanding a charming view up the Exe valley. The Fern glen is an exceedingly pretty and interesting spot. It is a ravine or deep glen, shaded by trees and spanned by a rustic bridge, and is full of very fine specimens of hardy Ferns. We pass onwards through a Beech avenue noting some extremely fine Chestnuts and a group of *Cupressus Goebeniana*, and grand examples of *Taxodium* and *Cryptomeria japonica*, through a wilderness of natural beauty called the Druids, where we find a plant of *Rhododendron Blandfordianum* 10 feet high, one of *R. Thomsoni* 10 feet high and as much through. We pass up through the Beech wood which crowns the summit of the hill, taking note of the fine herd of deer in the park below, through the Deodar glen which contains a handsome healthy lot of trees, the undergrowth consisting of *Rhododendrons*. We turn to the left across a wide, open, breezy hill covered with Bracken with Thorns planted thinly amongst from which the views are magnificent. The shades of evening were descending as we entered the kitchen garden, but enough light remained to show that there was an abundance of fruit and vegetables. The pyramid Pears were especially well managed and full of fruit. The walls also were well furnished with healthy trees. The Vines, both the Muscats and others, were producing plenty of fine Grapes, and several other ranges of glass were occupied with healthy collections of Orchids, Ferns, and flowering plants. Mr. Garland grows all his Potatoes and coarser vegetables in the open field, and I saw two acres planted with Regents and Champions looking at the time of my visit remarkably well, and in an adjoining field another acre planted with Onions, Carrots, &c. The Potatoes are planted 3 feet apart in the rows, and never earthed up. Turnips (Orange Jelly and Red Globe) being sown between the rows for autumn and winter use. This system of growing the main crop of roots, Cabbages, &c., in the open field, and leaving the enclosed, sheltered garden for the early crops and things that are benefitted by shelter, or which, such as Celery, require to be near the water supply, is a step in the right direction. E. HOBDAV.

Pampas Grass plumes.—Kindly tell me if the beautiful white plumes of Pampas Grass now to be seen in the fruiterers' and flower shops are artificially bleached, and if so, how they are done. At a fruiterer's here (Hastings) they told me the plumes came from Canada; and as they are, of course, grown there under glass (one ordinary winter in the open would be fatal to them), would this protection alone account for

their silky appearance and extreme whiteness?—J. H. W. T. [They are bleached, we believe, by means of chloride of lime.]

FIRES IN MANSIONS.

THE directors of the Law Fire Insurance Society, viewing the severe fires which have lately occurred in mansions and private houses, request the attention of their customers to what appear to be the most frequent causes of these fires: Timber built into or near fireplaces and flues. Hot-air apparatus of every description. Stoves introduced into rooms previously unprovided with them without professional advice. Workmen allowed to carry out repairs and alterations without proper superintendence; fires being lit without fenders or guards, and candles used without candlesticks. Plumbers lighting fires upon the roof to melt their lead have caused the destruction of many noble mansions. Fires lit in grates not previously used, or disused for a long period, the flues not having been first examined. Chimneys not being

the inmates of mansions, and, indeed, of all dwelling-houses, that in case of fire each person should immediately run for water, and continue to fetch it by any means, so long as there is hope of arresting the flames; but at the same time all doors and windows must be closely shut. When water is not available a fire may be extinguished with rugs, carpets, blankets, or other such materials. When all hope of stopping the fire is at an end, excluding the air must be relied on. A fire may thus be confined to one room, giving time for the arrival of the engines.—*Architect.*

INDOOR GARDEN.

PELARGONIUM COMTESSE DE TANNBERG.

A DECIDED break among the now very numerous varieties of zonal Pelargonium has lately been made on the Continent. The accompanying woodcut admirably shows one of the varieties of this new type now in flower in Messrs. Cannell's nursery at Swanley. It is said never to exceed 6



Pelargonium Comtesse de Tannberg.

thoroughly swept. This should be done at fixed periods, and especially before the return of the family after a long absence. Gas within the house; danger may be avoided if the service pipes are provided with taps, so that the gas may be turned off at night by some person specially appointed to that duty from those rooms where it is known to be not required. Mineral oil lamps are a fertile cause of fire, and demand the greatest caution in their use. Such lamps should have a heavy flat base to prevent their being easily upset. The oil should always be stored outside the dwelling-house. Lucifer matches have caused immense loss of property and of life. Lying about the house they are trodden upon, and by this and other means they are ignited. Only matches which can be ignited by friction upon the box should be permitted. Clothes hanging before the fire. Overheated flues. Wood left on the kitchen range to dry for lighting fires in the morning. Reading in bed. These and similar acts of carelessness and causes of mischief can only be guarded against by an inspection of the house by a trustworthy person after the family have retired to rest. It is necessary to give immediate notice of the intention to introduce these or similar additional risks. The fire office will then give advice as to the precautions required to avert danger. It cannot be too strongly impressed upon

inches or 7 inches in height. It is compact and vigorous in growth, and produces an abundance of flower-spikes, terminated by large, dense clusters of semi-double flowers which just overtop the foliage. The colour of the flowers is a mottled salmon-pink, shaded with soft purple. It is a seedling from the variety *Souvenir de Carpeaux*. Another variety of this new class is also in bloom at Messrs. Cannell's nursery. It is named *Princess Stephanie*, and resembles the preceding in habit of growth, but the colour is a beautiful lilac-pink. It is, like the other, extremely floriferous, and bears very large heads of flowers. This section, as we before remarked, forms quite a new feature, and no doubt it will be "worked" upon largely in order to obtain numerous varieties and a diversity of colours. A third variety of a similar stamp is *Archduke Rudolph*, but not being in flower at the time of our visit we cannot describe it. Among other new Pelargoniums we took note of at the Swanley Nursery there were two just received from the Continent bearing the largest flowers we had ever seen on a zonal Pelargonium. One called *Aurore Boreale* had flowers fully 2½ inches across borne in a huge truss, and of a bright cherry-crimson colour. The other, named *Gloire Lyonnaise*, had similarly large flowers, but of a darker shade. In these varieties the characteristics of the Ivy-leaved section

is traceable, and it is very apparent in the foliage. We shall no doubt hear more of these fine sorts during the coming season. Konigin Olga von Wurtemberg, F. Kauffer, Masterpiece, Kate Greenaway, and a host of other beautiful new Pelargoniums may likewise be seen in the Swanley Nursery.

FINE FOLIAGED PLANTS FROM SEED.

WHERE sub-tropical gardening is largely carried out, it is a great advantage to utilise as far as possible plants that can be readily raised from seed, for although many beautiful plants used for such purposes are of a permanent character, and others are increased by cuttings, there yet remains a large class that can easily be increased by means of seeds. Sow in heat in January, so as to allow time to get up really fine plants by the end of May, as if deferred until March there is not sufficient time to get them properly established in good sized pots, and above all gradually hardened off in cool houses preparatory to planting in the open air. Carefully prepared plants soon grow on and form effective beds or groups, while late sown ones hurried up to the required size languish or make but little progress until the summer is too far advanced for them to have much effect. I would, therefore, advise immediate sowing of the following valuable aids, not only to those who have a good stock of Palms, New Zealand Flaxes, Tree Ferns, &c., to form their most striking effects, but also in the case of those whose limited amount of glass structures render it impossible for them to winter many of the most suitable plants under glass, and who must of necessity rely on plants that can be increased by means of seeds. After trying most of the varieties in cultivation, I can strongly recommend the following as sure to give satisfaction:—

Acacia lophantha.—Seeds of this if sown at once in pots or pans of light soil and placed in a temperature of from 60° to 70° will germinate quickly; pot the young plants off singly in 3-inch pots, and after they are well rooted transfer them to 6-inch pots, keeping them on shelves near the glass, to insure a sturdy, well developed habit of growth; thus treated, they will be graceful, thrifty plants by the 1st of May, when they should be placed in cool quarters, such as pits that have been cleared of hardier plants, and if exposed as much as possible to sun and air on all favourable occasions, will by the end of the month be fit to take their place in the flower garden, where, if planted thinly so that each plant stands out singly on a ground-work of dwarf carpeting plants, they will hold their own in point of effect with many far more costly subjects.

Acanthus latifolius and **A. mollis** are indispensable in what are called foliage gardens, and, if treated as above described, make excellent material for purposes of decoration, and not the least of their many good qualities is the fact that they may be lifted and potted when the beauty of the summer garden begins to wane, and will be found equally useful for indoor decoration in winter, their deep green and elegantly formed leaves having a fine effect in large vases under artificial light.

Beet—Chilian or Brazilian—forms a very effective edging plant for large beds, the midribs of the leaves being brilliantly coloured in many various shades, from creamy white to crimson. If the seed is sown in pans or boxes in heat, and gradually hardened off in a cool house or frame, the young plants may be planted out in April so as to get well advanced in growth before subjects of a more tender character can be safely trusted out of doors. In their earlier stages of growth they are not very effective, but as they attain full dimensions of leaf growth, the midribs assume very beautiful shades of colour, and as edgings to plants of stately habit of growth they are very valuable.

Cannas in great variety are readily increased by seed, called Indian Shot, from the fact of its being round like large shot and very hard. If

kept for any length of time, so as to become very dry, it takes a long time to germinate. I find soaking it for a couple of days before sowing a great help, or if the hard skin is slightly cut with a sharp file it has the same effect; otherwise the seeds, although perfectly sound, may lie dormant for months. If the young plants are potted off singly and grown on in a stove temperature, gradually inuring them to open air treatment in May, good sized plants may be had the first season, but they will not attain the dimensions of those from older roots. It is, therefore, advisable to either lift and preserve the roots, or protect them by external coverings in the open ground.

Centaureas, such as *candidissima*, *Clementi*, and *gymnocarpa*, with their beautiful silvery foliage, are readily increased by seed. If sown in January they make good edging plants by May, and, being of a half-hardy character, may be planted early. They form most effective contrasts with *Coleus* or *Amarantus melancholicus*. *Chamaepuce Cassabonæ* and *C. diacantha* are very beautiful Thistle-like plants with spiny foliage. If treated like the preceding as regards sowing and general routine of culture they will be found most effective as central or dot plants in carpet beds, or as edgings to fine foliage plants of a more robust habit of growth. *Cineraria maritima* is another excellent silvery-leaved plant which requires the same treatment as the *Centaureas*.

Echeveria metallica and *E. m. glauca* so useful for edgings, are readily increased from seed. Care in sowing is required, the seeds being very minute. The best plan is to press the soil very firm, and cover it slightly with silver sand; then spread the seeds evenly on it, water with a very fine rose, and cover the mouth of the pots or pans with a sheet of glass to prevent too rapid evaporation until the seeds germinate, when air must be given.

Eucalyptus globulus, the Blue Gum tree, is very effective as a fine-foliaged plant, the bluish grey tint being quite unique. It is a plant of very rapid growth; seeds of it sown in January will produce good plants by the end of May. The young plants naturally run up tall and erect, and are, therefore, well suited for planting at wide intervals in large beds with an undergrowth of plants of more spreading habit.

Ferdinanda eminens is a very fine plant, and is well suited for planting in groups or as single specimens. If sown at once good plants of it may be had by the first week in June.

Melianthus major has handsome leaves of silvery hue, and produces a good effect either as single specimens in a large state or as an undergrowth to tall plants in its young state. If sown early good plants of it for the latter purpose will be produced by the end of May, and if planted in pots the work of lifting them in autumn will be more safely performed.

Ferula communis and *F. gigantea* produce very elegant deep green foliage, and if sown at once and treated as above make very handsome plants. These are very difficult plants to propagate otherwise than by seeds.

Castor-oils treated as annuals are amongst the finest plants that can be grown. The seed is large, like Beans, and should be sown in pots in light, sandy soil in a brisk heat. As soon as large enough to handle the young plants should be potted off singly into 3-inch pots, from which they may be transferred to 5-inch ones in March and to 8-inch ones in April, so as to have large plants by the end of May. If planted in rich deep soil they will attain a height of from 10 feet to 12 feet in one season, with leaves measuring nearly a yard across. There are many fine varieties, and especially useful is the one called *Ricinus Gibsoni*. It has deep bronzy foliage, is of medium growth, and excellent for forming edgings to the larger kinds.

Solanums of the ornamental foliaged kinds are very effective. Sow them at once, and pot off as required. They mostly have large spiny foliage, of various shades of colour. They are of easy culture; the best I have proved to be *S. giganteum*,

S. laciniatum, *S. macrocarpum*, *S. marginatum*, *S. robustum*, and *S. Warszewiczii*.

Wigandia caracasana and *W. urens* are noble foliaged plants of a spiny, stinging character. If sown and treated as the above they form very fine subjects for beds or groups.

Zea japonica variegata, *Z. Cuzco*, and *Z. Cuzko*, ornamental varieties of Maize or Indian Corn, are very effective in the flower garden. Being of rapid growth, they need not be sown so early as the preceding, the end of February being a good time to sow them, and also that elegant plant, *Cannabis gigantea*, or Giant Hemp, that runs up to a great height, and forms a good background for borders; the foliage is excellent. The main point

To ensure success with the above is, as I have said, early sowing, attention to successional repotting or shifting into larger pots before the roots get pot-bound, and gradual hardening off, or inuring to the outer air when removed from heated structures. A cool orchard house, with plenty of space in which to develop themselves without crowding is the only way to ensure success with plants that need to be large enough to make an immediate effect when transferred to the flower garden; and with a good stock of the above the work of furnishing the sub-tropical garden will be rendered comparatively easy without drawing too heavily on the stock of plants of a more permanent character. JAMES GROOM.

Seafield, Gosport.

SELECT CHRYSANTHEMUMS.

HAVING lately written out a catalogue of autumn flowering Chrysanthemums, the names of which I have selected from the trade lists of three of the principal growers of this now fashionable flower, I find myself in a difficulty as to how to make a selection of the best of them. I find that there are six hundred and sixty-eight varieties, most of which have some special quality to recommend them. Now, I am afraid many of them are very inferior, and as I can only grow about a hundred and fifty at the most, I should be glad—as doubtless would many more of your readers—of some assistance in this matter. What I wish to propose is this: Will some of your Chrysanthemum-growing readers give us the names of those they think best worth growing? By doing this, and comparing notes, we may get a kind of election of the best kinds independently of trade lists. I shall be glad to send the names of those I like best. The names of four sorts which I have finely in blossom now are Baron de Prailly (pink), Regina (yellow), Dr. Masters (bronze), and Meg Merrilies (sulphur white). Of these the first is, I think, the best late Chrysanthemum I ever saw. Meg Merrilies is also a good late kind, though I should not expect very good blooms of it if I stopped the plants till the middle of August, as recommended by a writer in THE GARDEN a few weeks back. Regina I never saw till this year; it is very late and very dwarf, being only about 18 inches high, with remarkably stout shoots and large foliage. Dr. Masters is a well-known good variety. I have had Chrysanthemums in bloom ever since the last week in September, the first to open being White Travenna. JOHN C. TALLACK.

Prideaux Place, Padstow.

Callicarpa purpurea.—In the Birmingham Botanic Garden there are some very handsome specimens of this old, but rare stove plant. Mr. Latham, recognising its usefulness at a time of year when flowers are scarce, grows a number of plants of it every year. As a stove shrub, which may be grown in a greenhouse during the summer and brought into warmth in the autumn, so that its handsome bright purple berries may be well coloured by winter, it proves itself most valuable. *Callicarpa* means “beautiful fruit,” and certainly the plant is well named, for there are few berries brighter coloured than those of this plant. It grows to a good size in a season, old plants cut back and encouraged to make long

shoots being the most desirable. The berries are produced in clusters in the axils of the hairy, lanceolate leaves, and remain on the plant for a considerable time, retaining their bright colour until the end. A branch well berried is very ornamental associated with flowers. The plant reproduces itself freely from seeds, and it may also be raised from cuttings. Liberal treatment during the growing season seems to be what is necessary for the production of long, well berried, gracefully curved branches.—B.

CLEANING GLASS-HOUSES.

ALL glass-houses should have one thorough clean out at least once a year, and now, or during the early spring months, is the best time to do it. Stoves and greenhouses may be done when the plants are potted, but many fruit-houses are now empty, or at rest, and the cleaning of these should not therefore be delayed. First clean every inch of the woodwork and glass with hot water in which a good quantity of soft soap has been dissolved, and when dry, if the wood is at all bare of paint, one or two coats of white lead should be given. Any part decaying should be removed and made good, as work of this kind can never be done without danger of injuring growing crops. A water-tight roof should be secured under all circumstances. Some paint their houses to preserve the wood only; others do this annually to give them a clean appearance, but in no case should paint be put on unless the wood is thoroughly clean and as dry as possible, or it will not give satisfaction. Stone or brick walls should also be carefully cleaned and lime-washed, the lime being worked well into the crevices, and applied both hot and strong so that it may adhere to the wall and kill all insects with which it may come in contact. All flues should be opened here and there, and every particle of anything that would impede the free circulation of the smoke should be removed, and in mending them up again no small holes must be left to permit the slightest escape of smoke. Surface soil which may contain insects or their eggs should be removed, and new sweet material substituted. It may take a good deal of labour to do all this, but it will not be thrown away as its good effects will be felt and observed throughout the season; everything will work satisfactorily afterwards, and insects will have received a check from which they will not recover for a long time to come. CAMBRIAN.

Boiler setting.—In the case of a saddle boiler which I have had set, the space between the back end of the boiler and the wall is 6 inches, so that instead of the flame striking the boiler, it seems to hit the back wall. What I would like to know is, Is not 3 inches enough space for draught, and, if so, would not a course of brick at the back be the means of stopping the flame and throwing it more on to the boiler?—C. C.

Gutta-percha pads.—Colonel Anstruther Thompson, of the Fife hounds, hunts, according to a contemporary, when the snow is deep on the ground, as it is for long periods in that county. The colonel uses cobs and ponies on these occasions. He takes a sheet of gutta-percha about a quarter of an inch thick, cuts out a set of plates a little larger than the hoof inside the shoe, softens them in hot water, and moulds them inside the shoe over the frog, so that a face of gutta-percha touches the ice and snow, and balling with snow is impossible. These plates remain until the end of the hard weather; and the colonel has had famous runs. This excellent method may be adopted by gardeners instead of the cumbrous and costly lawn boots used for horses and ponies when mowing or rolling. A set of boots cost from 20s. to 30s. They are constantly out of repair, and are objectionable because of over-heating which they cause to the hoof. Holes may be pierced in the uppers for ventilation, but this is only a partial remedy for the evil. Gutta-percha pads will be found equally effective in preventing marks on either the lawn or walks; they are easily

adjusted, more comfortable to wear, and much more economical.—T. C. W.

ECONOMIC AND MEDICINAL PLANTS

Cultivated under glass in the Royal Gardens, Kew.

Abrus precatorius, L., Crabs' Eyes; India.
Acacia arabica, Willd., Gum Arabic; Arabia, &c.
Catechu, Willd., Catechu; India.
Farnesiana, Willd., Cassie; W. Indies.
Achras Sapota, L., Sapodilla Plum; Trop. America.
Adansonia digitata, L., Baobab; W. Africa.
Adenanthera pavonina, L., Barricari Seeds; India.
Agave Marmeloss, Corr. Bael of India; E. Indies.
Agave americana, L., American Aloe; Trop. America.
Aleurites triloba, Forst., Candle Nut; Polynesia.
Alcascia indica, Schott., "Taro;" India.
Aloe ferox, Mill., Cape Aloes; Cape.
succotrina, Cape Aloes; Lam.; Cape.
Perryi, Baker, Socotra Aloes; Socotra.
vulgaris, Lam., Barbadoes Aloes; Medit. and Trop. Asia.
Alpinia officinarum, Hance., Galangal; China.
Alstonia scholaris, R. Br., Dita Bark; E. Indies.
Amomum masticatum, Thw., Ceylon.
Melegueta, Roxb., Grains of Paradise; Trop. Africa.
Anacardium occidentale, L., Cashew Nut; India.
Anamirta paniculata, Colebr., Cocculus indicus; India.
Andira inermis, Kth., Bastard Cabbage Bark; Trop. America and Africa.
Andropogon citratus, D. C., Indian Lemon Grass.
Nardus, L., Citronella; India.
muricatus, Retz., Cuscut; India.
Schoenanthus, L., Rusa Oil; India.
Anona Cherimolia, Mill., Cherimoyer; Bolivia, Peru.
muricata, L., Sourp; Trop. America.
palustris, L., Alligator Apple; Trop. America.
reticulata, L., Custard Apple; Tropics, cult.
Antiaris saccidiora, Dalz., Sack Tree; India.
toxicaria, Lesch., Upas tree; Java.
Arracacha esculenta, D. C., Arracacha; Trop. America.
Arrachis hypogaea, L., Ground Nut; Tropics.
Araucaria Bidwilli, Hk., Bunya-Bunya; Queensland.
Areca Catechu, L., Betel Nut; E. Indies.
Arenga saccharifera, Lab., Sugar Plum; Ind. Arch.
Argania Sideroxylon, R. and S., Argan Oil; Morocco.
Artanthe elongata, Miq., Matico; S. America.
Artocarpus incisa, L., Bread Fruit; Polynesia.
integrifolia, L., Jack Fruit; Trop. Asia.
Asclepias Currassavica, L., False Ipecacuanha; W. Indies.
Attalea Cohune, Mart., Cohune Nut; Honduras.
Averrhoa Bilimbi, L., Blimbing; India.
Carambola, L., Carambola; India.
Balsamodendron Opabalsamum, Kth., Balm of Gilead; Trop. E. Africa.
Bassia butyrea, Roxb., Vegetable Butter; N. India.
latifolia, Roxb., Mahwa Tree; India.
Batatas edulis, Chy., Sweet Potato; Tropics.
Benincasa cerifera, Savi., White Gourd; Tropics of Old World.
Berrya Ammonilla, Roxb., Trincomalee Wood; India.
Bixa Orellana, L., Annatto; Tropics, cult.
Blighia sapida, Kg., Akee Tree; W. Africa.
Boehmeria nivea, Hk., China Grass; Trop. Asia.
Puya, Hk.; Nepal.
Boldo, Juss., Boldo; Chili.
Bombax Ceiba, L., Silk Cotton Tree; Trop. America.
malabaricum, D. C., Cotton Tree; India.
Boussingaultia baseloides, Kth., Ecuador.
Bromelia Ananas, L., Pine-apple; Tropics.
Brosimum Alicastrum, Sw., Bread Nut; Trop. America.
Euphane toxicaria, Herb., Poison Bulb; Cape.
Butea frondosa, Kanig., Dhak or Pulas; India.
Casalpinia Bonduc, L.; Tropics.
coriaria, Willd., Divi-Divi; S. America.
Sappan, L., Sappan Wood; India.
Cajanus indicus, Spr., Pigeon Pea, Dhal; E. Indies.
Callitris quadrivalvis, Vent., Sandarach; N. Africa.
Calophyllum Calaba, Jacq., Calaba Oil; Trop. America.
inophyllum, L.; Trop. Asia.
Calotropis gigantea, Br., Muddar; India.
Canavalia obtusifolia, D. C.; Trop. Africa.
Canella alba, Murr., Canella Bark; W. Indies.
Canna edulis, Ker., Tous-les-mois; W. Indies.
Capparis spinosa, L., Capers; Mediterranean region.
Capsicum annuum, L., Red Pepper; Trop. America.
Carica candamarcensis, Hk. f.; Columbia.
Papaya, L., Papaw; Tropics.
Carissa Carandas, L., India.
Carludovica palmata, R. and P.; Peru and New Grenada.
Caryophyllus aromaticus, L., Cloves; Moluccas.
Cassimira edulis, Llav. and Lex., Mexican Apple; Mexico.
Cassine Maurocenia, L., Hotentot Cherry; Cape.
Catanospermum australe, A. Cunn., Moreton Bay Chestnut; Australia.
Castilleja elastica, Cerv., Panama India-rubber; Cent. America.
Catha edulis, Forsk., Arabian Tea; Arabia.
Cedrela odorata, L., W. Indian Cedar; W. Indies.
Cephaelis Ipecacuanha, Rich., Ipecacuanha; Brazil.
Ceratonia siliqua, L., Carob Tree; Levant; S. Europe.
Ceroxylon andicola, H. and B., Wax Palm; S. America.
Chamaerops humilis, L.; S. Europe, N. Africa.
Chloranthus inconspicuus, Sw., Chu-lan; China.
officinalis, Bl.; India.
Chlorocodon Whitei, Hk. f., Mundi root; Natal.
Chloroxylon Swietenia, L., Satin wood; Ceylon and India.
Chondrodendron tomentosum, R. and P., Parreira Brava Brazil.
Chrysobalanus Icaco, L., Cocoa Plum; Trop. Africa and America.
Chrysophyllum Cainito, L., Star Apple; W. Indies.

Cicer arietinum, L., Gram; S. Europe and India.
Cinchona Calisaya, Wedd., Yellow Bark; Peru and Bolivia.
var. Verde.
condaminea, H. and B.; Peru.
cordifolia, Mutis.; Colombia.
var. Colombian Bark; Colombia.
glandulifera, R. and P.
Ledgeriana, How.; Bolivia.
micrantha, R. and P., Lima Bark; Peru.
officinalis, L., Crown Bark; Peru.
var.
crispa, Quina fina de Loxa; Peru.
Pahudiana, How.; Trop. America.
peruviana, How., Grey Bark; Peru.
robusta, Trimen.; Ceylon Hybrid.
succubra, Pav., Red Bark; Ecuador.
Cinnamodendron corticosum, Mierr., Mountain Cinnamon; W. Indies.
Cinnamomum Camphora, Nees., Camphor; Japan and Formosa.
Cassia, Bl., Cassia lignea; Java, cult.
zeylanicum, Nees., Ceylon Cinnamon; Ceylon.
Cissampelos Pareira, L., Pareira Brava; Tropics.
Citrus aurantium, L., Sweet Orange; India.
var. Bergamia, Bergamot Orange.
Bigaradia, Bitter or Seville Orange.
japonica, Kumquat.
myrtifolia.
melitense, Blood Orange.
decumana, Willd., Shaddock; Tropics, cult.
Limetta, Risso., Sweet Lime.
Limonium, L., Lemon; cultivated.
medica, L., Citron; cultivated.
nobilis, Lour., var. Tangeriana, Tangerine Orange.
major, Mandarin Orange.
Cocos nucifera, L., Cocoa-nut; Tropics.
Coffea arabica, L., Coffee; Tropics, cult.
var. Mocha.
iberica, Hiern., Liberian Coffee; Liberia.
Coix Lachryma, L., Job's Tears; Tropics.
Cola acuminata, R. Br., Cola Nut; W. Trop. Africa.
Colocasia antiquorum, Schott., Coco; Tropics.
Convolvulus Scammonia, L., Scammony; Levant.
Cookia punctata, Retz., Wampee; China.
Copaifera officinalis, L.; Colombia.
Lansdorffii, Desf., Balsam of Copaiba; Brazil.
Corchorus capsularis, L., Jute; India.
olitorius, L., Jew's Mallow; India.
Cordia Myxa, L., Sebestens; India.
Cordyline sp., cultivated "Ti" of New Zealanders.
Couroupita guianensis, Aubl., Cannon Ball Tree; Guiana.
Crataeva gynandra, L., Garlic Pear; Trop. America.
Crecentia Cujete, L., Calabash Tree; Trop. America.
Crotalaria juncea, L., Sunn Hemp; India.
Croton Eleutheria, Bemm., Eleuthera Bark, Cascarilla; Bahamas.
niveum, Jacq.; Bahamas.
Tigilium, L., Croton Oil; India.
Cryptostegia grandiflora, R. Br.; India.
madagascariensis, Boj.; Madagascar.
Cucumis Melo, L., Melon.
sativus, L., Cucumber.
var. sikkimensis, Hk. f., Himalaya.
Curcuma longa, L., Turmeric; India.
Zedoaria, Bosc., Zedoary Root; E. Indies.
Cyperus esculentus, L., Earth Almond; Orient.
Cyphomandra betacea, Sendtn.; Cent. America.
Cytisus proliferus, L. f., Tagasaste; Canary Islands.
Daphne papyracea, Walt., Paper Daphne; India.
Dacrydium Franklini, Hk. f., Huon Pine; Tasmania.
Dalbergia Sissoo, Roxb.; E. Indies.
Dammara australis, Lamb., Kauri Pine; New Zealand.
robusta, C. Moore; Queensland.
Derris elliptica, Benth., Tubah; Ind. Arch.
Detarium senegalense, Gmel., Dattock; W. Trop. Africa.
Dichopsis Gutta, Benth., Gutta-percha; E. Indies.
Dioscorea alata, L., Yam; Moluccas and Java.
Diospyros Embroxyteris, Pers., Gaub; E. Indies.
Ebenum, Retz., Ceylon Ebony; Ceylon.
Kaki, L., Kaki; China and Japan.
Dipteryx odorata, Willd., Tonquin Bean; Guiana.
Dorstenia Contrayerva, L., Contrayerva Root; Trop. America.
Dracena Draco, L., Dragon Tree; Teneriffe.
sp., Dragon's Blood; Socotra.
Drimys Winteri, Forst., Winter's Bark; S. America.
Duboisia myoporoides, Muell.; Australia.
Durio Zibithinus, L., Durian; Ind. Arch.
Elaeis guineensis, Jacq., Oil Palm; W. Trop. Africa.
Elettaria Cardamomum, Mat., Cardamoms; India.
Entada scandens, L.; Tropics.
Epipremum mirabile, Schott, Tonga; Malay and Pacific Islands.
Eriobotrya japonica, Kempt., Loquat; China and Japan.
Eriodendron anfractuosum, D. C., Silk Cotton Tree; Trop. America.
Erythroxylon Coca, Lam., Coca; Peru.
Eucalyptus amygdalina, Lab., Peppermint Tree; Australia.
citridora, Hook.; Queensland.
globulus, Lab., Blue Gum; Australia.
leucocylon, Muell., Iron Bark; New S. Wales.
Euchlena luxurians, Mals., Teosinte; Guatemala.
Eugenia edulis, Berg.; Brazil.
Jambolana, Lam.; India.
Michellii, Lam.; Brazil.
Ugni, Hook and Arn.; Chili.
Euonymus Sieboldianus, Pai-cha wood; China.
Euphorbia resinifera, Berg., Gum Euphorbium; Morocco.
Eurybia agrophylla, Cass., Musk Wood; Tasmania.
Euterpe edulis, Mart., Cabbage Palm; Brazil.
Excoecaria Agallochum, L., Eagle wood; Trop. Asia.
Fatsia papyrifera, Benth., Rice Paper Tree; Formosa.
Feronia elephantum, Corr., Wood Apple; India.
Ficus Carica, L., Fig; Levant.

Ficus bengalensis, *L.*, Banyan; India.
elastica, *Roxb.*, India-rubber; India.
religiosa, *L.*, *Peupl.*; India.
sycamorus, *L.*, Sycamore Fig; Egypt.
Flacourtia sepiara, *Roxb.*; India.
Ramontchi, *L'Her.*; India.
Galactodendron utile, *H. B.*, Cow Tree; Venezuela.
Garcinia indica, *Choisy*, Kokum Oil; India.
Hamburyi, *Hook. f.*, Siam; Gamboge; Cambodia and Cochinchina.
Mangostana, *L.*, Mangosteen; Malay Arch.
Morella, *Desrous.*, Ceylon Gamboge; Ceylon.
Xanthochymus, *Hk. f.*; India.
Gelsemium sempervirens, *Ait.*, False Jessamine; N. America.
Genipa americana, *L.*; S. America.
Glycosmis pentaphylla, *Cor.*; E. Indies.
Gossypium arboreum, *L.*, Tree Cotton; cultivated.
hirsutum, *L.*, Indian Cotton; cult.
herbaceum, *L.*; cult.
Grias cauliflora, *L.*, Anchovy Pear; Jamaica.
Guaiacum officinale, *L.*, Lignum Vitae; W. Indies.
Guillemia speciosa, *Mart.*, Peach Palm; Trop. America.
Guzotia oleifera, *D. C.*, Ram-tail Oil; Abyssinia and India.
Gynocardia odorata, *Roxb.*, Chaulmugra; East Indies.
Hematoxylon campechianum, *L.*, Logwood; Cent. America.
Helichrysum serpyllifolium, *Less.*, Cape Colony Tea; Cape.
Hevea brasiliensis, *Mull.*, Para Rubber; Brazil.
Spruceana, *Mull.*; Brazil.
Hibiscus Abelmoschus, *L.*, Okro; Tropics.
mutabilis, *L.*; China.
Hippomane Mancinella, *L.*, Manchineel Tree; W. Indies.
Hura crepitans, *L.*, Sandbox Tree; Trop. America.
Hymenaea Courbaril, *L.*, Locust Tree; W. Indies.
verrucosa, *Gertn.*, Copal; Madagascar.
Hydnocarpus venenosus, *Gertn.*, Fish Poison; Ceylon.
Ilex paraguayensis, *St. Hil.*, Paraguay Tea; Paraguay.
Illicium anisatum, *L.*, Star Anise; Japan and China.
floridanum, *L.*, Aniseed Tree; Florida.
Indigofera Anil, *L.*, Indigo; W. Indies.
tinctoria, *L.*, Indigo; Tropics, cultivated.
Ipomoea Purga, *Hayne*, Jalap; Mexico.
Jambosa vulgaris, *D. C.*, Rose Apple; E. Indies.
Jateorhiza Calumba, *Miers.*, Calumba Root; E. Africa.
Juniperus bermudiana, *L.*, Pencil Cedar; W. Indies.
Kempferia Galanga, *L.*; China.
Lagetta linearis, *Lam.*, Lace-bark Tree; Jamaica.
Lagenaria vulgaris, *Ser.*, Bottle Gourd; India.
Landolphia florida, *Benth.*, African Rubber; Trop. Africa.
Kirki, *Dyer*, African Rubber; E. Trop. Africa.
Petersiana, *Dyer*, African Rubber; E. Trop. Africa.
Lansium domesticum, *Jack.*, Langsat; Malacca.
Lawsonia inermis, *L.*, Henna; Egypt.
Lecythis Pisonis, *Camb.*; Brazil.
Zabucajo, *Aubl.*, Sapucaia Nut; S. America.
Lucuma deliciosa, *Fl. and Ldl.*, New Grenada.
mammosa, *Gr.*; Trop. America.
Luffa acutangula, *L.*, *egyptiaca*, *D. C.*
Lygeum Spartum, *L.*, Albardin; Europe.
Macadamia ternifolia, *Muell.*, Queensland Nut; E. Australia.
Macharium firmum, *L.*, Rosewood; Brazil.
Maclura tinctoria, *Don.*, Fustic; Trop. America.
Macrochloa tenacissima, *Kunth*, Esparto; N. Africa.
Mallotus philippensis, *Mull.*, Kamala Tree; Eastern Tropics.
Malpighia glabra, *L.*, Barbadoes Cherry; Trop. America.
urens, *L.*; Trop. America.
punicifolia, *L.*; Trop. America.
Mammea americana, *L.*, Mammee Apple; W. Indies.
Mangifera indica, *L.*, Mango; Tropics, India.
Manicaria sacifera, *Gertn.*, Bussu Palm; Amazons.
Manihot Aipi, *Pohl.*, Sweet Cassava; Trop. America.
Glaziosi, *Mull.*, Ceara Rubber; Brazil.
utillissima, *Pohl.*, Bitter Cassava; Trop. America.
Maranta arundinacea, *Rose*, Arrowroot; S. America.
Marcgraavia umbellata, *L.*; Trop. America.
Marsdenia Condurango, *Reich. f.*; Colombia.
Mauritia flexuosa, *L. f.*, Ita Palm; Trop. S. America.
Melaleuca Cajuputi, *Roxb.*, Cajuput Tree; Ind. Arch.
Melia Azedarach, *L.*, Persian Lilac; India.
Melicocca bijuga, *L.*, Genip Tree; Trinidad, Colombia.
Mesembryanthemum edule, *L.*, Hottentot Fig; Cape.
Mimosa Elengi, *L.*; India.
globosa, *Gertn.*, Gum Balata; Tropics.
Monodora Myristica, *Dun.*, Calabash Nutmeg; W. Trop. Africa.
Monizia edulis, *Lowe*, Carrot Tree; Madeira.
Mora excelsa, *Schomb.*, Mora; Guiana.
Monstera deliciosa, *Liebm.*; Mexico.
Moringa concanensis, *Nimm.*; India.
pterygosperma, *Gertn.*, Horse-radish Tree; India.
Mucuna pruriens, *D. C.*, Cowitch; India.
Musa Cavendishi, *Paxt.*, Dwarf Banana; cultivated.
-paradisica, *L.*, Plantain; Tropics.
textilis, *Nees*, Manila Hemp; Ind. Arch.
Myristica moschata, *Thunb.*, Nutmeg; Ind. Arch.
Nectandra Rodiei, *Schomb.*, Greenheart; Guiana.
Nepelium Litchi, *Don.*, Litchi; China.
Nicotiana Tabacum, *L.*, Tobacco; cultivated.
rustica, *L.*, Turkish Tobacco; cultivated.
Olea europaea, *L.*, Olive; cultivated.
Opuntia cochinillifera, *Haw.*, Cochineal Cactus; S. America.
Ficus indica, *L.*, Indian Fig; Trop. America.
Oryza sativa, *L.*, Rice plant; India, cult.
Osmanthus fragrans, *Lour.*; Japan and China.
Oxalis Deppei, *Lodd.*; Mexico.
Paderia fetida, *L.*, Bedolee Sutta; India and Japan.
Pandanus utilis, *Bory*, Vauca; Mauritius.
Paritium elatum, *Don.*, Cuba Bast; W. Indies.
Passiflora edulis, *Sims*, Guadadilla; Brazil.
macrocarpa, *Mast.*; Brazil.
quadrangularis, *L.*, Jamaica

Parmentiera cereifera, *Sum.*, Candle Tree; Panama.
Paullinia pinnata, *L.*; Trop. America.
Pelargonium capitatum, *Ait.*; Cape.
Penicillaria spicata, *Willd.*, Gero; Trop. Africa.
Pentzia virgata, *Lees*; Cape.
Perilla ocymoides, *L.*, Ye-goma; Japan.
Persea gratissima, *Gertn.*, Avocado Pear; Trop. America.
Petiveria alliacea, *L.*, Toothache Tree; Trop. America.
Phaseolus Mungo, *L.*, Moong; Trop. Asia.
Phoenix dactylifera, *L.*, Date Palm; Africa and Asia.
Physalis edulis, *Sims*, Cape Gooseberry; Peru.
Physostigma venenosum, *Balf.*, Calabar Ordeal Bean; W. Trop. Africa.
Phytalephas macrocarpa, *R. and P.*, Vegetable Ivory; Trop. America.
Picræna excelsa, *L.*, Jamaica Quassia; W. Indies.
Pilocarpus pennatifolius, *Lem.*, Jaborandi; Brazil.
Pimento acris, *Wight*, Wild Clove; W. Indies.
officinalis, *Ldl.*, Allspice; W. Indies.
Piper Cubeba, *L. f.*, Cubebes; Ind. Arch.
Betel, *L.*, Betel Pepper Leaf.
methysticum, *Forst.*; Kava-kava; Pacific Islands.
nigrum, *L.*, Black Pepper; Trop. Asia.
Pistacia Terebinthus, *L.*, Chian Turpentine; Mediterranean Region.
Lentiscus, *L.*, Mastic; Greek Arch.
vera, *L.*, Pistacia; S. Europe.
Pogostemon Patchouli, *Pell.*, Patchouli; Ind. Arch.
Pronium Palmite, *E. M.*, Palmite; S. Africa.
Prosopis juliflora, *D. C.*, Algarob; W. Trop. Africa.
Psidium Guava, *Raddi*, Guava; S. America.
Cattleianum, *Lab.*; W. Indies.
polycarpum, *Lam.*; Jamaica.
Psophocarpus tetragonolobus, *D. C.*; W. Trop. Africa.
Punica granatum, *L.*, Pomegranate; cultivated.
Putranjiva Roxburghi, *Wall.*; India.
Quassia amala, *L.*, Surinam Quassia; Guiana.
Quercus Egilops, *L.*, Valonia Oak; Asia Minor.
Iusitanica var. *infectoria*, *A. D. C.*, Aleppo Gall Oak; Asia Minor.
Rhus vernicifera, *D. C.*, Lacquer Tree; Japan.
succedanea, *L.*, Japan Wax; Japan.
Ricinus communis, *L.*, Castor Oil; India.
Rubia cordifolia, *L.*, Indian Madder; India.
Saccharum officinarum, *L.*, Sugar Cane; cultivated.
Salvadora persica, *L.*, Reputed "Mustard Tree" of Scripture; Syria to India.
Sansevieria cylindrica, *Boj.*, Ife; Trop. Africa.
zeylanica, *Willd.*, Bow-string Hemp; India.
Sapindus acuminatus, *Benth.*; India.
Saponaria, *L.*, Soap Berry; Trop. America.
Sarcocephalus esculentus, *Lab.*, Negro Peach; W. Trop. Africa.
Schinus Molle, *L.*, Peruvian Mastic; Brazil and Peru.
Schleichera trijuga, *W.*; India, &c.
Schenocaulon officinale, *Gray*, Sabadilla; Trop. America.
Scilla maritima, *L.*, Squills; Medit. shores.
Sesamum indicum, *L.*, Gingelly Oil; cultivated.
Sida rhombifolia, *L.*; India, &c.
Simaba Cedron, *Planch.*, Cedron; New Grenada.
Simaruba amara, *Aubl.*, W. Indies and Guiana.
Smilax officinale, *H. B. K.*, Sarsaparilla; Colombia.
sp., Caracas Sarsaparilla; Caracas.
Solanum Melongena, *L.*, Aubergine; India.
Sorghum saccharatum, *Mench.*, Millet; cultivated.
Spondias lutea, *L.*, Golden Apple; Trop. America.
mangifera, *Pers.*, Hog Plum; India.
pleiogyne, *Muell.*; Australia.
Stenotaphrum americanum, *Sch.*; Trop. America.
Sterculia Chica, *St. Hil.*; Brazil.
Stillingia sebifera, *Michx.*, Chinese Tallow Tree; China.
Strychnos Ignati, Ignatius Bean; Borneo?
Nux-vomica, *L.*, Vomit Nut; E. Indies.
potatorum, *L. fil.*, Clearing Nut; India.
Styrax officinale, *L.*, True Storax; S. Europe.
Swietenia Mahagoni, *L.*, Mahogany; Trop. America.
Tacca pinnatifida, *L.*, Ti; Ind. Arch.
Tabernaemontana crassa, *Benth.*
Tamarindus indica, *L.*, Tamarind; Trop. Africa.
Tanghinia venenifera, *Poir.*, Tanghin Poison; Madagascar.
Tectona grandis, *L.*, Teak; E. Indies.
Terminalia Bellerica, *Roxb.*, Myrabolans; India.
Catappa, *L.*, Indian Almond; Tropics.
Thea chinensis, *L.*, Tea; China.
var. assamica, *Mast.*, Assam Tea.
Theobroma Cacao, *L.*, Cocoa; Trop. America.
Tinospora cordifolia, *Miers.*, Gulancha; India, &c.
Toddalea aculeata, *Pers.*, Toddalia root; India.
Toluifera Balsamum, *L.*, Balsam of Tolu; Venezuela.
Pereire, *Baill.*, Balsam of Peru; San Salvador.
peruifera, *Baill.*; Peru and Brazil.
Trachylobium Hornemannianum, *Hayne*, Copal; E. Trop. Africa.
Triphasia trifoliata, *D. C.*; China.
Tylophora asthmatica, *W. and A.*, Indian Ipecacuanha; E. Indies.
Urostigma Vogeli, *Mig.*; Liberia.
Vahea gummiifera, *D. C.*, Madagascar Rubber.
Vangueria edulis, *Vahl.*, Voa Vanga; Madagascar.
Vanilla planifolia, *And.*, Vanilla; Mexico and W. Indies.
Vigna Catjang, *Endl.*, Chowlee; E. Indies.
Vitis vinifera, *L.*, Grape Vine; Levant.
var. corinthiaca, Currant Vine; Levant.
Walsura Piscidia, *Roxb.*, Fish Poison; India.
Zingiber officinale, *Roseoe*, Ginger; Tropics.
Zizyphus Jujuba, *Lam.*, Jujube; Old World Tropics.
Kew Garden Report.

every case. I cut the bark of the tree in the shape of a V, raised the tongue of bark, and put the seed underneath. This I did both upon Apple and Mountain Ash. I did not tie down the cut bark, and I found that it curled up.—J. McD.

SEASONABLE WORK.

FLORAL DECORATIONS.

AN effective arrangement may be made with the following subjects to be had now, selecting as the receptacle for them a moderate-sized trumpet vase. Cut three or more of the showy heads of Poinsettia and five or six spikes of Calanthe vestita rosea; intersperse freely with the former fronds of Maiden-hair Fern; then let the spikes of the Calanthe be inserted sufficiently long in the stem to stand well above the showy bracts of the Poinsettia. To an arrangement of this kind we once added a few blooms of a bright scarlet seedling perpetual Carnation, and perchance a single one (even these are not to be despised), and one bloom only of the Amazonian Lily, and a pleasing change for the dull days of winter was the result. Neither the Poinsettia nor the Calanthe would have lasted much longer on the plants; therefore advantage was taken to make the most of them. For another rather small vase of the same form we selected developed trusses of Early Roman and Paper-white Narcissi, and three or four spikes of the white Roman Hyacinth, each with their own foliage, taking care to have a good length of stem, so that when arranged they should not look crowded. This gave another distinct grouping. In a somewhat shallow vase or bowl a few trusses of the single forms of Chinese Primrose will look well, using two or three distinct colours and their own foliage. A vernal tinge to this may be given if desired by adding a few Snowdrops or Violets. In my opinion the single forms of Primula sinensis are far better and more effective in a cut state than the double ones. The latter, however, may perhaps be a trifle more durable, which in packing flowers to send a distance is certainly a consideration. For specimen glasses for the dinner-table Camellias will now be extremely useful. We generally contrive to cut these with sufficient stem to hold them safely in the glass. In this way they last a good time. Sometimes they are disposed to drop from the stem; when this is the case a little gum arabic in solution will hold them together. This is preferable to wire, which soon leaves a deposit on the glass. When from any cause glass vases happen to become discoloured or furred, a weak solution of hydrochloric acid will easily remove the stain, a better plan than undue rubbing, thereby endangering the glass.

FLOWER GARDEN.

Abutilons.—Amongst these the best bedders are Duc de Malakoff, which has very large flowers, in colour like those of the old striatum; Boule de Neige, white; Lemoine, sulphur-yellow; and the variegated kinds Darwini variegatum and Thomsoni variegatum. The two last are effective as "dot" plants in large masses of Pelargoniums or dark-leaved plants used for the sake of their foliage, and they are almost equally well suited for massing by themselves, but still better for planting thinly over entire beds, and using either Violas, Verbena venosa, or Verbena Purple King in the interstices, the whole forming one of the finest "shot-silk" bed arrangements that can be conceived. The preceding kinds are the most effective when used singly either as centres or equi-distant over large beds of naturally dumphy-growing bedding plants. All the kinds are best propagated in autumn; they strike readily in a frame if afforded a bottom heat of 65°. As soon as struck they should be taken out and wintered in store pots in a cool house or pit, and at the beginning of February be potted of singly in good loam, and be grown on sturdily till planting out time at the end of May or early in June.

Shrubberies.—We are now at work among these, cleaning out all leaves that would be likely to blow out and cause untidiness; where possible

Mistletoe.—I would be very glad if any of your readers would record in THE GARDEN their experience in regard to Mistletoe growing. Last March I tried a good many berries, but failed in

without injuring the roots, preference is given to forking them in, but before doing this the plants are regulated as to space, either by thinning out and replanting them in other positions, or else by cutting out straggling growths, so as to keep each plant from injuring its neighbour. The margins of turf are then cut, and any vacant ground in front furnished either with hardy bulbs or spring flowering plants, such as Wallflowers, Forget-me-nots, Polyanthus, Primroses, and similar plants. In forming new beds for shrub planting the ground should be trenched as deeply as the nature of the soil will allow; plenty of decayed manure should be worked into it, and for those beds that are intended for what are generally termed American plants, *i.e.*, Azaleas, Rhododendrons, Kalmias, &c., peat soil is desirable, but by no means essential, as they do almost equally well in pure loam, provided it is not too heavy and is free from chalk, which seems to be rank poison to American shrubs and Conifers, and their growth should never be attempted in soil of this character. See that the plants are not buried deeper than they were previous to removal, and also that the soil is well worked in and consolidated about the roots. These precautions may seem of little moment, but they make all the difference between the bad or well-doing of the plants.

General work.—High keeping is certainly most desirable at this dull season of the year; therefore lawns should be kept clear of leaves and worm-casts by frequent rolling and sweeping; walks should be cleared of Moss and weeds by turning, and, where necessary, regravelling. The best of all walk preservers is the roller; when this is used freely, weeds and Moss have a hard time of it, and firm walks are the result. In the event of frosty weather setting in, plenty of work may be found in carting out soils and manures to spots where they are required, throwing together leaf heaps, and burning up prunings or other rubbish, the ashes of which form a valuable manure for any crop.

FRUIT.

Orchard house.—If the roots of the early trees were in a satisfactory condition when forcing was commenced, the blossom-buds will now be swelling fast, and the earliest kinds will be ready to expand. When this stage has been attained fumigate the house to destroy any green-fly which the gentle warmth may have brought into existence, otherwise it will prove extremely troublesome, and do serious mischief to the crop before the later kinds have set their fruit. Pay particular attention to watering and syringing with tepid water until the blossoms begin to expand, and avoid wetting the trees during the time they are in flower, but on no account allow the roots to suffer from want of water. Allow the temperature to range from 50° to 55° on mild nights, with a little air, to 60° or 65° on fine days, with an increased circulation, and impregnate the flowers with a camel's-hair pencil about noon when the house has reached the maximum and the atmosphere is dry.

Later houses.—Where the trees have been removed to the open air to make room for other subjects, preparations must now be made for replacing them under glass, as, owing to the mildness of the season, the buds on many of the Peaches, Plums, and Cherries are now getting forward, and unless they are protected with nets or carefully watched small birds in wooded districts will soon destroy the most prominent and of course the most valuable flowers. If cleansing and painting has been delayed, get it done at once; examine each tree as it is drawn out of the plunging material, wash the shoots with strong soapy water to free them from scale, scrub the pots, and see that the drainage is satisfactory. If space is limited Pears may be left out till next month. In the final arrangement of the trees, Peaches, Nectarines, and Figs should occupy the warmest part of the house, Plums, Cherries, and Pears the coldest; but choice kinds of the latter will be im-

proved by removal to a warm, airy situation when the fruit is swelling and ripening. If pot Strawberries are grown in orchard houses, they should be placed on shelves near the glass, where they can be well syringed and have the full benefit of light and solar heat.

Cherries.—Where only one house is devoted to Cherries the end of the old year or the beginning of January is a good time to begin forcing, if forcing it can be called, as owing to the excitable nature of the trees, the great art of growing house Cherries successfully consists in the maintenance of a low temperature, ranging a few degrees higher than the external air when the weather is temperate, and as low as 40° at night when very severe. Like all stone fruit trees which are liable to be affected by aphid, cleanliness is very important, and no trouble should be spared in preparing for a good start. When this has been done, soft-wooded plants like Geraniums, Cinerarias, or other subjects liable to carry green-fly should be excluded, and the everlasting pot Strawberry should be dipped in a strong insecticide before it is allowed to have a place. Assuming that the borders are inside, see that they are well mulched with manure and watered with water at a temperature of 70° to 80°. Syringe daily, warm the pipes every morning with air, ventilate freely at 55°, and shut off fire-heat when the house is closed on mild afternoons. Early houses started at the end of November will be getting well advanced, and the blossoms on some of the trees will soon be open. When this charming picture begins to unfold, syringing must be discontinued, otherwise the petals of the flowers will damp before the fruit is properly set. Keep up a circulation of air unless the weather becomes very severe. Let the temperature range from 45° at night to 56° by day when fire-heat is needed, and a few degrees higher under gleams of sunshine. Fumigate before the blossoms open, and fertilise with a brush when the pollen becomes free.

Melons.—Where early Melons are required and a light, efficiently heated pit is at command, a few seeds of some free-bearing early kind may be sown at once in small pots and plunged in a bottom heat of 80°, which can be kept up by the aid of hot-water pipes running beneath the bed. The great drawback to Melons at this early season is want of light, a difficulty which may be met by keeping the young plants close to the glass, which must be clean, and by covering with bell-glasses in preference to mats on severe nights. Immediately after the seeds are sown, set about the preparation of suitable materials for making up the plunging bed in which the plants are to grow and ripen their fruit. For this purpose well-worked tan gives least trouble, but in wooded districts sound Oak leaves produce better results, as the moist heat from decaying vegetable matter is more favourable to a clean healthy growth of vine and foliage. Another important item in successful Melon culture is a good supply of strong loam from an old pasture, which should be cut some months before it is wanted for use, and tacked in an open, airy shed or in long narrow ridges out-of-doors, with some kind of covering for throwing off heavy rain and snow. If this is not at hand, lose no time in securing enough for the season, and expose it to the atmosphere, as wet crude soil is sure to lead to disappointment if not to complete failure.

Pines.—With the exception of plants which are swelling off fruit, and the early batch of Queens recently plunged in strong bottom-heat, the general stock of Pines may be kept very quiet until the end of the month, when with increasing length of days and brighter weather they will soon start into vigorous growth, and make better plants than if kept in a state of excitement through the dead months of December and January. Queens, Rothschilds, and Cayennes rest and winter well in a bottom-heat of 70° to 75°; but in the event of the old material in which the Queens are plunged sinking much below the above figures, it will be advisable to open the valves for a short time, and water the bed with hot water at a temperature of 90°, care being

taken that it does not pass over the sides of the pots to excite a portion of the roots before the proper time arrives for starting them into fruit. Keep a close watch upon plants now about starting and increase the supply of stimulating liquid to the roots as soon as the fruits can be seen, also atmospheric moisture by damping all available spaces between and around the plants, but avoid wetting the fruit till well above the foliage and the flowering period is over.

Successions.—Examine these once a week, and see that the plants in small pots, placed in near proximity to the bottom-heat pipes, do not want for water. Where this danger does not exist but little water will be needed for the present. Give a little air on fine days to prevent the plants from becoming drawn, and cover up at night to economise fire-heat. Prepare crocks, pots, and soil for use next month. If the latter, good turfy loam, is not in suitable condition, break it up with the hand and expose it to the atmosphere, where it will become dry and warm before the time arrives for potting.

INDOOR PLANTS.

Forced hardy shrubs.—There is much difference in the result which follows the forcing of hardy shrubs consequent on the more or less matured condition of the preceding season's growth, and in this a good deal depends on the soil and position in which the plants to be forced have been grown. Where much of this kind of stock is required it is well to select a place wherein to grow them that is best calculated to insure the requisite conditions, and if the natural soil is not of a character such as to suit them, it should be prepared. Heavy tenacious land, where the roots of plants grown in it are usually deficient in quantity, and of a long straggling description, is not well adapted for the preparation of shrubs for this purpose, as they take up badly; whereas if the soil is moderately light and free, most of the roots can be preserved, and in addition the plants in soil of this character are generally much more compact and better furnished with bloom-buds. In most gardens suitable material for the purpose can be found in the old potting soil ordinarily consisting of a mixture of loam, peat, and vegetable mould with sufficient sand, and if an open position facing the south exposed to the full sun is available, a stock of such things as Viburnums, Azalea mollis, A. amœna, double-flowered Plums, Lilacs, Deutzias, Andromedas, Laurustinus, Rhododendrons, and Kalmia latifolia may be grown. In parts of the kingdom where this last-named shrub flowers it is one of the most beautiful of all hardy plants. Where a sufficiently large piece of ground devoted to this purpose exists, so that the plants can be prepared by frequent transplanting, the effect of which is to induce a close, compact habit with a disposition to form plenty of bloom, it will be found a great assistance in providing the means for a continuous supply of forced flowers through the winter and spring. There is no better time of the year than the present for the formation and planting of a reserve plot of this description, and to no better purpose can the annual accumulation of old potting materials I have mentioned be turned. All that is further needed is to see that the plants are not placed too close, to keep them slightly pruned into shape by the reduction of straggling shoots, and the yearly addition of sufficient successional small plants to take the place of those that in time get too large for potting. The advantage of taking the little trouble thus required to have at hand small compact, profusely flowered examples of this kind of stock is apparent in the Continental grown Lilacs, Azalea mollis, and Laurustinus, which, by judicious treatment, are prepared in a way that enables their yielding a profusion of blooms from plants that are so small as to take up little room, and are much more sightly than the rough, often untidy examples dug out of the shrubbery for forcing. Continue to introduce once a fortnight enough plants of the above description to meet the demand, being careful not to hurry them by too much heat, or the flowers will not last long, and be of little use for cutting.

Gardenias.—There are few, if any, flowers held in greater estimation or that are more difficult to produce during the depth of winter than Gardenias, for even where there is a large stock that have been especially prepared for blooming at this season, and with plenty of heat at command, they open very slowly without sun. The best means in order to have these flowers in winter is to get the crop of buds well forward in autumn, to keep the plants with their heads close up to the glass in a light house where there is a good supply of heat at command, being careful not to give too much water at the roots, or to keep over much moisture in the atmosphere, and not to use bottom-heat, as any of these conditions are sure to cause the buds to fall off a little before they should open. *G. citriodora* deserves a place wherever delicately-scented flowers are liked; small and in appearance unlike others of the family, it is much easier to have it in bloom through the winter months where there is sufficient heat to induce the flowers to open; it takes up very little room and is a profuse bloomer.

Bougainvillea glabra.—This, the freest flowering and most easily managed of the Bougainvilleas, can be had in bloom early if plants with well ripened wood are at hand. Where they have been dried off so as to cause the leaves in a great measure to fall the plants may be cut in, removing the small shoots that are too weak to produce flowering growths, and shortening to a convenient length the strongest; after this if the ball of earth is very dry it will be best to soak it for several hours in a vessel of tepid water large enough to admit of the ball being covered. This *Bougainvillea* requires plenty of root room; if too much confined the quantity of flowers will be proportionately limited; consequently if larger pots are needed they should be given before the plants are started, but in this case there must not be any disturbance of the roots. Where no potting is required manure water should be given as soon as growth has fairly commenced. A brisk heat is necessary to get it to move freely at this early season, but with 65° in the night and a rise by day proportionate with the weather it will be in flower in about ten weeks, and when started at this time and kept going in a temperature as above indicated it will bloom three times before the season for again resting it will have arrived.

Allamandas.—The earliest rested of these may also be started. It is best to cut them well in, removing all the shoots that have not been fully ripened up. In the case of young examples in comparatively small pots they should have more room at once, seeing that the balls are thoroughly soaked through beforehand, otherwise difficulty will be found in getting the soil moistened afterwards; if the specimens are old and the soil in the pots is exhausted, they should be half shaken out and potted in good loam well enriched with rotten manure; at the same time the plants ought to be cut well in, and if they are to be grown on trellises these should be fastened to the pots at once, and the plants trained to them.

Cyperus alternifolius.—The variegated form of this plant is usually liked the best, but the green kind is also worth growing, although not so showy. Both are most useful when in small pots—6 in. or 7 in. in diameter. The present is a good time for dividing any that have got too large, turning them out of the pots, separating them so as to leave two or three crowns to each. The variegated sort generally keeps its colour best when grown in loam. The plants as soon as they begin to grow should be kept well up to the light, as this also tends to preserve the variegation and keeps them stouter.

Amarylids.—Where a sufficient stock of these is cultivated, and their growth was completed early so as to admit of their being put to rest in good time, a portion may now be started, as by regulating the period of growth and rest, they may be had in at almost any time. They will bear a brisk heat, and if the bulbs are strong they will seldom fail to flower. Give the soil a good

soaking. This is earlier than it would be advisable to start the main stock, but if a few be put in heat at a time they will give a succession, and the earliest flowered portion will come in when flowers are not too plentiful.

ORCHIDS.

East Indian house.—Let the ventilators in this house be closed early on sunny days so as to diminish the amount of fire-heat and thus benefit the plants. In all Orchid houses it is well to have ventilators in the walls just opposite the hot-water pipes, and these should be open every night in mild weather, and even on frosty nights if the air is calm. The air gets heated as it passes over the pipes, and thus circulates amongst the plants night and day. If the temperature is up to 65° at daybreak in the morning, the top ventilators should be opened at once if the weather is mild, but only to the smallest extent; so much as to cause the temperature to fall would be too much. If there is a sharp frost, better not admit air until the sun rises sufficiently to raise the temperature a few degrees. No time should now be lost in getting all the repotting of *Saccolabiums*, *Angraecums*, and other plants of that character done. The pots should be half full of drainage, and the potting material should be clean Sphagnum. We use well dried material in which to pot the roots, mixing it with crocks and charcoal, finishing off the tops with live, clean Sphagnum cut up with a knife. The small growing *Angraecums* succeed better in pans or baskets than in pots. Than these winter-flowering Madagascar Orchids there are few more desirable. All the large growing species, such as *A. eburneum* and *A. sesquipedale*, succeed best in pots, and large plants of them form noble ornaments to this house in winter. The first named is not so much grown as it ought to be, but large specimens in bloom cannot fail to please. The pretty little *A. citratum* is most floriferous when suspended from the rafters, and cultivated either in shallow pans or baskets, as are also *A. Ellisii* and the form of it called *A. articulatum*. These do best suspended in quite the warmest part of the house. With the exception of *A. falcatum*, all of them require plenty of heat. We do not put any water in the evaporating troughs until a month or six weeks later than this; we rather depend for moisture from water sprinkled on paths or stages. The evaporating troughs filled with water form an important aid to culture when the plants are in full growth.

Cattleya house.—As regards the best time to repot certain occupants of this house, a very successful Orchid grower told me the other day that his plan was to begin as soon as he could after the new year with the East India house, and that he was usually forward enough to pot the plants in the *Cattleya* house in February. Some *Aerides* in this house as well as *Vandas* are, I find, now beginning to make new roots, and that being the case no time should be lost in repotting them if they need it. All the *Vanda tricolor* section require to be potted now, and *Aerides Fieldingi*, *A. Lindleyanum*, *A. crispum*, &c., require similar treatment. I do not pot any of these annually unless it is seen that the potting material about the roots is rotten and requires removing. Another very successful grower repots every year. In repotting take care not to injure the roots. In arranging the plants see that those that have a tendency to be shy bloomers are placed in the lightest part of the house and as near the glass as possible. Some are better in the warmest end; others prefer a cool position. We would place *Cattleya gigas*, *Dowiana*, *lobata*, &c., at the warmest end and near the glass, while such plants as *Lelia majalis*, *acuminata*, *autumnalis*, &c., should be placed in the coolest parts—the first named near the glass, and well exposed to the sun. *Dendrobiums* of the tall-growing type, such as *D. Dalhousianum*, *nobile*, *thyrsiflorum*, &c., and also *Vandas* and *Anguloas*, may be further from the glass; the smaller-growing *Dendrobiums* may be suspended in baskets or in pans

from the roof; *D. crassinode*, *Wardianum*, and all the pendulous growing species succeed best and look best in that way, while the dwarf growing upright section, of which *D. Bensoniae*, *Parishi*, *albo-sanguineum*, and others are examples, make the best and most sturdy growths in that position. Of course, when in flower they may be arranged on the stage nearer the eye, and there, too, the flowers last longer than near the glass. One of the best of Mexican Orchids is the charming *Odontoglossum citrosium*; this should still be kept as dry as possible at the roots, so much so as to cause the back bulbs to shrivel. Thus treated it makes strong, healthy growth next season. On the other hand, *O. Phalaenopsis* must not be allowed to become so dry; plants of this are now making their growth, and must not suffer from want of water at the roots. Watch carefully now for slugs, &c., as the spikes of many Orchids are showing, and a stray marauder may blight the best prospects of a twelvemonth's labour and anxiety. They seem to have a preference for *Odontoglossum hastilabium*, *Oncidium crispum*, and *O. Marshallianum*.

Cool houses.—It may not be out of place to make a few remarks on the construction of a cool Orchid house, as the culture of these beautiful flowers seems to increase more and more, and a house may be constructed for them in a position where the other sections of Orchids would not succeed. Some of the best grown plants ever seen were in a lean-to facing the north. A house in the form of a lean-to, say from 9 feet to 12 feet wide, against a north wall, and high enough to allow a tall man to walk down the centre of it with comfort, will answer as well as any other form. Span-roofed houses, too, seem equally well adapted for them, judging by results; the plants not only grow well in them, but their flowers last long in good condition after they open. The advantages possessed by a lean-to against a north wall are, first, the least cost in construction compared with a span-roofed house, less cost for fuel, and very much less attention as to watering, shading, and ventilating. In all cases there should be ventilation in the front walls, and in the case of lean-to houses also in the back wall near the top, in order to secure ventilation in wet weather. The stages should also be built so that some material, such as gravel, spar, or fine coal, may be used on which to stand the plants. The stages ought not to be so wide that the plants cannot be searched every night for slugs and snails. We have required very little artificial heat in our house this winter, except during short spells of frost on three or four occasions. The temperature has seldom fallen below 50° without any heat in the pipes.

KITCHEN GARDEN.

ALL Ashtops and early varieties of Potatoes should now be exposed to the light. The main object is to keep them back; long white growths not only weaken the tubers themselves, but have a tendency to invite disease. The more robust and wood-like stems our Potatoes have, the less we have to fear from disease. Later varieties will also be greatly benefited by exposure and turning over, that is, the stock for next season's planting; those used for food should never be subjected to light. Look over quarters of Snow's Broccoli, cutting close to the surface of the ground all heads that are showing, and stack them up close together in a shed. In this way they last for a very long time in the best possible condition at this season. It is a fact that cannot be too widely known that 4° of frost on Broccoli or Cauliflowers not only spoils their colour, but also their flavour; therefore be not caught napping. Digging and trenching all land as it becomes vacant should be proceeded with, and at this season, when families assemble together, give the garden an extra clean up. The weather being still mild, supplies in the forcing department are abundant without much trouble. Our winter Tomatoes are looking well, and we get from 10 pounds to 12 pounds a week of very good fruit—a valuable addition to our esculents. Cucumbers

are doing well. Keep the shoots thin, the house shut and not too damp, and success is sure to follow. The same range of temperature as advised last week will do well. Of Asparagus, Seakale, and Rhubarb keep up plentiful supplies, as formerly directed, and at the same time use your own discretion in the matter. Mustard and Cress, Tarragon, and Chervil all now want attention. These things, though small, are of great importance; so keep up good stocks of all by sowing and replanting.

KITCHEN GARDEN.

NOTES ON MUSHROOM CULTURE.

FOR some time past Mushroom growing has received a good deal of attention here, and as the beds were formed in various atmospheres and positions, notes on the results may be useful. The place we call a Mushroom house is a lean-to shed facing northwards. There is space for beds on each side, with a lattice footpath up the centre, underneath which is a flue, which begins at one end and terminates in a chimney at the other. In mild weather this keeps the temperature up to 60° or so, but when the cold is unusual it is a difficult matter to work it properly, and then the temperature fluctuates a good deal. Rhubarb and Seakale have been forced successfully in this house, especially when the roots were placed in fermenting material, but for some reason or other Mushrooms have not been invariably satisfactory. We never fancied the place as a Mushroom house, and the results did not increase our affection for it; therefore other places were tried with better results. In one day we made up four different beds. One was in the house just referred to, the second in a flower-pot bin in the potting shed, the third under the stage in the Cucumber pit, and the fourth in the Orange house, a large unheated structure 330 feet long, 30 feet wide, and 20 feet high. The bed in the Mushroom house should have been bearing six weeks or more ago, but it has never produced a Mushroom yet. The potting shed bed is only a small one, about 5 feet square and 18 inches deep. It was formed early in September. The first Mushrooms were gathered from it on October 20, and they are still coming up strong and healthy. The temperature here is not much higher than that out in the open, as there is a door at each end of the shed, and many cold draughts blow when the doors are open, but it is dry overhead—a great advantage. This bed, like all the others, was soiled over with loam and covered with a layer of hay about 6 inches in thickness from the time it was spawned. The hay is turned over to one side when the Mushrooms are being gathered, and thrown over again afterwards. Probably, through the weather being humid, that portion of the hay which rests next to the soil becomes rather moist after it has been on for a few days, and to prevent this from doing any harm to the Mushrooms or chilling the bed the damp hay is taken off and dry material substituted about once a week. The hay taken off is not thrown away, but shaken out and dried, and put back again in its turn. The bed in the Cucumber house has been very satisfactory. This structure is a lean-to one, 12 feet wide, and there is a Cucumber bed in front, a pathway along the centre, and a plant stage at the back. It is heated with a flue, which goes all round and keeps the temperature from 55° to 60°. The beds have been formed underneath the back stage and resting on the ground. The one which was made up first is 3 yards long and 3 feet wide. It is about 1 foot deep at the back and 6 inches in front, and the surface is inclined from back to front. We have hardly ever had a Mushroom bed with less bulk of material in it, but it is not far from the flue, and this appears to keep it at a bearing temperature. Here the Mushrooms were ready for gathering in five weeks after spawning. We have now been gathering from it for nine weeks, and I am sure if all the Mushrooms we have had from it were spread out on the surface of the bed they would cover every inch of it twice over. Owing to the heat they spring up quicker and grow faster

than in the cool shed, but otherways they show no superiority. This bed receives more light than any of the others, but this is no disadvantage. The bed in the Orange house is made up against the back wall, and is 2 feet deep at the back, 3 feet wide, and 1 foot high at the front; the length is 12 feet, and it has done as well as any of the others. The first Mushrooms from it came well in to time, and it has now been bearing over two months, but here they did not come so evenly over the whole surface as in the heated pit. The greatest quantities have come in masses together, some of the clusters being composed of as many as thirty, and as these are constantly breaking out in fresh spots it is proving a most profitable bed. The temperature here is never above 50°, and sometimes as low as 40°, and having no means of driving the moisture out, the atmosphere is rather humid at times. The bed here has been treated like the one in the potting shed; a good covering of hay has been constantly over it, and this has given place to dry material as the old covering became damp and cold. In very cold weather some mats were thrown over the surface of the hay, but as these retain too much moisture, they are not kept on always.

As to positions, I prefer the beds in the cool houses. They are the least expensive to keep up and no less fertile than those in artificial heat, and the cool-grown produce is certainly equal to that of any of the others as regards size and flavour. Now, I would never lament the want of a properly constructed and heated Mushroom house. I have indeed no doubt about obtaining all I want from any shed. Eighteen months ago we had a most fertile Mushroom bed in the shed in which we store Potatoes in winter, and some recently made ones are showing signs of following the example of their neighbours in cool sheds. Abundance of superior Mushrooms can never, however, be produced from inferior spawn; unless that is right, disappointment will follow. Old spawn is said to be as good as any provided it has been kept dry, but I do not like old spawn in any condition, the newest and best being preferred. Before making any beds we have to collect the droppings at the stables for a fortnight or more, and then it may not amount to more than two or three cartloads. To this we add about one quarter of rough loam and a few leaves, the whole being well mixed together before being made up. We are not particular about gathering all the straws from amongst the droppings; on the contrary, we like them best when they contain about half their bulk of short straw, as that generates heat and retains it for a long time. In drying the material has not every particle of moisture taken out of it; on the contrary, it is made up in almost a semi-moist state. The beds cannot be too firm when finished, and when this is done properly cases of little Mushrooms forming and dying away before they are ready for use will seldom occur. We attach much importance to covering the beds up with hay, and in this way keeping their surfaces comfortable and sweet.

Outdoor beds.—Respecting Mushrooms in the open air, I have nothing of importance to add. It may be said that those who can grow Mushrooms under cover may grow them in the open too, but this has not been the case with us. Had we been depending on our outside bed for a supply at this time, we would have had no Mushrooms, but as long as we can have plenty of them in any of our sheds their failure in the open is of no consequence. There is certainly an advantage in having them under cover during frost, snow, or rain, as the beds are prevented from becoming damp or mouldy. It is gratifying to know that some are able to make up Mushroom beds from 50 yards to 100 yards in length, and containing from twenty to thirty cart-loads of material, as such heaps must retain the heat for a long time, but how would makers of such beds get on in the open air if they had to deal with only one cart-load at a time? Then I fear they would not do more than private cultivators do who have seldom more than that quantity with which to form a bed. Some, perhaps, manage to grow Mushrooms better

out-of-doors than under cover, but if there are sheds one need have no desire to grow them more simply or successfully.

J. MUIR.

Margam Park, S. Wales.

THE SAVOY AND ITS CULTURE.

THIS variety requires about the same treatment as Cabbage, but may be easily distinguished from Cabbage by the rugosity of its leaves. The Savoy comes into use in October and lasts till spring. It is one of the most esteemed of winter vegetables, turning in earlier than the Borecoles. The Savoy is very hardy, withstanding a good deal of frost after being hearted without injury. The dwarf-growing kinds are best for small gardens, and as a rule withstand intense frost better than those that grow to a large size, and they will also be found to be better flavoured when cooked.

The soil most suitable for the growth of this esculent is a light mould well enriched with rotten stable manure. It should be trenched 2 feet deep, working into it plenty of the manure just named as the trenching proceeds, or if only deeply dug bury in it plenty of manure as deeply as possible to encourage the roots to run downwards, where they will find sufficient moisture to sustain them should the weather be hot and dry in summer. In order to ensure a good supply during winter two sowings should be made, the first early in April, the other the last week in the same month or first week in May. Sow the seeds upon a piece of well-prepared ground, by digging it deeply and manuring it with rotten stable manure, which is better than manure from the farm-yard; by using the latter the young plants will often be found to club. Sow upon beds 4 feet in width, leaving alleys 12 inches wide between them, or sow in rows 3 inches apart and an inch deep, covering the seeds carefully with an iron rake. If possible choose a piece of ground free from shade, so as to induce the plants to grow short and stocky; whereas if in a shady position they will draw up thin and leggy. As soon as the seedlings appear above ground or just when they come into rough leaf, mix some slaked lime and soot together in the proportion of about two parts lime to one of soot, and give the beds a good dressing of the compost, which will be found to be a good preventive of club, and means of killing grubs, if any, in the hearts of the plants; few will be found to go what is termed blind in the hearts after using this compost. As soon as the plants have four leaves, prepare a piece of ground, into which the seedlings may be pricked out 4 inches apart, and give them another dressing of soot and lime, which not only obviates club, but keeps slugs from eating their young leaves; besides, the roots derive benefit from the soot and lime, which induce them to make strong fibres. When carefully raised with a digging fork, before being planted, they soon get re-established, growing strongly and vigorously and forming good hearts before winter. Plant for autumn use in the third or fourth week in May, selecting for the purpose large growing sorts. They should be set 18 inches apart row from row, and 15 inches asunder in the row. The Dwarf Ulm and small varieties should stand 12 inches apart in the rows and 12 inches plant from plant. This plantation will be fit for use some time in October, when a good supply may be had from it till after Christmas. Another plantation made late in June will carry us on till late in the spring, when other green crops will be getting plentiful. Choose a showery day for planting if possible. Hoe frequently between the rows both to keep down weeds and to stir the surface soil, an operation which will be found beneficial to the growth of the young plants. When well established sow some artificial manure between the rows, hoeing it deeply into the ground, or liquid manure may be used with equal success. When the plants have become large enough draw some soil up to their stems to keep them steady, when they will require little more attention until ready for use.

Varieties.—The Dwarf Green Curled is one of the best for a general crop, forming as it does close, compact heads. The Drumhead is a large growing sort of good quality, suitable for large gardens. The Golden Globe is a good useful yellow kind, hardy in constitution; Early Dwarf Ulm is the best dwarf variety; its flavour is good and it is very hardy, standing even severe frosts well. Tom Thumb, a small variety, is crisp and very hardy. W. C.

JERUSALEM ARTICHOKE.

THIS, when under good cultivation, often grows to a height of from 12 feet to 14 feet. It flowers occasionally in this country, but not often, except the weather in September and October is very warm, and even then it never ripens seed. It is propagated by means of its tubers, which somewhat resemble those of the Potato, but grow in clusters, often numbering from 20 to 30 large tubers to each root. Any ordinary soil will suit this Artichoke, but the finest crops are produced in good loamy soil.

Preparation of the ground.—This should be trenched 2 feet deep during autumn or early in winter, ridging it as the trenching proceeds so as to expose a large surface to the action of frost. Plenty of rotten manure, if at hand, should be worked into the soil at the same time, as well as any decayed vegetable matter or half-rotten leaves, all of which will be found to be beneficial as manure. The tubers grow larger and are of better quality in ground of a rich, loose character than in poor, stiff land. If trenched in autumn, fork it over early in the new year, or some time before planting the tubers, an operation which enables the ground to get dry and in what is termed good working order.

The planting should be done in February or March, provided the weather is favourable, but it is always advisable to wait until the ground is sufficiently dry to prevent it from sticking to the feet. Dibble in the sets with a large dibber or open a drill with a draw hoe 9 inches deep; then stretch a garden line, and plant in rows 2 feet apart and from 9 inches to 12 inches set from set. Procure some tubers of a medium size, which may be planted whole, but if large cut them in half, and if extra large cut them into sets, leaving several eyes to each. When planted cover them over and rake the ground level. Hoe frequently between the rows to keep down weeds until the stems are tall enough to cover the ground. Draw some mould up to them when from 12 inches to 18 inches in height. As soon in autumn as the stems become yellow cut them down, when the tubers may be dug up and stored in a dry shed or cellar, or, if more convenient, in a pit in the ground, covering them with straw and covering the pit 18 inches thick with soil, which will preserve the tubers during the winter. When required for use a few may be taken out of the pit at a time, but care must be taken to re-cover the pit carefully each time. If thought fit, the tubers may be left in the ground where they grew, and a few dug up from time to time as may be required, the whole being lifted in time for other spring crops. Be careful when digging up the crop to leave as few in the ground as possible, as every small piece grows and becomes a source of trouble when small seed is sown upon the ground. Artichokes will be found to yield the best crops when the tubers are planted upon a different piece of ground each year, preparing it as previously recommended.

As food the tubers may be used in a variety of ways. They are both wholesome and nutritious boiled and mashed with butter. They are also largely used for making soups. When made into pies they will be found to have an excellent flavour, and by some are highly appreciated. Cottagers will find this Artichoke a profitable crop, not being liable to any disease either when growing or after being harvested. Small tubers may be boiled and used as poultry food mixed with Barley meal, a kind of food which will be found to suit both young or old poultry. If more are grown

than are required they may be used in a raw state for feeding pheasants. WM. CHRISTISON.

MARKET GARDEN NOTES.

CONSIDERABLE activity is being already shown in the market gardens in clearing off winter crops, manuring the ground, and breaking it up in readiness for the earliest sowings of Peas and Beans. Fortunate indeed are those growers who have soil that is not stiff and wet, for in such case early working would do more harm than good; still farther, very early sowings in wet land result in very doubtful advantages. The winter has so far proved very acceptable to the market men, as except on exceptionally wet days or when a little frost has prevailed there has been nothing to hinder actual work. On the other hand, there has been little to hinder growth, and all hardy crops have for the season been unusually active. Green stuff everywhere might have been abundant but for so much having suffered from the grower's greatest torment—club. Still, the market fields have all the winter been green, and many breadths of Brussels Sprouts, white and purple Broccoli, Cabbages, Turnips, Spinach, &c., look as fresh and green now as in the month of October. Turnips have found it to be a remarkable season, as growth has never been checked, and the latest sown breadths have bulbed more or less, but far beyond expectation. If the open weather continues, the growth in an upward direction will soon push, and the season of Turnip-tops prove a short and early one. Broccoli have had no rest, and the majority, unless materially checked, must turn in early. Should such be the case, a dearth of late Broccoli must not only be looked for, but there will very probably be a general dearth of green material in the later spring months until summer Peas and Cauliflowers turn in. Market growers are not generally large growers of

Cauliflowers, except of the famous Autumn Giant, the most popular of all the late kinds, and I was indeed surprised to note in an adjoining market garden truly handsome white heads of this variety on late plants on New Year's Day. These I was assured were worth 3d. each in the market, and certainly if it were possible to ensure through late planting a good supply of this fine vegetable in midwinter at the profitable price of 3s. per dozen, the growing of them would be a veritable Golconda. It is worthy of mention that these excellent late heads were found beneath the overhanging branches of trees. Now, as a rule growers plant bushes, flowers, and various roots beneath trees, but few vegetables. It is well worth consideration whether a good breadth of the Giant Autumn Cauliflower planted beneath the boughs of trees might not prove a good speculation. But the possibility that we may have a dearth of green stuff about May should encourage growers to push on large quantities of early Cauliflowers at once if none has been sown in the autumn. A good sowing of the Snowball or Early Dwarf Erfurt made now in frames and pushed along with gentle manure heat would give a strong lot of plants to go out at the end of March, and if planted in rich soil and in warm positions would turn in very early indeed. The trade knows little of the Snowball, the very earliest of all the dwarf varieties, but in time we may expect to find a sowing under glass in January for the production of several thousands of plants, one of the most important of winter duties in market gardens. Such famous Cauliflower growers as Messrs. Beach, Bopart, &c., stick to their old strains of the Early London, and this kind, under their high culture, produces huge solid heads that, but for the time of year, would render it difficult to tell them from the Autumn Giant. These must, however, be sown at the end of August or early in September, and be put out under hand-lights or cloches for the winter. On the other hand, a sowing of the Snowball made in January will give plants heading in almost as early, and, if smaller, at least three can be grown where one of the large heads are found. Cauliflower seed is always of uncertain quality, as so

very much depends upon the season. In 1881 I got but a few ounces from a large breadth. Last year from one-half the breadth of plants I got as many pounds. Still, it is evident that the same good fortune has not been universal, as in Germany, from whence so much seed is obtained, the very same variety is offered wholesale from £8 to £12 per pound, a marvellous price to charge for Cauliflower seed. Still, few gardeners must wonder if for choice first early kinds that must ripen their seed in the autumn seed can be got only in half-crown packets.

Flowers.—Wallflowers have been furnishing bloom all the winter; indeed, from the middle of October till the present time there has scarcely been cessation in the cutting. If the bunches are few, they secure at this time of the year a good price, and every little that can be obtained for market means something useful towards the heavy and inevitable expenses. Violets, too, have bloomed freely, but it must be admitted that around London these assumed very hardy plants are suffering considerably from the effects of fog. I have a large breadth of the fine Victoria regina that in November was one mass of leafage and the plants blooming freely. The fogs of December, however, have destroyed almost every leaf, and similar damage has been widely done. It would, indeed, be a great misfortune were Violet culture about the metropolis to become impossible through fog. That the fog will from time to time be often with us there is too much reason to fear, for in spite of all the talk we hear about smoke abatement and curative measures there is too much reason to fear that as it begun so will it end—in smoke. A mild winter has been good for the flower-root trade, for open weather both promotes sale and growth. The public, however, seem to be tiring of many common things. Daisies, blue Pansies, single Carnations, &c., seem to hang on hand somewhat, whilst large blotched Pansies, Hollyhocks, Clove Carnations, Primroses, and similar good things find a good market. Blue King Pansy is grown about the West Middlesex district in immense quantities, even cottagers having patches of thousands in their gardens. It is an early blooming, free growing kind, and is very easily propagated. A year or two since it was in great demand, but now it has become too abundant. Good yellows and whites are more fancied, but none are so robust and free as Blue King. The general public who patronise plant hawkers care little for the small-flowered tribe, however free and early they may be. The larger Pansy blooms are the greater the demand for the plants that carry them. It is very gratifying to learn that "Jacks," as the single-flowered Carnations are vulgarly called, are giving place to double seedling varieties. I have urged upon local growers the benefit to them which would result from the growth of double-flowered strains, seed of which, warranted to produce from 70 to 80 per cent. of double flowers, can be purchased at 8s. per ounce. If purchasers of plants got but half of them bearing double flowers they would be satisfied, but a good strain will give them more, and the grower may well ask, and doubtless obtain, a higher figure than he gets for his single kinds, which deceive and disgust all who purchase them. A. D.

SHORT NOTES.—KITCHEN.

Johnston's St. Martin's Rhubarb.—We gathered our first dish from this very early variety on the 5th Dec. Well ripened crowns were taken and placed in the Mushroom house, in which there was a temperature ranging from 50° to 55° at night, and from 55° to 60° in the daytime. Here they produced Rhubarb fit for use in three weeks; other kinds taken up at the same time and under exactly the same treatment were a fortnight later.—J. CLARKE, Brynkinallt.

John Harrison Bean.—This is said to be a very fine new early long-podded garden Bean, extremely fertile, of hardy constitution, growing about 2 feet high, and of branching habit; pods numerous, large and well-filled, each containing six to eight beans. It is one of Mr. Laxton's seedlings.—J. S.

ORCHIDS.

Lælia autumnalis grandiflora.—The very fine variety of this *Lælia* named *atrurubens* is now pretty well known, but not so the variety under notice. It differs from the type in having much larger flowers, yet they are not of such a deep colour as those of the *atrurubens* variety now in bloom in Messrs. Henderson's nursery, Maida Vale.

Dendrobium Dearei.—Mr. Lee informs us that this new species, which has not yet flowered in cultivation, is in a flowering state in his collection at Downside, Leatherhead. It is one of the nigro-hirsute section allied to *D. infundibulum*, and has white blossoms produced very freely, at least judging by the clusters of dried flower-stalks on imported plants.

Oncidium juncifolium.—Under this name there are some plants in flower in the Pine-apple Nursery, Maida Vale, of a very singular character. The leaves are about a foot long and cylindrical, as they are in some of the *Brassavolas* and *Vandas*. It produces long slender flower-stems from the base of the leaves. The blossoms are small, bright yellow and chocolate-brown. It is only remarkable for curious growth.

Stenorrhynchus speciosus.—At Kew this plant is now flowering freely, and is really attractive even when placed among some of the most popular of Orchids. It is a terrestrial kind not unlike some of the British Orchises in habit. Another handsome species which does not appear to be in cultivation is *S. orchioides*, a native of Jamaica and Barbadoes. It was introduced into this country from the latter island in 1806.—B.

Limatodes rosea.—The popularity of the beautiful *Calanthe Veitchi* has almost obscured one of its parents, the old *Limatodes rosea*, with which we were pleased to meet in bloom in the Pine-apple Nursery, Maida Vale. It has flowers much resembling those of *C. Veitchi*, but somewhat smaller, and the spike is not so high and does not produce so many flowers. The centre of the blossom is pure white, which adds to its beauty considerably. Its culture is much the same as that of the *Calanthe*.

White Vanda teres.—A flower of this extremely rare Orchid comes from Colonel Charlton's garden, Douglas, Isle of Man. It is a lovely Orchid, in size and form differing in no way from the original except instead of being rose coloured it is pure white with only a very slight suffusion of lilac and a little yellow at the base of the labellum. Colonel Charlton received it from Burmah, and though he has flowered many plants of *Vanda teres*, he has never had a white one before. He is fortunate to possess such a treasure.

Masdevallia towarensis.—In Messrs. Low's nursery at Clapton there is now a mass of some thousands of this chaste little Orchid in bloom, which more resembles a sheet of Snowdrops in a wood than anything else to which we can liken it. Every plant is carrying several spikes, each with from one to three and even four pure white blossoms. A few years ago this species was a rarity, but now it bids fair to become one of the commonest of Orchids, and a very useful one too, as it flowers throughout the winter. In Messrs. Henderson's nursery a mass of flowers of it may also be seen, though on a smaller scale.

Spiranthes euphlebius.—At p. 11 we stated that this plant was in flower in Messrs. Shuttleworth & Carder's nursery at Clapham. It appears, however, that the plant we saw was a variety of *Stenorrhynchus speciosus* with spotted foliage. Plants of *Spiranthes euphlebius* were lately imported by this firm, of which one was presented to Kew Gardens. This plant has recently flowered and proved to be a new species. It is a whitish flowered species with a few brown streaks along the sepals and petals. The scales at the base of each flower are also brown and covered with short tomentum. It is a distinct and pretty plant worthy of being grown along with the old

and handsome *Stenorrhynchus speciosus*, which is closely allied, although placed by Professor Reichenbach in another genus.

Angræcum citratum.—In a short time there will be the finest display of bloom of this charming little Orchid in the Clapton Nursery that has ever been seen since it was introduced. In one house there is a group of some hundreds of plants, each carrying one or more long spikes thickly set with buds, which, when expanded, will be a fine sight. The flowers, about half an inch across, are ivory white, except the centre, which has a spot of delicate mauve; the foliage, being broad and of an unusually deep shining green, makes a charming contrast. Other *Angræcums* in this nursery which are either in the flowering or in the bud state are *A. sesquipedale*, *A. Ellisii*, and an unnamed species which appears to be *A. Kotschyi*.

Odontoglossum baphicanthum.—This scarce and rather new variety is now flowering freely in Messrs. Low's nursery at Clapton. It appears to be a natural hybrid between *O. crispum* and *O. gloriosum*, as its flowers combine the peculiarities of these two in a striking degree. The sepals are narrow and remarkably long, as is also the labellum, which reflexes at the tip. The colour is a creamy white, with one or two spots of cinnabar-red on the sepals, while the labellum possesses a conspicuous blotch of the same colour. Other noteworthy *Odontoglossums* in flower among the vast assemblages of the genus in this nursery are *O. Andersonianum*, a particularly fine form; *O. cariniferum*, a neglected species; the ever beautiful *O. Roezlii album*, and the miniature *O. Gerstedi*, which has a peculiar charm of its own.

Angræcum eburneum.—I see in his "Notes on Orchids" on December 30 Mr. Douglas omits to mention this grand species in his remarks on its congeners. As it is now in our collection it is a beautiful sight, carrying a spike of eleven blooms with lips 2 inches across, of the purest white equal to driven snow. Its purity is enhanced by the two greenish marks, one each side of the keel on the base of the lip. The sepals and petals in this Orchid are always curiously deflexed, the grand lip being erect like a standard, the spur projecting downward below the petals forming a perfect tail to a flower, as much like a green grasshopper flying away with a white dish in its mouth as Nature could make it. Were it not for the large habit of growth it would be more grown, but where the room can be afforded a specimen plant it is always a handsome object.—D. B. C.

Three rare Dendrochilums are now in bloom in the Clapton Nursery. They are *D. Cobbianum*, *D. uncatum*, and *D. arachnites*. The first is a neat and elegant little plant in the way of the better-known *D. glumaceum*. The flower-spikes produced from the new bulbs are slender, and vary from 6 inches to 9 inches in length. The upper half is furnished with two rows of tiny blossoms about a quarter of an inch across. The sepals are of a transparent white, the lip a soft yellow. The weight of the blossoms on the thread-like spike causes it to droop gracefully. *D. uncatum* is similar, but smaller in every part, and the flowers are more open and not subtended by such conspicuous scales. *D. arachnites* was not sufficiently expanded to describe. These elegant little Orchids have been lately donned with the new generic name *Platyclinis*, though it will be some time probably before cultivators will use it.

Cattleya labiata Percivaliana.—At length this much criticised Orchid is showing itself in its true character, and proves not a whit less beautiful than its introducers said it was. On Tuesday last two plants of it were exhibited in flower at South Kensington, one from Mr. B. S. Williams' nursery, Upper Holloway, the other by Mr. Salter, from Mr. Southgate's collection at Selborne, Streatham. Both plants seemed to have been from the same importation, as they were similar in size and growth. Each bore a flower on moderate sized bulbs, not, however, half so large as we may eventually see them. In both cases they were quite a third smaller than those

of an ordinary form of *C. Mossiæ*, but it is indisputably a beautiful Orchid and a most valuable one if it should prove to habitually flower in mid-winter, when few if any large flowering *Cattleyas* are in bloom. The plant shown by Mr. Williams was obviously a much finer form than the other, the colours being brighter and richer. The sepals were of a uniform lilac-purple, very soft and pleasing. Its great beauty lies in the labellum; the throat is of the richest golden orange, pencilled and netted with deep markings; then comes a zone of the richest velvety maroon, then one of a beautiful amaranth, while the crisped edging is pale lilac. It is beyond doubt one of the most valuable Orchids that has been introduced of late years provided it continues to bloom at mid-winter. The committee at South Kensington did not see fit to award it a certificate, probably because neither of the plants were thoroughly established.

—This new *Cattleya* is now in bloom here. The flowers are 5 inches across, the sepals and petals are a light purple, the lip is splendidly fringed at the margin and of a deep velvety purple, with golden yellow throat.—D. DOWDES-WELL, Nash Court, Faversham.

Dendrobium Hughii is a pretty addition to the already long list of *Dendrobes*, and is moreover distinct from any other with which we are acquainted. The stems, or rather pseudo-bulbs, are very slender and of moderate length. The flowers are produced on the leafless growths. They are an inch or more in diameter, pure white, except a tiny circle of purple round the tip of the column. It is strongly and peculiarly scented, resembling that of *Stephanotis*. We saw it in flower a few days since in Messrs. Low's nursery at Clapton, where also that dainty little species *D. hedyosmum* was in flower; it has likewise very sweetly scented blossoms, the perfume resembling a mixture of Violets, Primroses, and Wallflowers. The flowers are not very attractive, being only an inch or so across with white sepals and a greenish and yellowish lip, but its delightful fragrance alone should be sufficient to recommend it to cultivators. It is one of the black-haired or nigro-hirsute section of the genus, and is not one of the easiest to grow well, but it well repays a little extra trouble. *D. Boxalli* and the almost perpetual flowering *D. philippinense* are also in bloom in this nursery.

Lady's Slippers.—What striking objects these are at this dull time of the year in an ordinary greenhouse, and so easily grown, too, not requiring any more care than that usually given to the general run of greenhouse plants; they are free flowering, and scarcely ever troubled with insect pests. I have had a number of them in bloom here for several weeks, and they are still looking as fresh as ever. I counted forty fine flowers the other day on a plant in an 8-inch pot. The mode of cultivation I adopt is as follows: After they have done flowering in the greenhouse they are removed to a low pit, round which runs a 2-inch pipe; they remain there in just a little warmth till they have made and ripened their growth, when they are taken to the greenhouse to flower. This usually takes place in the end of August, and they remain in the greenhouse till, say, February, as a rule. If they require dividing or re-potting this is done at that time before they commence their growth. The compost I use is potsherds, broken small, mixed with a little chopped Sphagnum and fibry peat, a mixture in which the plants seem to revel, and being so porous there is little danger of over-watering.—R. LLOYD.

Phalænopsis at Clapton.—It is very unfortunate that these lovely Orchids, above all others, should be so susceptible to injury from fogs that generally occur about their flowering season. Before the recent spell of foggy weather set in we saw the capacious *Phalænopsis* house in Messrs. Low's nursery, and thought we never saw such a fair promise for an abundant crop of bloom as there was then, every one of the thousands of plants being furnished with flower-spikes. But fogs came, and in a few hours destroyed nine-tenths of the buds, thus considerably marring the prospect of a fine display. There is, however, a beautiful show

of bloom even now, for the latest buds which escaped the fogs have at last expanded. The flowers of *P. amabilis* and of *Schilleriana*, of which the bulk of the plants consists, are beautiful in the extreme, for they combine such elegance of growth with the most delicate colouring. Among the rarer kinds in bloom are *P. leucorrhoda*, a species or variety intermediate with *P. amabilis* and *Schilleriana*, the characters of both of which may be seen in the flowers. The lovely *P. Stuartiana* is likewise in bloom.—W. G.

Calanthe Sylvatica.—In a recent number Mr. J. Douglas says, "I do not hear of anyone being successful in flowering *Calanthe sylvatica*." In October, 1881, I purchased half-a-dozen bulbs of it in Mr. Stevens' rooms from the importation sent home from Madagascar by Mr. Humbolt. They were planted in fibrous peat and loam, with a little leaf-mould, and in the following spring four of them made their appearance. Of these only one flowered; the spike was about 1 foot high, and was certainly one of the most disappointing things to me which I have come across yet in the way of Orchids. The flowers, of which there were not many, were of a dullish green colour, with a slight tinge of purple in the lip, and only about an inch across; in fact, it was so insignificant that I concluded it could not be *Calanthe sylvatica*, but something else which must have been collected for it by mistake, as the fact of its having been recently imported would scarcely account for such defect in shape and colour. I wonder whether any other of your readers have had a similar experience. The foliage and growth of the bulbs which did not flower were the same as that which did, so it did not seem to be one particular exception.—C. R. SCRASE DICKINS, *Coolhurst, Horsham*.

Dendrobium heterocarpum philippinense.—Can Mr. Douglas or someone else tell us anything about this Dendrobe, which was imported in large quantities by Messrs. Low, of Clapton, in the autumn of 1881. I had a couple of plants from them which were in flower at the time; both made growth last spring, but neither have flowered; they were kept moderately dry after the leaves withered, but one of them after a short time, though to all appearances plump enough, I found to be quite hollow inside, and it has since died off. It would seem that this Orchid requires a slightly different treatment from the ordinary *Dendrobium*, as most of the other Orchids from its native home delight in heat and moisture. No doubt another year they will improve in their captive state, but a nurseryman told me the other day that "they are brutes to manage," so I hope I may benefit others as well as myself in asking for a hint as to its treatment from anyone who has succeeded with it. May we not call it *D. philippinense* without the *heterocarpum*, as the former name is quite long enough by itself, and sufficiently distinguishing, whereas *D. heterocarpum* might tend to confusion?—C. R. SCRASE DICKINS.

Vanda teres.—In reference to the question raised by "F. W. B." in his notes on *Vanda Hookeriana* in the last issue of THE GARDEN, allow me to say that the treatment of *Vanda teres* at Grimston Park was very simple. The plants were grown in the East Indian house on the centre stage, and were never moved to another house at any time. They were not dried off (called by some "resting"); they were syringed twice a day in summer and once a day in winter, and when in flower the bottom portions of the plants were sprinkled every day. I do not now remember the number of flowers each plant had, but the last time they were exhibited at South Kensington, the largest plant (Anderson's variety) had twenty-three spikes on it, two spikes on some growths and many spikes with seven flowers. Mr. Denning was justified in being proud of them, and those who advocate the resting system have yet to learn the culture of *Vanda teres*. The moving of Orchids when in bloom to a colder house hastens the decay of nearly all Orchid flowers.—F. B.

NOTES OF THE WEEK.

LINNEAN SOCIETY OF LONDON.—On Thursday, Jan 18, papers will be read "On the Fall of Branchlets in the Aspen" (Mr. S. G. Shattock), and on "The Internal Hard Parts of the Fungidae," by Professor P. M. Duncan.

LES PLANTES POTAGERES.—We have just received this excellent book by Messrs. Vilmorin, Andrieux et Cie., of Paris, and have only time to announce it. We hope to notice it at some length at an early date. Many will be glad to know that a book so useful and so much wanted is at last obtainable.

VEITCH MEMORIAL PRIZES.—Three of these prizes will this year be competed for at the shows held by the Royal Horticultural Society of Ireland. Each consists of a prize of five sovereigns and the Veitch memorial medal. One is offered at the May show for the best specimen Orchid in flower, selected from any of the plant classes. The second at the summer show for the best specimen stove or greenhouse plant in flower, selected in the same way; and the third at the autumn show for the best three bunches of Grapes (one variety), selected from the fruit classes. These prizes are open only to *bona fide* gentlemen's gardeners.

THE THAMES EMBANKMENT.—A writer in the *Pall Mall Gazette* warns the public of the barbarities shortly to be perpetrated on the Thames Embankment. "Some time ago," he says, "the Savoy Theatre commenced the work of destruction by erecting an engine-house, which on summer evenings does its best to convert the gardens into a pandemonium. The Metropolitan Board of Works determined on building another in the very gardens themselves. The Board has rooted up a young plantation which was doing its best to hide the advertisements of the District Station, and planted on the spot a piece of red-brick barbarism unparalleled in the story of metropolitan mismanagement. When the scheme is completed, John Stuart Mill will gaze into a column of foul gas, and have ample opportunity of reflecting on utilitarian principles; Brunel will be usually enveloped in a cloud of engine smoke; while Outram has been obviously placed on a pedestal in order to be seen by the District engine-drivers."

SPECIAL PRIZES.—We are asked by Messrs. Carter to state that they intend offering the following prizes during the ensuing year at South Kensington: On May 22 and 23, for the best brace of Carter's Blenheim Orange and Emerald Melons, first prize, £2 2s.; second, £1 10s.; third, 15s.; fourth, 10s. 6d.; fifth, 7s. 6d. On July 3, for the best four dishes of Peas (50 pods each) of Carter's Stratagem, Telephone, and Pride of the Market, Culverwell's Telegraph: First prize, £5; second, £3; third, £2; fourth, £1; fifth, 10s. 6d. July 24, for the best 6 dishes of Tomatoes, to include Carter's Dedham Favourite and Green Gage and Vick's Criterion: First, 63s.; second, 42s.; third, 21s.; fourth, 10s. 6d. Dec. 11, for the best 12 dishes of vegetables, to comprise, Onions—Golden Queen, Silver Ball, Golden Globe; Parsnips, Cauliflowers, Celery, Brussels Sprouts, Potatoes, Carrots, Parsnips, red Beets, Leeks: First prize, £5; second, £3; third, £1 10s.; fourth, £1; fifth, 10s.; sixth, 7s. 6d.

Lima Beans.—I have never found any variety of Bean so prolific as the small Lima. We have a plot of them in the garden, from which we have been using through the summer, and have saved a gallon to the square rod of dry Beans from them, which is at the rate of twenty bushels to the acre, and they are now loaded with mature Beans, but not dry. I have no doubt that from fifty to eighty bushels per acre could be grown of them. We do not plant the large Lima, for we find these fully equal to them in flavour, doubly prolific, three weeks earlier, and much easier to shell. We grow also the Drier's Improved Lima, and find it much better than the old sort.—*New York Tribune*.

SOCIETIES.

ROYAL HORTICULTURAL.
JANUARY 9.

HAVING regard to the bitterly cold weather on Tuesday last it could scarcely be expected that any tender plants would be exhibited, but there was nevertheless a goodly show of Chinese Primulas from various exhibitors, and Cyclamens, besides a few new plants.

First-class certificates were awarded to the following:—

ODONTOGLOSSUM MADRENSE GIGANTEUM.—An extremely fine variety, having flowers fully twice the ordinary size. The long narrow sepals were creamy, heavily blotched at their bases with deep vinous purple, while the labellum was marked with the brightest yellow. The spike shown bore seven of these large flowers, thereby indicating skilful culture. Mr. Vanner, Camden Wood, Chislehurst.

AZALEA DUCHESS OF ALBANY.—A new hybrid variety remarkable for the profusion of its pure white blossoms, which are about 1½ inches across. It is said to be excellent for forcing. It was certificated "as a decorative variety." Mr. Todman, gardener to Mr. Connell, Tooting.

Cyclamens were numerous. A fine group of some half a hundred plants, large and profusely flowered, came from Messrs. Veitch, for which they were awarded a silver medal. The flowers represented a wide variation in colour, from snow white to deep crimson. A larger group of Mr. B. S. Williams' "improved superb strain" of Cyclamen made a bright display. This "strain" is remarkable for the distinct and brilliant colours of the deep tinted sorts and the refined purity of the light ones. The snow-white variety is in striking contrast with the intensely deep coloured sort called Brilliant. A silver medal was also awarded to Mr. Williams.

Chinese Primulas were in great profusion. Messrs. Carter exhibited a large collection including several new, distinct, and beautiful varieties. There were about twenty sorts shown, eight of which were represented by basketfuls of some half-a-dozen plants, which arrangement showed the plants off to advantage. The names of the sorts were Covent Garden Favourite, with massive trusses of large carmine-purple blossoms; Mauve Queen, with Fern-like foliage and mauve-tinted flowers; Salmon Queen, of a peculiarly bright shade of rich salmon-rose, very fine; Vermilion Queen, of an intensely bright carmine; White Queen, the largest and finest white yet raised, being simply lovely in every way; Holborn Gem, the nearest approach to blue that has yet been obtained—the colour is a purplish blue, and the flowers are large and produced in fine trusses (it was shown better on this occasion than it has been before); Florence Rose, in the way of Salmon Queen, but paler; Rosy Morn, similar to Covent Garden Perfection; Mont Blanc, with large white flowers shaded with pink; Elaine, a very prolific flowerer and pure white; its Ferny foliage adds greatly to its beauty. Other beautiful sorts were Vermilion Queen Improved, Rosy Morn, Magenta Queen Improved (a lovely sort, with blossoms 2 inches across, of the brightest magenta shaded with purple), and Golden Leaf, with yellowish green foliage and purplish pink flowers. These two last-named sorts are very fine, and the committee wish to see them at a future meeting. The Golden Leaf variety is quite distinct from any we have seen, and if constant will be a pretty and valuable decorative plant. A new variety named *hederifolia* had singularly palmate-shaped foliage, very much resembling some kinds of Ivy. It is unlike anything we have hitherto seen among Primulas. A bronze medal was deservedly awarded to Messrs. Carter for this fine collection. Messrs. Cannell & Sons, Swanley, sent a choice group of single Primulas. A dozen plants of a sort called Princess of Wales was the loveliest sight we have seen for a long time among Primulas. It is a vigorous and free grower, of a compact habit of growth. The flowers are 1½ inches across

borne in large trusses well above the foliage, and the petals beautifully crisped and fringed. The colour varies from a warm rose-pink to a delicate blush-pink—tints which render the flowers very charming. Other varieties shown by Messrs. Cannell were Swanley White and Swanley Red, two splendid sorts which have a well-merited reputation; The Queen, a beautiful variety remarkable for its very large crisped petaled flowers of a delicate blush, and Marchioness of Lorne, somewhat similar to the preceding, and equally as beautiful. With these came Wallflowers, Primroses, and Cineraria cruenta, a neat plant with its elegant sprays of starry magenta blossoms.

Mr. E. H. Woodall, St. Nicholas House, Scarborough, sent large, well-grown plants of five new and distinct varieties; one had Fern-like foliage and semi-double blossoms of a delicate blush, and was altogether a beautiful variety. Another was similar to the popular old double white, but more vigorous, floriferous, and better in every way. Among the others was one with semi-double blossoms, having a conspicuous greenish yellow centre; another with very large blooms of a bright carmine-crimson; while the fifth had white blooms, freckled and striped with purple. It was, moreover, extremely floriferous. A cultural commendation was awarded to Mr. King, seed grower, Rowsham, Aylesbury, for some plants of a beautiful new Primula, named Mont Blanc, a variety of sturdy growth, producing fine trusses of large white flowers of good substance. Another lovely white Primula came from Mr. B. S. Williams, called *P. sinensis fimbriata alba*, now proved to be one of the best white sorts in cultivation. It is remarkable for its floriferousness, and its large trusses of pure white fringed flowers.

A collection of about a dozen sorts of Primula was sent by Mr. Barron, from the Society's garden at Chiswick. These included, besides several unnamed seedlings, such beautiful sorts as *lilacina*, *fimbriata alba*, *rubro-violacea*, Chiswick Rose, and Chiswick Red. Of the latter there was an improved form shown, having even deeper carmine-tinted flowers than the original.

As a harbinger of the coming spring, Mr. G. F. Wilson brought some bunches of really fine Primroses of the beautiful varieties he grows so well in his garden at Heatherbank, Weybridge. Another welcome exhibit was a bunch of the winter Heliotrope (*Tussilago fragrans*), brought by Mr. Green, Sir George Macleay's gardener at Pendell Court, Bletchingley, who also exhibited the fine *Dahlia arborea* alluded to in another column. A glorious wreath of flowers of *Bougainvillea spectabilis* was sent by Mr. Miller, Northdown, Margate. It is brighter and richer in colour than the well-known *B. glabra*, and is a much more difficult plant to flower, and particularly so finely as Mr. Miller showed it.

Fruit and vegetables.—A cultural commendation was accorded to Mr. Miles, gardener to Lord Carington, Wycombe Abbey, High Wycombe, for a fine pair of Pine-apple Lord Carington, a rather new sort of a handsome conical shape. Cultural commendations were also awarded to Mr. Stevens, gardener to the Duke of Sutherland, Trentham, for some excellent bunches of Black Hamburgh Grapes, which were as plump as usually seen in autumn. He received the same recognition for fine bunches of Duke of Buccleuch Grape, which showed the variety to perfection as regards size of berry and flavour. Mr. Allis, gardener to Mr. Shuttleworth, Old Warden, Biggleswade, exhibited three very fine bunches of Black Alicante Grape, for which he received a cultural commendation. The bunches were large, finely shaped, and the berries were all that could be desired at this season. The new Grape named John Downie by two exhibitors. A bunch was sent by Messrs. Downie & Laird, Edinburgh, and another by Mr. Dunn from the Duke of Buccleuch's garden at Dalkeith, but the committee considered that the two bunches represented different varieties. The Grape is in the way of Gros Colmar, but it is claimed to possess all the good qualities of that variety and none of its bad ones. Mr. Ford, Leonardslee, Horsham, sent examples of Alicante Grape, grafted

on Raisin de Calabre; Mrs. Pince, grafted on Royal Vineyard; Gros Colmar, grafted on Alicante and Black Prince, but in all cases the committee did not discern any appreciable difference in flavour.

A very fine dish of Doyenné d'Hiver or Easter Beurré Pears was sent by M. Cauchois, Orleans. The fruits were large and handsome, and as fine as we have ever seen them. Three of them weighed 19 oz. each. It is a remarkable fact that the trees from which these were gathered were cut to the ground by frost in the winter of 1879 and 1880. A cultural commendation was awarded. A similar award was given to Mr. Stevens, Trentham, for some wonderfully fine fruits of Calville Blanche Apple, large and handsome, and of a bright golden yellow. Mr. Ford also showed a dish of Josephine de Malines Pear of a size and quality not often seen. A small Melon, William Tillery, produced by the aid of the electric light, was exhibited by Mr. Buchanan, gardener to Dr. Siemens, Sherwood, Tunbridge Wells, but the fruit was in no way remarkable.

A collection of Celery came from the Society's garden at Chiswick. The varieties Early Rose and Leicester Red the committee considered not sufficiently distinct to justify distinct names.

The members of the committees present on this occasion were—

Fruit.—Mr. H. Veitch (chairman); Messrs. P. Crowley, J. Burnett, J. Woodbridge, A. Sutton, G. Bunyard, G. Goldsmith, S. Ford, Z. Stevens, J. Lane, J. Willard, and H. Weir.

Floral.—Mr. G. F. Wilson (chairman), Rev. G. Henslow, Messrs. T. Moore, J. Laing, H. Bennett, W. Bealby, S. Hibberd, J. Douglas, H. N. Ridley, G. Duffield, W. B. Kellock, H. Cannell, J. Dominy, J. Hudson, C. Green, J. James, H. Ballantine, and J. Wills.

Lecture.—The Rev. G. Henslow called attention to various Primulas exhibited which showed different types of foliage as well as of blossoms. The typical form of leaf is palmate, resembling the palm of the hand. Of this Mr. Carter exhibited a golden-leaved variety which is now permanent, having originated as a single seedling from Vesuvius. A second variety is the Ivy-leaved form, which appeared suddenly in different gardens, a peculiar form, having no minor indentations in the margin. A third variety is the crisped-edged leaf. This form, like curled Cabbage and Parsley, is due to a kind of hypertrophy or excess of growth. It is interesting to note that this is accompanied by very poor flowers. But after a few years the curled plant will doubtless become fixed, when the blossoms can be improved by crossing if it has not already been done. Another remarkable fact connected with this sport, as with some others, is its sudden appearance simultaneously in different localities and without a common origin. It was observed several years ago that double Petunias appeared on the Continent and in England for the first time simultaneously. What the meteorological conditions may be to give rise to this curious coincidence are as yet unknown.

The second type of foliage is the Fern-leaved, in which the apex has grown out so that the form is elongated. These two types of foliage run through other plants besides Primulas, and give rise to the corresponding types of "compound" leaves, such as the digitate leaves of the Horse Chestnut and Lupine, and the pinnate ones of the Ash. Similarly, Palms are mainly divisible into the fan-leaved and feather-leaved kinds, according as the midrib is arrested or elongated. With regard to the flowers, the diversity in the tints of red is almost infinite, but curious results follow from crossing. Thus two whites may give rise to a deep red. A mauve (the so-called blue Holborn Gem) when self-fertilised gave half its seedling white, the other half mauve. Similar diversities are well known in other plants besides Primroses. Thus Mr. Veitch found that an orange-flowered Rhododendron crossed by a white one gave a white, a pink, and a yellow-flowered seedling. The same thing occurred in Abutilons.

Scientific committee.—Mr. G. F. Wilson in the chair.

Rhododendrons.—Mr. Mangles exhibited a three-year-old seedling of *R. nobile*, a form of *R. arboreum*, from an elevation of only 6000 feet, in Ceylon, and which lately withstood 19° of frost, while *R. arboreum* (proper), a hybrid of the last, *R. setosum*, from 13,000 feet to 16,000 feet, and *R. anthopogon* were all more or less injured, although coming from a much higher elevation.

Magnolia Campbelli.—He mentioned, on the authority of Mr. Gumbleton, that this species had flowered in Europe, as well as that the tree of Mr. Crawford's garden, near Cork, has at the present moment thirty buds upon it.

Ozoneum auricomum.—Dr. Masters exhibited a specimen of this fungus from a Sycamore. Mr. W. G. Smith remarked that he had observed the same fungus on wood in a cellar.

Dahlia arborea.—Mr. Green forwarded a branch bearing single as well as Anemone-flowered forms. There appeared to be some doubt as to its specific identity, as it has never been known to flower before. It was referred to Dr. Masters to report on.

Pines.—Dr. Masters also showed specimens of *Pinus contorta*, remarkable for its twisted branches, *P. Bolanderi*, and *P. Murrayana*, all three from California, and supposed to be the same, but the hypodermic cells clearly show that they are specifically distinct.

Melon grown under the electric light.—A small, smooth-skinned green Melon was sent from Dr. Siemen's gardens. It proved to be very watery and sugarless. Dr. Masters will inquire and report on the exact conditions of its growth.

Mycelium on alum.—Mr. W. G. Smith exhibited a solution of alum in which a fungus was growing. On transferring it to a syrup it proved to be the Vinegar Plant, or *Penicillium crustaceum*.

Lapageria rosea.—Mr. Boscawen has sent a fine spray of this plant, which was grown out of doors in Cornwall, as well as flowers of a species of *Colchicum* from Cyprus.

"Journal of Botany."—The editor of this periodical, Mr. J. Britten, informs us that "Peregrine" is mistaken in stating that this monthly has ceased to exist. On the contrary, Mr. Britten hopes to make it yet succeed. The January number contains, among others, an interesting synopsis of the genus *Selaginella* by Mr. J. G. Baker, of the Kew Herbarium.

Drying plants (Amateur).—See an article on this subject in last week's GARDEN (p. 4).

Resting Calanthes.—Can I safely rest my *Calanthe Veitchi* and *vestita* in a warm room—not in the greenhouse? If some of your Orchid-growing readers will kindly answer this question I shall feel greatly obliged.—S. N.

Self help.—"Peregrine's" friend's suggestion in reference to this matter is good. I should be delighted to join such a society as is proposed, and to do my best to get others to join it if it could be set on foot. Will not some of your influential readers take the subject up?—JOHN C. TALLACK, *Prideaux Place, Padstow*.

Names of plants.—*R. Green*.—1, *Justicia calytricha*; 2, *Tradescantia repens*; 3, *Euphorbia jacquiniiflora*; 4, *Centradenia floribunda*.—*W. Hills*.—*Convolvulus hispida*.—*S. A. M.*—*Hemanthus coccineus*.—*G. C.*—*Triteleia uniflora*.—*W. W.*—*Dendrobium chrysanthum*.—*G. Cooper*.—*Selaginella caesia arborea*. Send the Orchid and other plant when in flower.—*H. D. Thickthorne*.—Varieties of *Begonia Rex*, but cannot name the sorts without more material.—*R. Lloyd*.—*Cypripedium insigne* and variety *punctatum violaceum*, *C. venustum*.—*D. D.*—1, *Acacia longifolia* variety; 2, *Kennedyia Marryattiana*; 3, *Erica melanthera*. The *Angræcum eburneum* represents a very fine variety.—*A. C.*—*Vanda teres candida*; other is apparently *Calogyne ochracea*.—*J. M. L. H.*—1, *Epidendrum ciliare*; 2, probably *Oncidium scarodes*, but cannot be certain without more material.

COMMUNICATIONS RECEIVED.

E. H. W.—*D. T. F.*—*J. C. C.*—*T. C. H.*—*G. S. S.*—*R. G.*—*D. B. C.*—*W. C.*—*S. J. C. & Co.*—*W. J. M.*—*J. D. H.*—*F. W. B.*—*W. C.*—*J. R. H.*—*D. S.*—*J. C.*—*J. S. C.*—*M. H. N. E.*—*W. E. C. R. S. D.*—*J. S. A.*—*D. D.*—*C. O.*—*Col. H. S. W.*—*B. H.*—*E. H. A.*—*J. G.*—*A. C.*—*Pellaea*.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FRUIT GARDEN.

GRAPE GROWING FOR MARKET.

AMONGST those who have long held a first place as a London market fruit grower must be included Mr. Rochford. Succeeding Mr. Davies at Oak Hill, East Barnet, so celebrated for the Grapes, Pines, and other fruits there produced, he kept up the well-earned reputation which that garden so long had. Mr. Rochford has now been established at Tottenham some twenty years. Pines were with him at first there a leading feature; forced Peaches also were one of his specialties, but both of these have been given up. The great reduction in the value of Pines, through the advent in recent years of the immense numbers of Smooth Cayennes imported, has made their cultivation in this country unprofitable. Until comparatively recently Mr. Rochford used to be one of the earliest in the market with forced Grapes; his Muscats especially were exceptionally early; but with Grapes, as with Pines, a great change has of late years taken place. The immense quantities that now come early from the Channel Islands, and the home cultivation in large quantities of sorts that will keep if need be until long after new Grapes are in, have reduced the price of early forced fruit to not more than a third of what it used to fetch. Mr. Rochford, along with many others, has now confined his practice to late black varieties and Muscats, treated so as have the latter as well as the former as late as they can be kept. He has five houses with the crop yet untouched, consisting of Gros Colmar and Black Alicante, the cutting of which will not be commenced until February. Three of these, two occupied by Gros Colmar and one Black Alicante, each 80 feet long, with one similar of Muscat of Alexandria, were built and planted two years ago last spring, and of these special remark should be made. In

Private gardens it is no unusual occurrence to see Vines retained for years when the fruit they produce is anything but satisfactory, either through exhaustion, indifferent condition of the roots, or the various ills which Vines are heir to. The reluctance to clear them out and replant arises from the mistaken idea that it takes a considerable length of time to get new ones into bearing. If evidence were needed as to the mistake in this matter, Mr. Rochford's young Vines would afford it; the strongest of the Alicantes were allowed to carry three bunches to a cane in 1881; the past summer the whole of both the black kinds have been permitted to bear an average of eight bunches to a rod, all having two canes each; the greater portion of the bunches run from two to three pounds, and highly finished; the canes are as thick and strong as usually seen at double their age, and have evidently been in no way distressed by the crop they have borne. The corresponding house of Muscats carried five good bunches each in 1881. During the past season they were allowed to bear about eight bunches to a rod, big clusters, well finished. Nothing less would have enabled them to realise the high prices they have made. This year the whole of these young Vines will be cropped their full length. Mr. Rochford is no believer in the doctrine of growing Muscats and late-keeping black Grapes with little fire heat, knowing, as he and other leading market growers do, that although fuel is an expensive item near London, still its unstinted use in the case of Muscats and late black Grapes means the difference between obtaining the top price in the market and having to put up with a low figure vastly out of proportion to any apparent saving effected by pinching the fuel. The houses are kept comparatively close in the

spring, and as soon as there is any inclination of movement in the Vines the heat is laid on and kept going freely without any intermission until the Grapes are ripe. The roots are necessarily all inside, on account of the houses standing close together side by side, but as they are supported by piers, they have an unlimited run. In addition to those mentioned a number of other houses are devoted to late Grapes. A roomy, well-arranged

Grape room has been built with hollow walls and a double-boarded ceiling, with a hot-water pipe running round just above the floor, which is boarded. With warmth that can be regulated according to the weather, and ventilating arrangements, there is little trouble in keeping the fruit. The bottles used are made especially for the purpose, with wide necks. Mr. Rochford has tried a Vine or two of Alnwick Seedling amongst the young Alicantes; it finished up well, being almost blue in colour, but it is evidently not destined to be much of a keeper, as the berries were shrivelling considerably at the end of the year. This is to be regretted, as there is scarcely another black Grape with such a beautiful appearance when well managed. T. B.

APPLES IN THE UNITED STATES.

It is with much interest that I have just read Mr. Strong's paper in a recent number of THE GARDEN on the culture of these fruits in this country, reproduced from the Proceedings of the Massachusetts Horticultural Society. Many of his suggestions are pertinent and timely, and the subject embraces a very wide field of thought and inquiry to every intelligent fruit grower in the States who is willing to step out of the rut of his ancestors long enough to investigate the failures and realise the necessities of to-day. Beyond all question the Apple is the most useful and valuable fruit we have in the temperate zones, and has been perhaps since the world began. No other fruit is so widely adapted to our wants, and none will grow over such a wide extent of territory, and thrive under the diversifying influences of soil and climate by which it is thus surrounded. We could more easily spare any other fruit on the whole list, but the Apple would be a sad loss indeed. Now in view of these facts what are we doing to keep up a supply of this wholesome fruit for the people, to maintain or improve its quality, to battle with its insect enemies? Not very much, as it appears to me. The young trees are purchased where they can be got the cheapest, usually with little regard to root or top, and of such varieties innumerable as the shrewd nurseryman chooses to recommend without a question as to location, soil, or special market. They are planted about as carefully as the average hired man is apt to do when undirected by an intelligent oversight. "Sure, and did I not bury the roots well, and place the tender sprigs in line? and what more would ye have?" exclaims Pat. Thus the orchard is planted, and Nature is usually relied upon for the rest. The soil is cultivated and cropped for a time, but this is soon found inconvenient, and the orchard is finally seeded to grass and the trees are consigned to turf which, of course, is expected to perpetuate itself without manure. The little trees are now becoming discouraged in the race for existence. Their growth has been small and immature, they find nothing to feed upon, and small inducement to keep up the fight. It is about this time that insects commence their operations. The cultivator looks at the green leaves above and suspects nothing below; but he wonders why the trees don't begin to bear. He thinks they are old enough, and soon becomes thoroughly convinced that Apple growing is a mistake and does not pay. Such an outline is a picture which must be familiar to thousands of fruit growers in all localities, and yet we continue to hear of the obstacles and failures in Apple-growing, the slow and inadequate returns, and the business is looked upon with disfavour. Now, in my estimation, there is in this country an obstacle to profitable Apple growing. But it is in no way indicated by

the results of any slipshod culture, as before alluded to. As is well known, the Apple tree of America bears an abundant crop only in alternate years, and few, if any, the odd year, it being the common belief that the tree exhausts itself beyond the power of recuperation until two years from bearing. The effect of this upon the grower is obvious. The bearing year he has a heavy crop of Apples, but the market is overstocked, and he can scarcely sell them at any price. As an instance of this abundance, I may state that in 1880

The Apple crop of the States was estimated at nearly 200,000,000 barrels. Thousands upon thousand of barrels were allowed to rot in the orchards for the want of consumers. The odd year the trees are about barren of fruit; Apples bring a high price, but the grower has little or none to sell. And thus it is he murmurs at the poor returns of his Apple orchard after he has waited long years for it to come into bearing. This, as I view it, is one of the great problems which confronts the fruit growers to-day. How shall we teach the Apple tree moderation? How convince it of that periodical and consummate folly which makes it an invalid for a year to come, and disgusts the grower who gives it ground room? This is a legitimate obstacle to successful Apple growing, and it must be met in some way if the renewal and increase of Apple orchards is to go on. The cultivator raises Apples to make money, just as the manufacturer shapes his wares for the same purpose, and although there is a charming interest about the business of fruit-growing to every lover of Nature and her wonderful processes, there must also be money in it, or the grower cannot afford to devote his land, his money, or his time to it. Now, what shall be done? Our Apple orchards are declining; old orchards are passing away, new ones are planted sparingly and with misgivings, for the reason indicated above. Other fruits bring quicker and larger profits. Our stay upon earth is short at best, and bread is of all things the hardest to wait for beyond certain specified limits. Mr. Strong says you can stand under an Apple tree and pick the fruit by the barrel, and I agree with him; every two or three years this is so. But he does not tell us where we can sell the fruit at such times for a price that will cover the cost of picking, rent of the ground, care of the tree, and leave any margin of profit to the grower. This is the practical side of the question to be met. The season following the bearing year is a blank in the Apple orchard, and the grower must live on the profits of the previous year. His returns at least are only biennial in their recurrence; and now the experience of the year just closed has thrown us all at sea and invested the whole subject with new complications. It was

Our Apple year, this 1882, and everybody looked with confidence for the usual abundant yield. The trees blossomed copiously, and our vast orchards were as redolent and beautiful as ever before; but the succeeding months brought disappointment, and the autumn did not begin to fill our baskets. The yield was scarcely more than in off years, and at this time a fine barrel of Apples is really quite a luxury in most localities. Various theories for this freak have been assigned by pomologists and others which I cannot now stop to discuss. But surely everybody is now looking forward to the product of next year with the greatest interest and anxiety. Has the bearing year only been changed? Have the trees been brought into a condition for moderate annual crops? Or what will be the effect of this innovation? Such are the questions that now agitate our fruit growers. But it is meanwhile an additional season of loss for the Apple grower, as will be observed. Now, I am the very last man to discourage Apple growing. We have immense Apple orchards in America, splendid orchards, grandly beautiful in their luxuriant foliage, their charming blossoms, and their red and golden fruitage. I am proud of them. Not far from my residence is

An orchard of 25,000 Apple trees, perhaps the largest in the world, and we have other

very large orchards in New York State which I could name; and there are doubtless to-day over 150,000,000 Apple trees growing in the United States, and yet I say, plant more; don't give it up. There must be some way to make it pay, and the first desideratum is to get a crop every year. I don't know how to do this, but I believe it is practically impossible to secure such a result by thinning the blossoms or young fruit in the bearing year, as has been advocated. The labour is too great and success too uncertain. Who will give us the remedy? The large and increasing demand for foreign shipment of late years has in some degree favoured the producer. Better prices have prevailed for certain varieties, and this demand is likely to increase still further in the near future. This, at least, is an encouraging feature. Let us keep on planting Apple trees; our population is rapidly increasing, and every year we want thousands of barrels more than ever before. But get the very best and most vigorous trees to be had, no matter about the price, and then give them the best care possible. There is no time to waste in this business. Confine your orchard to a few established leading varieties. Experimenting with new sorts is a pleasant amusement, full of interest to those who can afford it, but there is little money in it. Mr. Strong says the Apple makes a

Homely tree. It always seems beautiful to me when well formed, as it invariably will be unless mutilated and deformed by some person who uses a pruning saw without brains behind it. If there is a handsomer object in the orchards of America than a grand, old Apple tree bending beneath its luscious load, and stretching out its fruitful arms to the cultivator on every side, I have yet to see it. H. HENDRICKS.

Kingston, N.Y.

THE GRAPE ROOM.

NOTWITHSTANDING the excessive rainfall which we had during the autumn months, and the oft-recurring heavy showers that we are experiencing even now, our late Grapes are keeping unusually well this season. We have had them cut from the Vines about a week, and removed to a dry, commodious room in which the temperature is pretty equable, ranging now from 45° to 50°. Should it fall below 40°, we light a fire in a charcoal stove, and when this has burnt clear we place it in our Grape room to slightly raise the temperature. We find this to answer very well, though we would much prefer a room heated by means of hot-water pipes. The room in which we find Grapes to keep best is one that was formerly used as a fruit (Apple and Pear) store, but being over the young men's room, and a chimney likewise contiguous, the temperature ranged too high to keep the fruit in a satisfactory manner. For Grapes we like to see the temperature average 45°, and this we can generally maintain without artificial means. When cutting them from the Vines, we secure as good a length of wood as possible below the bunches, so that when inserted in the receptacles set apart for them, the shoot dips a good distance into the water. If perchance a fair length of stem below the bunch cannot well be secured, the natural order of things may be reversed, and that part of the wood extending beyond the bunch inserted in the water instead. We are now doing this in the case of some Gros Colmars, and we expect them to keep just as well as the rest. We use champagne bottles for our late Grapes, filling them fairly well up with rain water, and placing in each bottle a few small knobs of charcoal. As these bottles hold a considerable amount of water, frequent renewals or additions thereto are not so necessary as in the case of smaller bottles, which at one time we used, but found them to be somewhat inconvenient. In order to preserve the bloom as perfect as possible, we prefer carrying the bunches from the Vines to the room in our hands to that of laying them down in a basket or box, and the sooner they are in the water after being cut the better. For our present uses we are supplying the dessert with the Muscat of Alexandria and Black Alicante, both of which are still in

good condition. After these are used up, we shall take to the Gros Colmar, a Grape which is giving us greater satisfaction this season in point of flavour than it ever has done before, though the colour is not quite what we would like. When these are finished we will have recourse to Lady Downes, the backbone of the supply, till new Grapes are fit to use. We think this variety improves in flavour during the next two months. It is undoubtedly the best of Grapes for latest use. Good bunches of this kind well preserved form an attractive feature on the dessert table during March and April. JAMES HUDSON.

Gunnersbury House, Acton.

NOTES ON GRAPES.

THE controversy last autumn about the good or bad qualities of Duke of Buccleuch Grape brought out such interesting details as to the conditions under which it succeeded, that I send you some notes on the behaviour of a few modern raised Grapes in our garden, in the hope that they may be useful to some, and draw wise experience from others. First, let me say, while thanking Mr. Fish for his pleasant account of the Clovenfords vineries, that his recommendation of a dry, airy atmosphere for Duke of Buccleuch, combined with the praises of some lady friends of mine who saw and tasted that Grape there last autumn, has made me purchase a cane wherewith to experiment. When one sees the fine Muscat and other Grapes grown out-of-doors in private gardens in Australia, Italy, or the south of France, it has often struck me as a matter for surprise how well such Grapes succeed in the damp, steamy atmosphere of an English warm vinery; some sorts surely must suffer, either in skin or flavour, under conditions so widely different from the dry air and bright sun of those climates. We all know that heavy syringing and constant moisture will keep down insect plagues and swell out the berries to a large size, but where Vines are clean to begin with, an airy, wholesome atmosphere will cause such strong growth and stout textured leaves, as to defy such pests, and give a flavour and colour to the Grapes that will repay any extra care. If, too, by such means, a thin-skinned variety is sufficiently solidified to withstand the recurring damps of an English climate, it is a gain in every respect. Being strongly impressed myself from various Continental experiences of the advantage of free ventilation and plenty of fire heat in growing really fine Grapes, we built, some three years ago, a range of glass in the most open and airy (not to say windy) situation that can well be imagined; and as a proof of success in growing one variety commonly thought intractable, I may mention that Canon Hall Muscat has with us set its berries so evenly and so thickly as to require thinning, and its magnificent bunches of berries became in due time of the amber colour we all admire, while its flavour and hanging powers turned out remarkable.

Of newer or modern Grapes we planted Golden Queen, Mrs. Pearson, and Dr. Hogg among white Grapes, and Royal Ascot and Madresfield Court of black varieties. As far as our own experience goes, I must say that Golden Queen is not worth growing in a private garden where vigour and appearance do not compensate for peculiar flatness of taste and absence of all particular flavour. On the other hand, Mrs. Pearson, a Grape by the same raiser, has shown itself of such great excellence in every way that we are pulling up several canes of other varieties in order to plant it more largely. It is a matter of surprise that so little has been said about this excellent kind in the gardening journals, where so often a new comer is at first unduly praised and recommended. That it should rarely have been shown is not so surprising, as Mrs. Pearson is of Frontignan origin, and consequently its berries are not of the largest size; they are, however, much bigger than any other Frontignan variety, and have the deliciously fresh and piquant flavour of the old and excellent white Frontignan. For vigour of growth, freedom of bearing, and shape and size of bunch, this white

Grape is in a cool house unsurpassed even by such a useful variety as Foster's Seedling; while as to excellent flavour and clear golden colour, combined with high keeping qualities, it puts it in the shade altogether. In a cool span-roofed vinery, where the Grapes ripened in the end of August, the bunches of this variety hung until the new year, although the damp caused by bedding plants and Chrysanthemums crowded in under the Vines in autumn must have been very prejudicial; and I believe I am literally correct in saying that not six berries ever required to be cut out from first to last during the four months the Grapes remained on the vine. It is quite evident that in a Grape room or dry vinery this Grape will keep as late as Black Alicante, and prove a most admirable contrast to that old variety. With so many excellencies there must be some defect, if only a small one, and with us it is this, that the bloom is thin, and the berries in a young state rust very easily with any handling or moisture condensing on them. A cane that was planted in the Muscat house was quite disappointing from this cause, as the greater heat and moisture so rusted the berries in early stages as to destroy its appearance entirely. Curiously enough, in this warm house the berries never became golden or nearly as well flavoured as those in the cool house. It is hardly possible that one grower could succeed in raising many distinct and good kinds where already there are so many, and Dr. Hogg, another Grape by the same raiser, is an exception to the rule. Being much of the same Frontignan origin, and with high Frontignan flavour and extremely large but loose bunches, it is to be recommended as a summer Grape, and is useful where Frontignan Grapes are grown and liked. Royal Ascot, grown in a very airy house, is very remarkable for its oval Muscat-shaped berries and fine flavour, but its bunches are so small as to make it a poor cropper, unless two be left on a shoot. As its keeping powers are very limited, it is hardly a Grape for everybody.

Of all black Grapes, new or old, Madresfield Court has been with us the most admired; it has grown and fruited splendidly, so as to justify, with us, its reputation in many places of being the finest black Grape in cultivation. For size of bunch and berry, and high Muscat flavour, this has certainly been first of all, and quite puts Muscat Hamburgh into the shade. Gros Colmar, in an airy, but warm house, has acquired a brisk agreeable flavour, and though not equal to Lady Downes, is so handsome and good as to be much liked at table as well as on the Vine. A seedling Vine of great promise as a black and late Grape, that has been raised in this neighbourhood, is being tried, and, from its foliage, should be distinct. What it may turn out to be time will tell.

ED. H. WOODALL.

Cordon-trained Pear trees.—Mr. Bridgeman seems to think that fan-trained trees are superior to cordon-trained ones; but in this I may be allowed to differ from him. I have here ample proof that cordon-trained trees on the Quince stock bear better fruit not only as regards size, but quality and smoothness of skin, than those not so treated, and the bearing properties are greater, taking as a rule space and weight of fruit into account. I have three trees fan-trained on the Pear stock, all on a west wall, and where their roots are is a mystery; but the border in which they are supposed to be receives no dressing except that which is necessary for a crop of vegetables, yet these trees bear good crops, and some fine fruit of all sizes and shapes. Adjoining this wall at right angles I have the same kind as cordons on a south wall, and the difference between the two is so much marked that a casual observer would not hesitate to pronounce them to be different sorts. No doubt out of some six bushels of fruit or so it would be an easy matter to pick out a single dish fit to take a prize at Hereford, but this is poor proof in favour of fan-trained trees, as I know that out of a full crop it is seldom one can get many good single dishes,

owing to the fruits being so variable in size. In the case of cordon trees this is reversed, and it is characteristic of the system that the fruits are even in size, at least that is my experience here.—
R. A. HOLME LACY.

Huyshe's Prince Consort Pear has proved itself to be so good in every way here for several seasons, that I consider it worthy of a place in the front rank with our best varieties. It is comparatively new, and for that reason not so well known or extensively planted as it deserves to be. The tree which we have of it is growing against a south wall; it bears well, so much so, that the crop has to be generally thinned—a good fault. It is not a very handsome Pear, as when ripe it has a green skin and is brown and russety on the side exposed to the sun. It resembles a well-grown fruit of Beurré Rance, and is quite equal to a Winter Nelis or a Doyenné du Comice in flavour. It comes into use about the same time as the last named sort, viz., November. Those who are dubious about planting new kinds of Pear trees may safely add this variety to their collections.—
WM. ALLAN, *Guntton*.

NOTES.

IN writing in my own modest way a few little notes for THE GARDEN at the request of one who has ever been a staunch and faithful friend to me, I will begin them now, and shall continue them from time to time as opportunity will allow me. Of necessity these notes will not please all alike, and the honest criticism of those who disagree with me is invited rather than deprecated, but this much only, on the sole condition that I must be allowed to be excused from making any reply whatever. The readers of THE GARDEN must be our judges.

Crocuses.—Amongst the species of these now in bloom none are more pleasing than *C. Imperati* with its dark striped buds of soft fawn colour and purple-lined perianth. In pots in a cold house it is now most lovely. Flowering with it for company are other hardy gems, such as *C. Sieberi*, lilac-purple; the vivid golden-orange *C. Olivieri*, and two or three others less showy, but none the less beautiful. How eagerly cultivators of these hardy little earth stars must be to see that beautiful monograph which Mr. Maw has in hand, and no flowers better deserved or stood more in need of a beautifully illustrated history than do these dainty little flowers which long ago won the heart of good Dean Herbert, to which love his notes and beautiful original drawings in the Royal Horticultural Society's library bear ample testimony.

Half-hardy Primroses.—One at least of those now in flower is worthy of note. I allude to *P. erosa*, an Indian species of the farinose section. Its mealy scapes rise from a rosette of deep green roughly serrated leaves, bearing a whorl of delicate lilac blossoms and mealy buds nestling together in sweet companionship. This plant and the mealy-leaved *P. verticillata* (*P. abyssinica*) are well worth special culture as pot plants for blooming in the greenhouse during the earliest spring months. With them *P. mollis* also deserves a place, although it flowers, as a rule, later in the year.

The great white Christmas Rose (*Helleborus niger angustifolius*) is a rare plant, with flowers as large and as white as the *Encharis Lily*. It must not be confounded with *H. altifolius* (figured in THE GARDEN), which bears similarly large flowers, but shaded with rose colour, with red stalks to the flowers and foliage quite different in outline from *H. niger*, so different that, with the late Miss Hope (who grew and distributed it), I hold it is a true species, distinct from all the half-dozen or more varieties of *H. niger*, or common Christmas Rose. This *H. altifolius* comes true from seed. What I call the true *H. niger angustifolius* is a beautiful variety, having its fresh, glossy, green leaflets born aloft on pale green scapes a foot in height, so that the leaves themselves form a canopy above the big snowy flowers.

Nine people out of ten would pass the plant without observing that it was in blossom, but if the leaves are drawn aside, a snowdrift-like mass of white blossoms, unsoiled by wind or rain-splashing, rewards the discoverer. Some very good cultivators of hardy flowers who have seen the plant in bloom know nothing of it or its history. I have promised our great authority on garden Hellebores, Mr. Barr, flowers and foliage of this swan-like beauty, which is a real *H. niger maximus* as far as leafage and flower are concerned, but totally distinct from *H. altifolius*, which is the *H. niger maximus* of most gardens.

The late frost.—Of things erratic perhaps climate is most so of all. Thus friends tell me that during the recent hard weather 12° below freezing was all the frost registered at Cambridge, while at Clovenfords on the same morning the thermometer stood at 11° below zero, and even in Dublin, quite near to the sea, and where the climate is proverbially mild and genial as a rule during the winter months, even there we are told as many as 22° of frost (*i.e.*, 22° below freezing point) was experienced. A comparison of the temperatures registered at any given hour in say a hundred localities in England would give some curious and perplexing results. Of course, properly tested instruments would be necessary, and the questions of altitude, subsoil, proximity to the sea, wind, and other influences must needs be added to the readings. Topographical knowledge of this kind would be of great advantage to good gardeners, and is well worth attention, perhaps quite as much so as reports on fruit crops or on the Potato harvest. A special report prepared every winter on these lines would be of great interest.

Of hardy fine foliaged plants beautiful in winter we have a goodly store. Yet how seldom do we see their effect developed and made more impressive by good, to say nought of artistic, arrangement. Of things habitually neglected, even if not otherwise badly treated in a positive way, are Ivies, Hollies, Yuccas, Smilax, and Aucubas, and yet we have here material for a good winter garden in the open air, with the one addition of green Grass, for all defy frosts, wind, and rain even under the worst phases of garden culture.

Ivy.—The capabilities of our common green-leaved Ivy with its varieties, and the different uses to which it may be put, have never yet been exhausted; as low edgings on Grass, as garniture for mossy stones, as drapery on bare walls, as pyramids, beds, or borders, or used as a clothing of glossy leaves for tree trunks, living or dead, we have no other plant so permanently fresh and fair as the different kinds of Ivy. Among its forms there is variety almost infinite, so that there is no need to cover a wall or bare gable, or many individual tree trunks with one and the same kind. *Rægneriana*, *algeriensis*, *pedata*, *palmata*, *hastata*, *canariensis*, and its golden forms are all alike distinct and beautiful.

Hollies.—The variable beauty of these is like "a soft sweet song" to all who have an eye for leaf form and colour in the wintry landscape. The "Hollies at Shawdon" sounds almost as classical as the "Bells of Shandon," and then there is that wonderful collection at the old College Gardens, Dublin, many being unique examples of red, orange, and golden-fruited kinds, raised there from seeds during the palmy days when Mackay and Bain were in their prime. Even now their past labours cast a halo over the sheltered nooks and corners within its quaint old stone walls. No effects of climate, however erratic or severe, affect the life or beauty of our native Holly and its innumerable varieties. Its leaves are ever clean and fresh, and their berries shine bright and cheery even when all is decay and blackened gloom around. After all no South Sea Croton was ever so effective under a glass roof as the old Milkmaid or a Golden Queen, as seen glistening above the snow and illumined by wintry sunshine. Every shower washes the Holly and adds to its beauty, and so of all hardy shrubs it is the one

for town gardens, beautiful alike as a hedge, or in its natural bush shape rising from the fresh green turf.

Different kinds of Smilax.—When the "cold house" idea develops itself—and it is making headway more and more—we may expect that justice will be done to the different half-hardy forms of Smilax. All are fresh and beautiful—mostly evergreen—and their elegant sprays of piquant leafage endure fresh and fair for weeks after being cut from the plants. *S. tamnoides* (recently figured in THE GARDEN) is one of the best, but all the seedling forms of *S. aspera* are likewise beautiful evergreens. *S. laurifolia* and *S. latifolia* are both effective; the last, in fact, is one of the most distinct of all half-hardy climbing plants, and there is a still larger variety with variegated foliage, but it is not hardy. *S. China* and *S. mauritanica* are familiar enough by name, but I am not at all certain what special plants they are supposed to represent. In Devon, Cornwall, Scilly Islands, and in some parts of Ireland nearly all the species are hardy—*S. aspera* and *S. latifolia* especially so if planted beneath the shelter of walls on which the morning sunshine does not fall too early after hard frost. Even if cut down by winters the most severe they spring up afresh from the old crowns, and so regain their beauty before midsummer. Smilax, Ruscus, and some species of Asparagus are fine foliaged plants of the very best kinds for planting out in cool houses.

Orchids and their culture.—One by one the "frightful old bogies and hobgoblins" of Orchid culture are being "laid," and the best of success attends those who treat them as if they were ordinary plants, and not as if they were mysterious "creations" of the natural habits of which nothing was known. It took some time before we could believe that the Andean Orchids were not "fire-worshippers," as once were the human inhabitants of the mountains whence they came to us. Then we "shaded" whole shiploads of these valuable plants to death, and "drying off" and "resting" were answerable for the exodus of many others from our collections. But now all is changed. Dr. Paterson and other cultivators have demonstrated the possibility of growing the majority of tropical Orchids in a warm, moist greenhouse temperature of from 50° to 60°, with abundance of air and water during growth. Some of Dr. Paterson's plants are unique in health and vigour, and even professional Orchid growers had nothing but praise for the plants he recently disposed of in Edinburgh.

Shading Orchids.—Such great changes have taken place in Orchid culture of late years, that all the works hitherto published on this branch of culture are well-nigh obsolete. We have unlearned so much that nothing less than a new departure will satisfy those who are abreast of modern practice. The old plan of growing Orchids in heavily shaded hothouses, a plan which necessitated drying off and resting, is quite superseded. Orchids like the sunshine, and wind, and rain abroad, and here at home make the stoutest and most robust growth in light, airy houses, being protected from actual sun scorching only by a slight muffing of turpentine and white lead, or by the thinnest of textile fabrics. Growing Orchids in gloomy glass-roofed tunnels gave us weak, sappy growths, which had to be ripened up in order to obtain flowers. Now the ripening and growing processes go on together in our plant houses as naturally as they do at home in the Tropics.

Orchid growing epitomised.—If I were asked to epitomise our modern knowledge of Orchid growing into a few words I should say small pots, three parts drainage and one-fourth compost, light, sunny houses, ample ventilation (especially at night), a large watering-pot with a strong arm, a clear head, and a real love of plants behind it; all small-growing plants to be grown in shallow suspension pans, and absolute cleanliness to be observed in all things; a careful use of the syringe, no fumigation, and no insecticides. There

are many details in any special culture, of course, but the above guiding lines ought to be in every young Orchid grower's mind. A compost of brown peat fibre only and Sphagnum Moss, charcoal nodules, and crocks the size of Peas will suit most things, but only use a layer of from 1 inch to 3 inches thick above the drainage in the pots. Too great a body of compost is the stumbling-block of most beginners. This is proved by the general success which attends shallow pan culture. If you are troubled because any particular plant does not bloom in a pot on the stage suspend it near to the roof for a season, and ten to one the growth so made will bloom.

Orchids injured by frost.—In relation to this question of Orchid culture, I quote the following from a letter just received: "At the beginning of the last frost our big boiler gave way—at least the flow-pipe burst at 9 inches from the boiler itself. We repaired it on Thursday, which was here the coldest day of all. We began to fill the pipes at 4 o'clock p.m., and the thermometer outside then showed 18° of frost. We had 6000 gallons of cold water in the pipes, and were a little afraid of its freezing ere we could get the repairs finished and the fire started. All the pipes were nicely warm by 6 o'clock, however (outside temperature 22° below freezing), but frost had obtained a footing in all the houses, and our poor plants have suffered much in consequence, but I am thankful to say that it might have been worse. Of all our stove plants I think the Orchids have come through the ordeal the best." I do not believe that any tropical or inter-tropical plants are benefited by frost. No doubt whatever exists that it is injurious, even if not actually fatal to them; but I am thoroughly persuaded that a mean temperature of 55° to 65° is sufficient for the good culture of all known Orchids.

Combinations of scented flowers.—The agreeable blending of floral perfumes when fragrant flowers are used indoors is not often mentioned, but perhaps is as worthy of attention as colour arrangement. Here are a few combinations which we think very pleasant. Heliotrope and Rosemary, Violets and Mignonette, Lilac and Tussilago fragrans, Lilac and Narcissus papyraceus, leaves of Eucalyptus oiltriodrus and Vanda furva, Violets and Tussilago, Rosemary and double Roman Narcissus, Chimonanthus fragrans and lemon-scented Verbena, or Chrysanthemum Progne, and Lemon Grass. A single flower or spray of each in separate glasses does not please us so much as when two are grouped in this way. To enjoy perfume, it is necessary to be very chary in its use, one or two of the above groups are ample in any ordinary room. The result is a subtle odour of which one longs for just a little more—not a "fragrant stink," suggestive of a perfumery shop. To use large quantities of Lilies, Roses, Narcissus, and Violets, and other strong-scented blossoms in a room is as offensive to delicate taste as wall paper of purple and yellow or green or scarlet.

Impatiens Sultani.—One of the prettiest little stove plants of modern introduction is this Balsam (recently figured in THE GARDEN). Cuttings 3 inches or 4 inches in height flower freely, and rival Calanthe Veitchi in the bright rosiness of their blossoms. Quite small plants of it, grouped along with Isoplepis pygmaea or the small variety of Pellea muscosa, are most effective for indoor decorative uses.

Cuscuta reflexa.—Can anyone tell me where this may be obtained? It is an Indian Dodder with slender twining stems and sweet white Lily of the Valley-like flowers, and being a parasite it grows well on zonal Pelargoniums, Crasulads, Ivy, Willows, Forsythia, and other shrubs. It is so distinct and interesting even when not in bloom, that surely some of our nurserymen must have it in stock.

VERONICA.

Diseased Camellias (A. B.).—It is impossible from an examination of the leaves only to say what is wrong with your plant. No doubt there is

or has been something wrong in the general culture, but you give us no clue to this. A few spores of the fungus named Pestalozia Guepini (peculiar to Camellias) were on the black spots and patches, but this fungus we look upon as a result rather than a cause of disease.—W. G. S.

ROSE GARDEN.

TEA ROSES ON RAISED BEDS.

FOR some time past, in designing Rose gardens, says Mr. George Paul, I have more than once suggested a bed in the centre raised above the surrounding level, to be filled with Tea Roses; but it was more with the idea of slightly breaking the monotony of the flat beds prevalent in Rose gardens than with any cultural purpose. I found, however, the Tea Roses in some of these raised beds doing exceedingly well, and the thought occurred to me that the lifting the plants up from the moist level ground and the more efficient drainage they thus had might be the cause of this happier growth, better ripening, and escape in greater proportionate numbers from the effects of winter frosts. The difficulties of growing Tea Roses have been always greater in low-lying valleys, with heavy soils, than on the light sandy hill grounds. There was some analogy also in this more successful growth of the Tea Roses on raised beds, with the method of growing Hyacinths in Holland, in garden soil, reclaimed but perhaps a year or two from the Dutch marshes; and our first bed was a copy of a Dutch Hyacinth bed. A piece of our ordinary good alluvial soil was trenched up, and some beds, 6 feet across, were marked out. These were dressed with road sand and manure, and a board was fixed at each end of the bed, to show the level they were to be made up to. The earth was then thrown from the paths on to the beds, which, when sunk, were and are about 8 inches above the level of the main paths at the end and between the beds. This was done during the winter; owing to busy times, the dwarf Teas—some on own roots, some on Manetti, some on seedling Briers—were only planted, after the soil had been just pricked over again with a fork, about the first week in March. They were put in 18 inches apart all ways; but such was their growth during this not too favourable summer, that the more vigorous of the dwarf Teas, such as Marie Van Houtte, have made almost impenetrable thickets. The plants were by no means selected, being those left over after the sale of the whole winter; but they gave such good flowers, that in the Tea classes we fairly held our own at the several shows.

The kinds chosen were confined to the moderate-growing Teas, excluding all of the Gloire de Dijon race, but allowing Bourbon Souvenir de la Malmaison a place. The kinds are—

* Anna Olivier.
Alba rosea (a little weak).
Amazona.
Catherine Mermet.
Comtesse Riza du Parc.
David Pradel.
Devoniensis.
Duchess of Edinburgh.
Innocenta Pirola.
Jean Ducher.
Jean Pernet.
Mad. Angele Jacquier.
" Charles.
" Falcot.

* Mad. Hippolyte Jamain.
" Lambard (magnificent).
" Margottin.
" Villermoz.
Welch.
Marie Guillot.
Marie Van Houtte.
* Perle des Jardins.
Perle de Lyon.
Perfection de Monplaisir.
Reubens.
Safranot.
Sombreuil.
Souvenir d'un Ami.

* Those asterisked were the most even in growth and freest flowered varieties. La Boule d'Or, Niphotos, and Souvenir d'Elise were not tried as dwarfs, but as standards alone on raised beds.

The culture, continued the summer through, was simply keeping the beds hoed, and the plants, in the very hottest time of summer, had a little rotted manure by way of mulch; but they were not watered, nor did they seem to need special moisture, owing, probably, to the roots being pushed well down into the deeply-moved soil. They made a vigorous autumn growth, giving flowers abundantly, and of fine quality. With December 1 came the protecting process. They were on that day ridged up with the surrounding

earth with a hoe, much as one would mould up Potatoes. The effect is that the plant is left high and dry, with an open hollow dyke to carry away all moisture to the large open drains formed by the paths between the beds. The wood is thoroughly protected, as far as the bottom eyes are concerned; and these eyes will lie dry and dormant until the earth is removed in the spring, when they can be pruned in closely, and all injured upper wood be dispensed with, though that has also been slightly protected with litter. I need hardly say that, accepting any width for your bed that seems desirable, such beds may take any form—say a long S or an oval—and be ornamentally placed on grass, the sides being sloped up and turfed. The idea is quite simple, not particularly original, but having been found effective for Tea Roses, and seeming to me to simplify their culture, I have ventured to describe the practical application of the idea under the title at the head of this brief article.—Rosarian's Year Book.

BUDDING ROSES.

"R. H." is not alone in his failures with lean buds. All that is possible should be done to convert them into fat ones. Some sorts of Roses will have lean buds, feed or treat them as we may. Something may, however, be done to fill them by stopping the current year's wood before it flowers. What a sacrifice, I fear; but at times we must sacrifice beauty for utility, and a harvest of bloom is often of far less moment to a rosarian than a fine crop of plump buds. The buds under such treatment plump up from the heads of the shoots downwards. The process of filling must be carefully watched, and so soon as one bud gets fairly filled remove it and wait patiently till another plumps up, and so on till all are fit. It is seldom that all will fill of these lean-budded kinds; but if one, two, or three are thus developed to the growing point that is something gained. Then there is another way of forcing these lean buds to grow. About a week after insertion cut the stocks back to within an eye or two of the inserted bud. So soon as this eye threatens to break rub it off, and thus force the whole strength of the stock into the lean bud. Sometimes this will drown or flood the lean bud off; at others it will stimulate it to immediate and successful growth. There is yet another way of treating these lean buds. Get as long and hard a piece of bark as possible. This will occasionally assist the first year, and if not, give them more strength to live through the winter and break into growth the following spring. Finally, instead of budding with bark in the usual way, take a small slice of cambium or young wood with the bud and insert it in the usual way. Almost the thinner the slice of wood the better, provided that the roots of the bud are preserved intact; and it is well to bear in mind in this connection that the leaner the bud the deeper its roots; in fact, like the preacher whose sermons were reputed to be all sound, the lean bud is pretty well all roots, and hence the vital importance of conserving them, even by the addition of a section of wood. If "R. H." cannot succeed by either of these methods, then he must never propagate his lean-budded Roses in this way.

D. T. FISH.

Mice and Aponogeton distachyon.—That mice destroy the tubers of this plant I had actual proof during the late severe frost. From a pond covered with it here a portion had to be removed, as it was choking other things. I observed in the cleared part that the bottom was frequently disturbed; and, knowing that the fish were not on the move, I was curious to ascertain the cause, and kept a close watch. It was not long before I perceived a mouse emerge from a hole near the edge, plunge into the water, and dive a distance of 5 feet. I could clearly see its progress through the water, which is about 2 feet deep. After wriggling itself among the debris at the bottom and finding a suitable root, one about the size of a Pea, it

returned under water, straight to the hole and ate it. The process was then repeated, indeed, several times in succession. It was one of the long-tailed species, but which I could not determine. Is it not strange that these warmth-loving animals should thus boldly take the water at such an inclement time? *En passant*, Aponogeton was finely in bloom up to the time of the sharp frost, which of course destroyed the flowers. The mild weather we have since had has again brought it into blossom, and in a few days if unchecked it will be as gay as before the frost.—J. M., *Charmouth, Dorset*.

TREES AND SHRUBS.

TREES IN THE STREETS OF WASHINGTON.

By F. L. OLMSTED.

WASHINGTON has gained more in outward appearance during the last half-dozen years than it had before in half a century. It now has forty miles of better pavement than can be found in any other American town, and which compares favourably with any in Europe. This has made thorough street-sweeping practicable at small cost, and it results that, though the city is but poorly supplied with water, it is little afflicted with dust and is beginning to have a refreshingly clean aspect. But your readers will be more interested to know that on lines bordering these streets there now stand, fairly started, upwards of 100,000 well-formed nursery-grown trees. Maples of several species are the more common, but there are representatives (by the hundred) of at least six different genera. They are at present but club-headed saplings, hardly recovered from the shock of transplantation, or fairly settled in their new homes, and show none of the characteristic mature beauty of their several families. They have as yet, therefore, little value except as promissory notes, their growth to be discounted. Nevertheless, seen as they constantly are, in long perspectives of uniform mass and colour, their effect on the city is absolutely transforming, and, if all goes well with them, Washington will in a few years be a new and glorified city; a capital that Americans may be proud of; supreme at least in its street beauty, whatever monstrosities in building fate may have in store for it. It can hardly fail in April and May to become a great pleasure resort.

But more than this is to be said. The streets of Washington ("if all goes well") will become a national tree school, providing a standard, a stimulus, and an incentive for the improvement of every village and hamlet in the land, and it may be well to add that if those able, as your readers must generally be, to foresee the future value of this work, will but let their intelligent applause be heard by members of Congress, it will prevent the occurrence of such a catastrophe, as under our present political customs, is always hanging over every beneficent enterprise as soon as it is well started. The commission of thoroughly competent experts (Smith, Saunders, and Saul) should be very warmly and effectively sustained at every pertinent opportunity. They have yet a vast barrier of indifference, ignorance, and active prejudice to overcome—not against their object or the results of their work, but against the essential conditions of lasting success. Any one who has watched the various processes by which nine-tenths of all the street trees planted throughout the country are killed, stunted, distorted, mangled, and hardly one in a thousand suffered to attain its full, natural beauty, will understand what they mean.

But in spite of what has been gained in the two particulars named, in a rapid development of gardening decoration, and in a large addition of private dwellings of a more or less elegant character, the greater part of Washington, outside the lines of its public plantations, yet retains much of its old character. Two offences to good taste are at this time particularly conspicuous, and all the more so because of the neat, trim, and genuine

quality of most of the new brick, tile, and stonework. The first results from efforts at cheap, tawdry, and garish display in the embellishment of door-yards and lawns; the second from the necessity which has resulted in the recent grading down of streets, of leaving miles of formal earthworks between them and the houses fronting on them.

The fields about Washington are turfless, and good turf is only to be had by a tedious process, with great care and labour, and through the heat of summer only by a profuse command of water. There will soon be thousands of houses here, planted on banks from 4 feet to 10 feet above the sidewalk, with flat, formal, steep slopes, such as even in the climate of England, and with the best of soil and gardening skill, it is hardly possible to maintain turf upon suitable to carry the eye up to a house of refined materials and workmanship. The soil upon these slopes in Washington is such as one sees in going there from Baltimore in the railway cuttings—a cracking, brick clay and gravel, bearing naturally almost nothing but stunted "Broom Sedge." But were it much better, proper turf in such a situation in the climate of Washington would be out of the question, and nothing more incongruous with the cut stone and plate glass which often appears behind it, or more positively dreary and forlorn than what now generally stands upon them for turf, can be imagined. It compares with true turf as a ragged and dirty doormat compares with a table napkin. As the arrangement has been forced upon the people, and such banks cannot, in many cases, be now avoided except at great expense, and as miles of them must be brought prominently into view to all visiting a city in which every American has a responsibility, the question of any generally available, tidy treatment of them is one upon which good advice is greatly needed.

Nearly always it would be better, as far as practicable, to break art of rigidly mathematical forms; to obtain everywhere curving faces and especially to destroy angular crests. Next, a much more liberal use of shrubbery is desirable; not alone for decorative purposes, but for beautifully screening or throwing into background retirement banks of dead and ragged Grass. Even screens in the form of low, closely-trimmed hedges might be used. As Washington should appear well in winter, they should be of evergreens; the best if one had patience, probably of Tree Box or American Holly; but it may be observed that after an exceptionally severe winter and a fearfully trying summer both Yews and Retinosporas of all species and varieties are looking very well in Washington.

After all that can be done in this way, however, should not the chief resort be to creepers? In Europe such banks are sometimes seen covered very perfectly and yet very snugly and daintily with Ivy. They may be seen also dressed with Periwinkle, but it is rarely in good order. Evergreen Honeysuckle would almost surely succeed, but might look too riotous. Has the evergreen Euonymus had a fair trial as a carpet, carefully spread and pegged? Could anything be done with creeping Junipers? Perhaps in some cases it would do to make a facing of rough stone, to be generally overrun with Honeysuckle and Clematis, but with breaks and niches supporting Sedums and other dry rock plants, and with outbursts of Yuccas and drought-enduring shrubs, as the smaller Sumachs and Mahonias. Suitable stone is to be easily obtained about Washington.

Still another expedient that might be admissible in some situations would be a trellis set at the base of the bank and of sufficient height to obscure it without obstructing the view toward the house; the trellis to be covered, of course, with creepers. Wire netting stretched on iron frames, with the simplest possible supports of iron, would be best. But one of Cedar or Sassafras poles might better be used than leave the banks in their present repulsive prominence. Such material is easily obtained anywhere about Washington, and it can be easily morticed and wire-bound together, and perfectly clothed with evergreen drapery in a single year.—*Gardener's Monthly*.

THE RUSSIAN MULBERRY IN NEBRASKA.

MR. G. F. CLARK, Gage Co., Nebraska, who lives near a colony of the Mennonites, gives the *American Agriculturist* this account of their Mulberry tree planting:—

The Russian Mulberry was introduced into their European colonies by the Russian Government for the purpose of silk culture and to shade and improve the land. The landowners were compelled to buy these trees from the Government, each being obliged to plant a certain number. After cultivating them until they found out their value, they voluntarily planted the trees very extensively, and learnt that silk culture was not the only object in raising them. They found the timber very valuable for fence posts, outlasting any other Russian timber. It was also found profitable for cabinet work, and one of the most desirable trees for fuel; besides it bore edible fruit, which was marketable in Russia. When the Mennonites came to this country they brought the seeds of this tree with them, together with those of several other trees, but planted these more extensively than all others combined. The Russian Mulberry is a very rapid grower. Trees, the seed of which was planted by the Mennonites, are now 20 feet high and large enough for fence posts. They grow very large and bear abundant crops. The fruit resembles the Blackberry in appearance, a large share being black, marked with reddish white. They vary in flavour from acid to sweet. The growth of this tree is like that of the Apple tree. Many of the leaves have the margin with from 5 lobes to 12 lobes. The Mennonites use it as an ornamental hedge plant; it makes a beautiful fence, and will stand shearing as well as any tree. By some this tree is regarded as the most hardy Mulberry, and the best suited for silk culture in northern localities. The Mennonites have interested themselves in the silk business to some extent since they have been in this country, and raised some cocoons for sale.

SIBERIAN CONIFERS.

So far as I can ascertain there are in Northern Siberia five trees belonging to the Pine group. They are as follows:—

Larch.—This well-known tree extends further north than any of the others, it is abundant, though small, as far north as lat. 69½°. Further south it attains large dimensions. At Yen-e-saïsk/ a Larch pole, suitable for the mast of a ship, 36 inches in diameter at the base, and 18 inches in diameter at the point, and 60 feet long, may be bought for a sovereign. This hard dark wood looks well for the walls and ceilings of the peasants' rooms.

Spruce Fir (*Picea obovata*).—This elegant tree, with branches growing out of the trunk down almost to the root and trailing on the ground, extends nearly as far north as the Larch, say to lat. 69°. It is a very important tree for commercial purposes. Its wood is white, of very small specific gravity, extremely elastic, and is said not to lose its elasticity by age. It makes the best masts for ships, and is for oars the best substitute for Ash. Snow-shoes are generally made of this wood. The quality is good down to the roots, and it makes the best "knees" for ship building—knees which do not require to be cut out of the solid, or artificially bent. It is, however, subject to very hard knots, and care must be taken not to blunt the edge of the axe.

Siberian Spruce Fir (*Picea sibirica*).—This tree differs from the common Spruce (*Picea obovata*) in having a smooth bark of an ash-grey colour; its leaves are also of a much darker blue-green. We did not meet with it further north than lat. 63°. It has little commercial value, being soft, and apt to crack and decay. The ease with which it is split causes it to be used for firewood and for roofing. The well-known Pine or Scotch Fir tree scarcely extended so far north even as the preceding, say to lat. 62½°.

Cedar (*Pinus Cembra*) is very similar in appearance to the Scotch Fir, but its timber is said

to have a much higher marketable value. It is dark, but not so dark as Larch, and there is very little of the white inferior wood next to the bark. If stacked too long in the forest it is liable to be attacked by worms, but for furniture and indoor use it is the best timber to be found in Siberia. It is reputed never to rot, shrink, warp, or crack. Soft and easy to work, it has nevertheless a fine grain, and is almost free from knots. The Ost-yaks build their ships of it. They hew down a trunk 2 feet or 3 feet in diameter, split it, and of each half make a wide thin board; the rest is wasted, for the axe is an extravagant tool. This tree is found up to lat. $67\frac{1}{2}^{\circ}$.

We found the common Birch up to lat. $69\frac{1}{2}^{\circ}$, and in various places we noticed that where a Pine forest had been burnt or cut down it appeared to be immediately replaced by a luxuriant growth of Birch. The creeping Birch and two or three sorts of Willow were common in suitable localities on the Tundra as far north as we went—i.e., lat. $71\frac{1}{2}^{\circ}$.

The Alder was abundant at $69\frac{1}{2}^{\circ}$, and the Juniper at 69° .

I did not observe the Poplar at the Koo-ray'-i-ka, in lat. $66\frac{1}{2}^{\circ}$, but it was abundant at Sil-o-vah'-noff, in lat. 66° . The Ost-yaks hollow their canoes out of the trunk of this tree.—“*Siberia in Asia*,” by Henry Seebohm.

Rhus cotinoides.—In April, 1842, at the beginning or a botanical tour through the Southern Alleghenies, I found this rare tree about twelve miles from Huntsville, Ala., on the road to Winchester, Tenn. A few years later I urged the importance of introducing this Rhus into cultivation. Its fruit-bearing panicles, with their long, hairy pedicels, have a strong resemblance to the Rhus Cotinus, or Venetian Sumach, so extensively cultivated both in Europe and America. But our Rhus attains the dimensions of a tree 8 inches to 12 inches in diameter, with a height of more than 30 feet. It has large, bright green leaves, 4 inches to 6 inches in length, which joined with its conspicuous feathery fruit-bearing panicles, 8 inches to 12 inches long, would render it a striking and beautiful object in any landscape. There is no other tree like it in cultivation in the United States. Nuttall first discovered it as a large shrub on the banks of the Grand River, a branch of the Arkansas in the Indian Territory, in 1819. It grows in a limestone soil on the sides of mountains 800 feet to 1000 feet high. It may be known in the winter by its light grey and furrowed bark. Its wood is yellow, variegated with shades of yellowish brown. Its branches are brittle.—S. B. BUCKLEY, in *Country Gentleman*.

Fungus on evergreens (Indigo).—The name of the fungus which causes the thick sooty-looking coating on your evergreens is Capnodium Footi. Judging from the frequency with which examples of it are now sent to us, this fungus appears to get commoner every year. It is also grown on the foliage of some deciduous trees and herbaceous plants. It is very frequently accompanied by scale insects. This fact has caused some (including one of our American correspondents) to say the scale insect is the cause of the fungus. The fungus undoubtedly grows with greater luxuriance where the excretions of scale insects are present, but it is quite able to hold its own without them. We advise the destruction of the infected leaves as far as possible, the destruction of scale where present, and good clean gardening.—W. G. S.

SHORT NOTES.—TREES AND SHRUBS.

Wellingtonias.—In Vol. VI., 1874, of THE GARDEN (p. 262) I read of a large Wellingtonia then growing at Cecil, Co. Tyrone, said to be the largest in the United Kingdom. It would be interesting to know the height of this tree now. Will anyone kindly furnish it?—E. W. G.

—I have just heard of a very tall Wellingtonia at Inchrya, Glencarse, in Perthshire, said to be 84 feet high but I doubt the statement, till from actual observation I can verify it.—R. H.

ORCHIDS.

Orchids in bloom in the Royal Exotic Nursery, Chelsea, comprise some exceptionally beautiful species and varieties. Of Lælias there is a fine display of L. anceps, including its finest varieties, such as Barkeri, Dawsoni, and rosea, all extremely beautiful. The charming little L. albidia is represented by some fine flowering specimens with as many as seven or eight blooms on one spike. It is a sweet little winter Orchid indispensable to a good collection. The variety bella, also very fine here, differs from the type in having the labellum strongly marked with rose-pink. Cattleyas include the beautiful C. Dodgsoni, noticed some weeks ago, and the charming Lælia Veitchi, a hybrid between Cattleya crispa and C. labiata. It is quite intermediate between these two, and combines their peculiar characteristics in colour in a remarkable degree. It is indisputably one of the fin of hybrid Orchids. The numerous varieties of C. Trianae are beginning to expand their blossoms, and one we notice named Aspasia was uncommonly handsome; C. Percivaliana is likewise in bloom. In the Phalaenopsis house there are crowds of P. Schelleriana and others of the better known type, together with such novelties as P. Stuartiana, which is the admiration of every one. Dendrobiums include the exquisitely beautiful D. Ainsworthi, a hybrid between D. nobile and heterocarpum, and preserves to itself the delicious perfume of the latter in a remarkable degree. D. moniliforme alias C. Linawianum and Hutton's variety of D. macrophyllum must be included among the most noteworthy. Angraecum sesquipedale, that most remarkable of all Orchids from Tropical Africa, may be seen represented by flowering plants not more than 6 inches high; yet sometimes we hear that it cannot be induced to flower until it attains a foot or two in height. Here are plants of all sizes in bloom, each bearing from one to half a dozen flowers, and fine ones too. A. Chailluanum, and A. eburneum, and others are also in flower. There is a host of Cypripediums in flower, chiefly those of hybrid origin, such as C. euryandrum, macrochilum, selligerum majus, and Sedeni, of which, by the way, there is the deepest coloured variety we ever saw. Cool Orchids abound in profusion, and rarely have we seen a finer display than is here of Odontoglossum crispum, and varieties of other cool house kinds. Among other Odontoglossums is the dainty little O. blandum, a species—a miniature, so to speak—of O. nævium, but even more charmingly spotted and with a broader labellum. It does not grow more than half a dozen inches high, and its flowers are crowded, many together in short spikes. Masdevallias in flower include the dull-looking and vile-smelling M. velifera, a species only remarkable because of its rarity.

Temperature for Vandas.—Of late much has been said as to the temperature suitable for these lovely Orchids. When at Elvetham Park recently I observed how healthy some Vandas looked. I asked Mr. Jones, the gardener, what temperature he kept them at in winter. He told me 55° , and he assured me they always blossomed grandly; they are in a mixed collection, and the house is a lean-to facing the west.—J. CROOK.

Odontoglossum Coradinei.—This, a rare variety, apparently intermediate between O. luteo-purpureum and Lindleyanum, is represented by a fine flowering example in Mr. Bull's nursery, Chelsea. The flowers are about the size of those of an ordinary O. crispum. The ground colour is creamy white, blotched and spotted with pale brown. The habit of growth is similar to that of others of the O. luteo-purpureum section, the flowers being borne in long two-rowed spikes.

Marked distinction in Orchid bulbs. In referring to THE GARDEN of Sept. 29, 1882, p. 85, I happened to notice a query by “R. C.” in regard to the “marked distinction except that of colour of flower.” I may say that it is exceedingly hard to make the decision certain, for, as to two plants in our collection, I can quote of one that

one of the best judges in the land pronounced it C. Mossiæ, and I thought it exoniensis—it bloomed C. Trianae alba. Of another plant, as yet unbloomed, reputed to be a new species, I have taken the opinions of all who see it, and the result of three first-rate judges is, “they one and all differ.” One said C. Mendelli, another C. Mossiæ, and a third C. Trianae.—D. B. C.

Promenæa xanthina.—This rare species is somewhat similar in style of growth and size of flowers to P. citrina. The flowers are borne singly from the base of the bulbs, and are about an inch across, of a pale primrose-yellow, deeper towards the centre, while the side lobes of the labellum are profusely spotted. It is in flower in an intermediate house in the Royal Exotic Nursery, Chelsea.

January Orchids in flower from Dr. Paterson, Fernfield, Bridge of Allan, include a twin-flowered spike of Lycaste Skinneri, a somewhat uncommon occurrence; the flowers are larger than usual, and of a rich deep colour. Other flowers of this Orchid also represent very fine varieties. Among other Orchids sent are the rare and handsome Vanda Cathcarti, with large flowers and chocolate-brown sepals transversely barred with a paler hue; V. furva, more uncommon than beautiful; a very fine form of Lælia anceps, apparently Barkeri; a large-flowered variety of Masdevallia ignea, and Vanda lamellata Boxalli.

Angraecum sesquipedale.—I see on reference to Mr. Douglas's article on Orchids in THE GARDEN, of March 11, 1882, that he mentions this plant having “tails 18 inches long.” I should much like him to measure the tails of his plants this season, and tell me the maximum length of the spurs, and say what corresponding size the flower is and the size of the plant. I do not remember having measured a spur longer than 15 inches. I should like all owners to write their present experience, as I have heard it said and seen it in print that up to last season the spur had not established its claim to the word “sesquipedale.”—D. B. C.

Masdevallia ignea Massangeana.—The ordinary form of this Masdevallia is beautiful, and there are few better or brighter winter flowering Orchids, but this variety is superior to it, inasmuch as the blossoms are larger, more oval in outline, and brighter in colour, the tint being of a peculiarly bright orange-scarlet, marked with vermilion in longitudinal streaks. It is as free or even freer in growth than the type, is equally floriferous, and like it remains in perfection for weeks and even months together. It is now one of the most prominent among the numbers of beautiful cool Orchids in bloom in Mr. Bull's nursery at Chelsea.

Cattleya Backhousiana.—A grand specimen of this splendid new Cattleya, a variety of C. Trianae, is at the present time one of the chief attractions of Messrs. Backhouse's nursery, at York, where it originally flowered last year. The plant in question has no fewer than ten flowering leads, several of which are carrying three flowers. It differs from all other forms of C. Trianae in having very broad petals of firm texture and of a delicate lilac tint, heavily blotched and streaked with rich carmine, while the ample labellum is exquisitely fringed at the margin and of an intensely rich carmine-purple. All Orchid lovers will welcome this beautiful plant to their collections, and we hear that Messrs. Backhouse are so fortunate as to possess a few small plants of it beside their original specimen.

Spathoglottis Lobbi.—This charming and elegant terrestrial Orchid is now in flower in Mr. Bull's nursery, where it attracts a deal of attention on account of its distinct appearance, so unlike that of the majority of Orchids. It may be best described as possessing the habit of growth of a Bletia, and with flowers much resembling in shape those of some of the Phalaenopsids, but the whole flower is of a clear and bright yellow, traversed here and there by chocolate lines. The flowers are borne on a tall slender stem, which adds considerably to their beauty. Some of the species of Spathoglottis and allied genera are

mere botanical curiosities, but this is not; indeed, it would be difficult to name a more attractive and graceful Orchid. It is of easy culture if treated like a *Bletia* in the East Indian compartment of an Orchid house.

Cattleya Trianae alba.—The flowering season of *Triana's* *Cattleya* and its numerous race of beautiful varieties has just commenced, and for some time to come wealthy Orchid collections will be enlivened by their gorgeous blossoms. Some noteworthy varieties of it are now in flower in Mr. Bull's nursery, and amongst these none are so lovely as the true *alba* form, which has snow-white blossoms only marked with a faint dash of yellow on the labellum. Of this rare variety there is a grand specimen plant nearly a yard across, and carrying fully a dozen of its chaste blossoms all expanded at one time. Another form of *C. Trianae* named *maxima* is likewise a beautiful variety remarkable for its unusually large flowers with broad sepals and an ample lip richly coloured and exquisitely crisped at the margin. *C. chocoensis* and *C. Warszewiczii delicata* are also flowering. Both are lovely plants. The first is a somewhat scarce variety, easily recognised by its lean pseudobulbs. The flowers, about the size of an ordinary *C. Trianae*, are of a delicate blush pink with a blotch of yellow on the labellum. They are delightfully scented with a rich balsamic odour quite unlike that of any other *Cattleya*. A great drawback in the case of this variety is the fact that its flowers hardly ever open more than half way. *C. Warszewiczii delicata* is a superb Orchid, indispensable in every good collection. It is rightly named *delicata*, for its blossoms are of a soft, delicate shade of pink rarely met with even amongst its congeners.—W. G.

PLANTS IN FLOWER.

CAMELLIAS IN THE OPEN AIR.—Many of your readers having stated the various flowers they have in bloom out of doors, allow me to say that I have several double *Camellias* in full bloom in a south warm corner of my garden.—H. J. BUCHAN, *Wilton House, Southampton*.

EARLY PRIMROSES.—I send you bunches of *Primroses* of which we have had in the nursery at Grove an abundance throughout the winter; the colour seems much brighter than that of the ordinary wild ones.—W. CAUDWELL, *Wantage*. [*Primroses* are now plentiful in the London markets.]

LUCULIA GRATISSIMA IN SMALL POTS.—This is most useful when it can be had in small pots for filling vases in the house, being valuable on account of its scent. In this state I noticed some recently at Elvetham. The plants in question were in 6-inch pots, and each carried from four to six of its beautiful *Hydrangea*-like trusses of blossoms.—J. CROOK.

CRASSULA SEPTAS is a singularly neat little plant—quite an alpine. In a cool house at Kew there is a plant of it in flower, the whole being not more than 2 inches or 3 inches high. The roundish leaves are gathered in a cluster, after the manner of some of the *Saxifragas*. The flowers, about as big as a threepenny piece, are borne in an umbellate cluster on slender stalks. The petals are pure white, and the flowers are peculiar in structure for those of *Crassula*.

CYCLAMEN COUM VERNUM.—This charming little harbinger of returning spring is now very beautiful in one of the numerous nooks in the rock garden at the York Nurseries. The colour of the blossoms is so intensely brilliant, that there is nothing to vie with them at this early season. Another recommendation in favour of this *Cyclamen* is that it is so easily managed if planted in a sheltered corner in ordinary loam. In order to make a good display, several plants should be placed together, so as to form a tuft.—R. P.

CENTROPOGON LUCYANUS is evidently grown finely at Farnborough Grange judging by the specimens which Mr. Crook sends cut from plants

grown in a temperature varying from 40° to 50° by night, a much lower temperature than in which the plant is grown as a rule. He also sends flowers of the yellow *Flax* (*Linum trigynum*) from plants in a house the temperature of which ranges from 38° to 45° at night. The specimens are not inferior to those grown in a warmer temperature, and probably the plants are altogether the better for cool culture.

HIBBERTIA CUNNINGHAMII.—Flowers of this old-fashioned greenhouse plant have been sent to us by Mr. Crook, gardener at Farnborough Grange, who considers it by far the best of the cultivated species; it is bright in colour, a profuse flowerer, and is scarcely ever out of bloom. It is a dense and very twiggy shrub with narrow, toothed leaves, among which are produced numerous bright yellow blossoms an inch or so across. *H. dentata*, a slender twining species with large yellow blossoms, is now prettily in flower in the temperate house at Kew, and produces quite a cheerful look at this season.

BELLADONNA LILY.—It is very refreshing to see flowers of the lovely *Amaryllis Belladonna* in the dead of winter, for as a rule it does not unfold its bloom till summer or the autumn. In one of the stoves at Kew we saw the other day a beautiful flowering plant, with blossoms finer and of a deeper rose-pink hue than usual—probably a variety. The bulbs, we understand, were received from South Africa, and were started as soon as received, hence the result. It would be well worth the trouble if bulbs were treated with the express view of getting them to flower in midwinter, as they are so beautiful.

SERICOGAPHIS GHIESBREGHTIANA.—Of this bright winter flowering stove plant, some excellent sprays have been sent to us by Mr. Crook from the garden at Farnborough Grange. Some of the sprays are a foot or more in length, and from the axils of each leaf a long elegant spike of rich scarlet flowers is produced, which in contrast with the large shining green leaves is very striking. In another column Mr. Crook gives an account of his method of growing this plant, which at Farnborough Grange may be seen a yard or more high and as much through.

NEPENTHES SANGUINEA.—This fine species of Pitcher plant, says the *Irish Farmers' Gazette*, is at present in flower at Glasnevin, a rare occurrence; at least, we remember the late Dr. Moore stating that he had never been able to get it to flower. At present the plant is bearing a fine bold spike; being the pollen bearing or male form, it is to be regretted that some other members of the family with which it might be desirable to effect a cross are not in flower just now. Doubtless, however, Mr. Moore will take measures to preserve some of the pollen, or share it with those who may happen to have seed-bearing forms of some of the species in flower.

FLOWER NOTES FROM DUBLIN.—I see the *Snowdrops* peeping up here and there, and at Straffan the other day they dangled like clusters of pearls above the purple-brown leaves of *Anemone pennina* in a very pretty way. In the pearl bud stage they are most lovely. *Narcissus maximus* is spearing up apace now that the weather is mild, and the *Crocuses* are racing the *Aconite* buds closer than usual. I wish "E. H. W." could see the luxuriant way in which *Tussilago fragrans* grows and blooms here now, carpeting the ditches and roadsides and canal banks, and perfuming the air, at night especially, just as *Orchids* do abroad. *Orchis longicalcarata* (Algiers), white, with a rich claret-coloured lip and a long spur, is one of the gems at Straffan just now flowering in a cold frame. *Vanda furva* (V. Roxburghi unicolor) is distinct, having cinnamon-brown flowers and a delicious odour of *Cowslips*. Speaking of hardy winter blossoms, there is now a plant of *Helleborus altifolius* (*H. niger maximus* of gardens) at Straffan, inside the old orangery square, a yard across, and it bears at this moment fully 200 flowers and buds. I never saw a specimen half so good before, each flower being perfect and clean. The common *H. niger* is a poor thing as

seen growing beside it; in fact, comparatively speaking, not worth soil and care. Frames full of *Marie Louise Violets* on a sunny border are now giving little lilac-purple rosettes of the sweetest. Mr. Bedford, the gardener at Straffan, grows them remarkably well. Some patches of *Anemone coronaria*, raised from seed sown in May last, are now yielding fresh buds and flowers quite plentifully, and seemingly these *Windflowers* are not much disconcerted by 24° of frost. Cut in the bud stage, they endure fresh and bright for two or three weeks in fresh water. The only difficulty is to be sure of obtaining seed from a good strain. On sunny walls the *Japan Allspice* displays its golden buds, and its waxy flowers dangle prettily from the soft grey twigs, and are sweet enough to tempt the wintry flies and stray bees drawn out from their shelter by the warm sunshine. *Golden Jasmine* is a good companion for it, more showy, but less fragrant.—F. W. B.

WHITE DOUBLE EPACRIS.—This plant, which is the double-flowered variety of *E. onosmæiflora*, is now one of the most attractive plants in bloom in Mr. Bull's nursery at Chelsea, by whom it was introduced some years ago. It is a vigorous little bush, each tiny branch being wreathed with clusters of tiny rosette-like blossoms of snowy whiteness for some inches in length. In growth it resembles other *Epacris*, but is very dissimilar as regards the flowers. It is, we believe, the only double *Epacris* known. It was exhibited and certificated about seven years ago, but as yet it has not been distributed, as it is not one of the easiest plants to propagate in quantity. When it is put in commerce, it will doubtless be much sought after, as it is such an admirable greenhouse winter-flowering plant, and one that could be relied on for remaining in flower for an unusually long time. The flowers being white, they will be valued for cutting from for bouquets, wreaths, and a variety of uses.

LONICERA FRAGRANTISSIMA.—This sweet-scented *Honeysuckle* is now crowded with blossoms, the odour of which quite pervades the air, especially in the case of plants under glass, a circumstance which proves how valuable it is at this dead season when there are not many plants in flower, and what are in blossom are mostly tender kinds, whereas this *Honeysuckle* is so hardy as to brave all cold and frosts and keep on blooming nearly the whole of the winter out in the open. To have it at its best there it requires, and deserves, the shelter of a wall with a southern aspect and a sheltered corner. If so favoured, it is surprising what an amount of flower may be got from it. Although naturally bushy, it may soon be made to cover quite a large space by encouraging and training up the leading shoots, and from these breastwood is formed. It is from this twiggy wood the blossoms come, and, therefore, in pruning, or rather in stopping and pinching during the summer, the object should be to have as much of this shrubby growth as possible, and the shorter and riper it is the better will it bloom. It may be readily propagated by means of cuttings or layers; the latter root freely if the branches are pegged down and covered with sharp, sandy soil, as do also cuttings made either of the ripe or green shoots inserted in a border, under a hand-glass, and if some are put in now they will form nice little plants by next autumn.—S. D.

CHINESE PRIMULAS.—Of these there is in Messrs. Carter's Crystal Palace Nursery, Forest Hill, one of the finest collections we know of, being of considerable extent in point of numbers, and the varieties represented are particularly fine. All the varieties we enumerated in our report of the meeting at South Kensington may be seen here and hosts of others, named and unnamed, two or three capacious houses being entirely filled with them. Under glass the colours show themselves off to much greater advantage than in the dull, secluded light of the council room at South Kensington, and thus an adequate idea can be formed of their glowing brilliancy. For example, the *Holborn Gem* is more decidedly blue under glass than elsewhere. It seems to us that it greatly improves year by year, so that by constant

selection an undisputably blue *Primula* will eventually be obtained. The variety Golden Leaf, with foliage of a primrose-yellow, is very distinct, and associates admirably with the other sorts. The brilliancy of such fine varieties as Magenta Queen Improved, Vermilion Queen Improved, and other high-coloured kinds is here fully brought out, while in contrast with these are the delicate and pure hues of the white and lighter-tinted sorts. Such a rich collection as this is worth seeing, and we understand that it will be on view until the end of the present month, when it will undergo preparation for seed saving. It is, we believe, necessary that intending visitors should obtain a card of admission at Messrs. Carter's offices, 237, High Holborn, before going to their Forest Hill nursery.

INDOOR GARDEN.

SERICOGRAPHIS GHIESBREGHTIANA.

THIS ranks amongst the most useful of autumn and winter blooming plants. It is very showy, the long spikes of flowers being bright scarlet. Many grow this plant, but few grow it well. Often one sees an old cut-back plant with the leaves quite yellow, plainly denoting the condition it is in. Such plants produce only short spikes and small flowers, and these even are sparsely produced. This is to be regretted, seeing the many good qualities this plant possesses. It is highly ornamental; the spikes, which are produced from the axils of the leaves, are, on well-grown plants, from 6 inches to 8 inches long. It is highly valuable on account of its blooming during the duller months of the year, from October to February. It is very accommodating, too, adapting itself to warm conservatory treatment during the blooming period, or it may be treated as a stove plant, although here it is a shorter time in bloom; and, lastly, it is easily grown.

Culture.—Its propagation is a simple matter. Take off the tops of the shoots and insert them three in a $\frac{1}{2}$ -inch pot filled with the usual propagating soil. Plunging them in a good bottom heat, such as that in a Cucumber pit or in a stove, they may be rooted without bottom heat, but not so quickly. In three or four weeks they will be nicely rooted, when they may be gradually exposed to more air, and in a week or two they will be ready for potting off; then the old plants should be at once placed in a strong heat in a light place to furnish another batch of cuttings. The soil for this plant should consist of two parts loam, one of leaf mould or peat, one of rotten manure, and a little sand to keep it open. The first potting should be in 3-inch pots, then into $\frac{1}{2}$ -inch, and last into 6-inch or $\frac{3}{4}$ -inch, potting firmly. It is a good plan to stop them two or three times, when it will be found that they will make good plants. But the stopping must be regulated according to the time when the cuttings are rooted; they should not be stopped after midsummer. To get them well ripened should be the main object to keep in view. The best place in which to grow them is a heated pit furnished with fermenting material. During the early stages of growth they should be plunged in it close to the glass; under such circumstances they will grow fast and require no cleaning and but little syringing, the humidity from the fermenting material being highly beneficial to them. They may be kept in such a place till the beginning of August, when a cold pit kept close will suit them perfectly, as they can get abundance of light. They need but little shade, and air can be given them according to the state of the weather. By the end of September their shoots will be ripened, when the plants should be placed in a pit or house where fire-heat can be given on cold nights. They may be kept here till they come into bloom, which will be in the end of October, when they will be large plants if well managed. Much of the success depends on judiciously applying liquid manure during the growing season, as the *Sericographis* is a strong rooting subject. When the pots are well filled with roots the plants should be watered with liquid manure every alternate watering. They

are not particular what sort; we use soot water guano, or farmyard manure water; I find any of them good, but it must not be used too strong. When they come into bloom it is discontinued.

Insects are troublesome, especially when the plants are grown in the stove, but by treating them as just described they will probably escape. Scale and mealy bug are troublesome to them, also green fly when it gets established; but it will be found by laying them on their side and syringing them with paraffin in the way usually recommended it will keep them clear. For green fly we syringe with soapy water, which gives them a bright, glossy appearance.

If large specimens are wanted, when the plants have finished blooming they should be kept a little colder and somewhat dry for a week or two. When they go out of flower the shoots should be cut down to five or six good joints and then placed in a moist house or pit, giving but little water till active growth begins, which should be about the end of March or beginning of April; the soil should then be shaken from their roots, placing the plants in the same sized pots as previously and in the soil alluded to above for the last potting of young plants, not over watering till they are established; when full of roots give them their last shift, which should be the beginning of June. Treating them from this as young plants, except they will need only one stopping, which should be before the last shift, these will make grand plants. Excellent young small plants may be had by placing four or five cuttings round a $\frac{1}{2}$ -inch pot in the end of April, and growing on without stopping and not shifting into larger pots. Many of our plants were from 3 feet to 4 feet high and as much through. The temperature of the conservatory here ranges from 40° to 45° at night with 5° rise by day. It has often occurred to me that this plant would meet with a ready sale if taken in hand by market growers, as everyone who happens to see them here always admires them and asks the name of the plant.

Earnborough Grange.

JOHN CROOK.

Double white Mignonette.—This appears to bloom as well in winter as the single kinds, judging by some plants of it which I saw in the end of December at Elvetham. They were in 8½-inch pots, full of flower, deliciously sweet, and perfectly white and double. Mr. Jones has succeeded in striking it from cuttings, which root well in the autumn.—J. CROOK.

Freesias.—Seeing a note on these in last week's issue of THE GARDEN, I may say that I find refracta alba very easy to grow. Left in pots during the summer, it comes up again in renewed strength in the autumn; or if turned out and dried after dying down it does equally well on being repotted. Its perfume is so exquisite, I wonder it is not more grown than it is.—H. STUART-WORTLEY (Colonel).

Auricula Col. Champneys.—"M. R.," in writing the other day about Auriculas, mentioned this as one of the best grey edges grown. In that opinion he differs widely, I fancy, from all other Auricula growers, for it has not in my opinion one of the properties of a good Auricula. It is cup-shaped instead of flat; it has a pale watery eye; the body colour is rich, but there is too much of it, and it runs continually into the edge. "M. R." will never find it staged (unless people are very hard up) on a prize stand, nor especially amongst single specimens.—DELTA.

Coleuses for winter decoration.—Cuttings of these for this purpose should be put in in the end of July, and when rooted shifted into 3-inch pots, using pure loam with plenty of sand in it. They should be grown on in their natural form, for then they produce larger foliage than when stopped, keeping them close up to the glass and fully exposed to light. Get their pots well filled with roots before winter, for in this lies the secret of colouring them well; the more pot-bound they are the more concentrated the colours will be, and if good varieties are used few

plants are better calculated than Coleuses are to brighten up our stoves in winter.—JAMES KING, *Rowsham, Aylesbury.*

Boiler setting.—In reply to "C. C.," (p. 38,) I should say that his boiler, like many others, has been badly set. The only object which some boiler-setters appear to have in view is to make the fire roar away and burn as much fuel as possible. I have no doubt that "C. C." will find 3 inches of space between the back end of the boiler and the wall quite enough, but it will be useless to put a course of brick at the back if the rest of the boiler is not properly set. If the side flues are too wide the flame will spread and only half do the work which it should do. They should not be wider than 3 inches for a boiler 30 inches long, and the cover should not be more than 4 inches from the top of the boiler.—H. PARKER.

Spiraea Thunbergi forced.—This is one of the easiest of shrubs to force into flower, and although as a rule the blossoms do not remain long on the plant, yet if the latter be taken out of the forcing house as soon as the first flowers commence to expand they will then last some time. It is a small slender-growing species, the branches of which, clothed with small bright green linear-shaped leaves, curve over in a very graceful manner. But little preparation for forcing is necessary; the roots form a dense mass of fibres, so that the plants may be taken up, put into pots, and introduced by degrees into the forcing house without any danger of failure. The blossoms are white and bear considerable resemblance to those of the Hawthorn, but much smaller, and being thickly set on the branches are very pretty.—ALPHA.

Seedling Freesias.—Two years ago I stated in THE GARDEN that I had got possession of a quantity of Freesia bulbs direct from Capetown. These flowered with me very freely during the summer of that year and ripened a good deal of seed, which was sown in a 6-inch pot at the end of February, 1882, and placed in the stove. To my surprise almost every seed germinated, which was more than I anticipated, and my pot was crammed full of seedlings. In order to give more room I shifted about half of them into other pots, but those transplanted afterwards grew but very little, whereas those left undisturbed grew very well during last summer, and part of them flowered in the end of November and beginning of December last. More vexing still have the old bulbs behaved. After their first flowering they dried off quite naturally in autumn, and were kept dry till the end of February last, when they were potted off; then they were placed in the greenhouse. There they did not grow, and in May I removed them into a cold frame, where they stood all summer with their Grass-like growth just peeping through the soil. Since September I have kept them in a house, the temperature of which ranges from 55° to 60°. Here they soon began to push, and made Grass from 8 inches to 10 inches long, but only produced three weak flower-spikes. I noticed that Freesias enjoy sunshine, of which we had but little last autumn, and that they dislike being kept too moist until they are in full growth. This year I intend to make the growing season as long as possible, keep them at rest in their present pots, and not pot them again.—E. H.

Complete Index to "The Garden."—The general index, embracing the whole of the volumes from the commencement to the end of the twentieth, is now ready. It has been compiled, printed, and bound with much care, and will be very useful in making more accessible to all who possess the volumes the immense mass of practical gardening matter, plates, and woodcuts embodied in its pages. Those who intimated their willingness to subscribe for it will be supplied at the subscriber's price of 10s. 6d. per copy. As its production has been more expensive than was anticipated, the price has to be fixed at 12s. 6d. per copy. There will be no free copies, and no reduction to the trade on the published price.

NOTES ON HOYAS.

THE usefulness of Hoyas both as flowering plants and for clothing damp, dark walls or rafters, is well illustrated by the many ways in which the old *Hoya carnosus* is employed. This plant thrives and flowers freely in almost any position in a warm house, and generally the more neglectful the treatment the greater the yield of flowers. The waxy-looking blooms, tipped with honey drops, are always admired and much in demand for bouquets and button-holes, &c. *Hoya imperialis*, of which the annexed is a representation, is the largest flowered of the genus, and where room can be afforded it proves a glorious stove climber. It is a strong grower, with large thick leathery foliage, in the axils of which the umbels of purplish flowers are produced. A rafter or a pillar in the stove is what it delights to run along, wood or stone being most suitable, as on such substances numbers of roots are soon produced, which cling to them as the roots of Ivy would. These stem or aerial roots play some part in the nourishment of the plant, and would, if it were severed from the soil, be found to sustain the plant in full vigour if there was sufficient moisture in the atmosphere. Along with the other species *H. imperialis* is much more satisfactory grown in a pot than when planted out, as the resting this species requires during the winter months can be better managed under the former treatment. Although a strong grower, *H. imperialis* does not require much root room, though during summer it will be found a good plan to supply some liquid manure at the roots. Although not by any means a new plant, this fine Hoya is not often met with. It flowered at Glasnevin last year, and from specimens sent by Mr. Moore the annexed illustration was prepared.

A delicate and very attractive flowered kind is *H. campanulata*, of which a small figure was printed in *THE GARDEN* two years ago. It is a thin, papery-leaved species, graceful even in habit, and a really excellent plant for pot culture. The flowers are cream coloured, with a few rosy dots on the corona, and, as has been before remarked, "look as if a breath of warm air would melt them." A plant of this species is grown in one of the stoves at Kew, and is nearly always in flower during the summer months. The pretty kinds *Hoya bella* and *H. Paxtoni* are not very different from each other, though, perhaps, distinct enough for garden purposes. Grown in pots or baskets suspended from the roof of the stove, these plants prove very attractive, and generally thrive under such treatment. A frequent cause of failure with these kinds is too much root space and too much moisture. A sandy peat soil, with a little charcoal mixed with it, is the best mixture for these plants, and for water, sufficient to keep moist, not more, is all they require. *Hoya globulosa* is one of the Cranston Nursery Company's new introductions, and a handsome species it is. The leaves are leathery and about the size and shape of the common Laurel leaf. The large globular heads of pale yellow flowers, which are freely produced from the axils of the leaves, are likely to prove useful in bouquet and button-hole making. Some of these Hoyas make handsome specimens when trained on a balloon

trellis. They are, however, so amenable to culture, that one can use them in a variety of ways, and always find them satisfactory. For the production of flowers abundance of atmospheric moisture is necessary during the summer season when these plants bloom. During winter a long rest is advisable, and any long, straggling shoots may be cut away, which will induce the plants to break freely, and on these young growths the bulk of the flowers are produced.

B.

spread out in the new soil in the way practised with free-rooting soft-wooded plants. By this operation quantities of the best and most important feeding fibres are bruised and mutilated to an extent that is the direct cause of death to a considerable percentage of the plants so treated, and leaves others for weeks or months struggling to repair the loss they have suffered, so that the summer is frequently half over before the roots are in a condition to sustain top

growth to the extent requisite. What is understood amongst gardeners as disrooting, when applied to hard-wooded plants, is a considerable reduction of the balls of those that have attained a large size, and have to such an extent filled with their roots the soil already within their reach as to need more, and which addition can only be effected by giving them larger pots, or removing a portion of the soil they already possess and replacing it with new. The latter course is frequently preferable, particularly when the pots occupied are large, or it is deemed advisable to restrict both the roots and heads of the plants within certain limits. When this object was to be attained, the course that generally used to be followed was to work away a good portion of the outsides of the balls with a pointed stick, skewer, or something of a like description, the operation thus performed necessarily leaving the remaining portion of the roots in a jagged, bruised state, the effect of which is that many of them die back for a considerable distance, frequently some of the strongest up to the collar from whence they spring, hence the injurious effects often amounting to destruction in plants so treated.

The removal of a good portion of roots from any plant cannot fail to have an effect more or less according to the strength and vigour natural to the plant and its ability to form new feeding fibres to supply the place of those of which it has been deprived; and it is found that if such portion of the ball and roots as have to be removed are cut clean away there is much less liability in the remaining portion to die back in the way described, and also that new fibres are much more freely formed from roots that have been shortened by a clean cut than others which are torn asunder. This accords with the accepted theory bearing upon root severance generally, and is supported by results following the practice as here described. The best implement I have found for the work is a piece of old scythe blade with the back rim removed, giving it an edge by rubbing up frequently with an ordinary scythe-

stone, so that it will shave off clean as much of the soil and roots as are deemed necessary; the extent to which I have found it safe to reduce the soil and roots of such plants as under consideration is from one-fourth to a third. Cape Heaths are looked upon as amongst the most delicate-rooted subjects in cultivation, and correctly so; yet if the operation is carried out at the right time and the after treatment is right, even when the plants have reached a large specimen size, few will fail to get well over it; whereas if the work was done by the tearing process, probably not one in a score would survive. Few plants bear being thus treated better than Azaleas, and there are not many things which it is often so convenient to thus treat, as they frequently live and grow on until the pot room required makes them cumbersome to move about. Acacias, Cytisus,



Flower and leaf of *Hoya imperialis*.

DISROOTING HARD-WOODED PLANTS.

THIS operation has been occasionally noticed during recent years in different gardening papers, but the practice, like many others not generally adopted, appears to be followed by only a very few cultivators. In using the term disrooting, I do not allude to a partial reduction of the roots of hard-wooded plants at the time of potting such as is usually carried out with many soft-wooded subjects—for instance, Pelargoniums at their annual potting when they have broken subsequent to cutting back after the blooming is over. Neither do I mean an interference with the young roots that at the time of potting in healthy, thriving young stock, or young specimens of hard-wooded plants are usually found encircling the ball of earth they already occupy, and which at one time it was thought necessary to disentangle and

Cassia corymbosa, *Clanthus puniceus*, *Habrothamnus elegans*, *Correas*, *Kennedya*s, *Statice*s, *Neriums*, *Myrtles*, *Swainsonias*, and others of similar character amongst those usually grown as decorative plants, and in such as are less generally cultivated, *Pimeleas*, *Croweas*, *Pleromas*, *Polygalas*, the red varieties of *Leschenaultia*, *Hoveas*, *Eriostemons*, *Chorozemas*, and *Adenandras* will bear their roots cutting back in this way. There is

One thing of vital importance connected with the matter which is that the operation is carried out at the right time. Anyone conversant with plant cultivation will easily understand that if the roots of such things as the above-named were interfered with to the extent here detailed at a season when they would not at once commence the recuperative process, they would be all but sure to die; consequently the time to carry out the operation is just when active growth is about to commence, and immediately the work is done the plants should be placed in a house or pit, kept close, with a slightly moist atmosphere, and if the time of the year or the weather is not such as to afford an intermediate temperature, it should be raised to this by fire-heat. In addition to this shade ought to be used when the sun is bright, as if air is given to any considerable extent for some four or five weeks, or until so long as it takes to admit of new feeding fibres being formed, the drying influences cannot fail to be such as to endanger their flagging, the result of which at the least would be some loss of leaves, or not unlikely the destruction of the plants. It is also necessary to see that plants which are to be subjected to this treatment have the soil within the pots they already occupy sufficiently moistened before the operation is carried out, so that as much time as possible may be allowed afterwards before it is necessary to water them beyond sprinkling overhead daily with the syringe. In other matters they simply require treating in a similar way as if they had been ordinarily potted, gradually allowing them more air when enough time has elapsed for the production of new roots. Those who have not tried this method of renewing the roots of such hard-wooded plants as I have named would be surprised at the vigorous growth they make, particularly the second season. T. B.

SOIL FOR EUCHARIS AMAZONICA.

IF "J. W." will try good fibrous loam and leaf soil, three parts of the former to one of the latter, and add to it a fair proportion of silver sand, he ought not to experience any difficulty in flowering this plant, other things being equal. In cases where the loam is not of a fibrous character it is a good plan to reduce the quantity by one quarter, and substitute good peat, and I may say that plants of this kind do not object to a bit of rotten manure being mixed with the compost, although they will grow well without it. Referring to "J. W.'s" other statements, I should say his plants do not want repotting, and if they have been growing for the last four months in a regular stove temperature, they will be more likely to flower sooner if placed in another structure where the temperature ranges from 45° at night to 55° by day and the supply of water considerably reduced, but he must not err on the side of giving them too little water; just enough to keep the leaves from flagging is all they require whilst at rest. If this treatment is continued from eight to ten weeks, and the plants taken to the stove again and plunged in bottom heat, they will most likely flower. If they do not flower by the end of April, they should be shaken out of the old soil, the bulbs divided into two sizes, large and small, and then each size potted separately, as it is the largest which will flower first. Every bulb must be well grown and matured and of a reasonable size before it has strength enough to flower. I find in dealing with this plant that it is desirable to change the soil in which it grows once a year. In order to do this we set apart two or three plants to be repotted at different times during the early spring and summer; every bit of the old soil is

shaken away from the roots, which are then repotted in two sizes. They are at once plunged in bottom heat, and as the roots increase the amount of water is more liberally supplied. Under this treatment most of our large bulbs flower twice a year. J. C. C.

FLOWER GARDEN.

HYBRIDS OF GLADIOLUS GANDAVENSIS.

As regards these hybrids, I prefer the word failure to disease, as I am not at all certain when a corm fails, or rots, or does neither, but simply remains sound in the ground for some time without showing that there is disease at all. I have very few failures to record, and these were, I agree with your correspondent, among the most "highly bred," and, as a consequence, the most expensive. However, I found a remedy in all but two cases of those "certificated seedlings," and this is what I did. My rare and expensive corms are generally separately planted, and receive special attention. When I did not see foliage bursting upwards as usual, I examined at once, and very soon ascertained that Sir Stafford Northcote was not disposed to move. After a further trial I took up the corm, potted it in a small-sized pot, and put it on the shelf of a plant pit. Here, after some hesitation, it commenced growing, and now promises to give me a bloom—of a novelty too—when I shall be thinking of planting my ordinary stock. I tried another of Mr. Kelway's (*Agrius*) in the same way, and with equally satisfactory results. I beg to commend this remedy for valuable Gladioli that you do not want to lose in such a case. That I have had failures, inexplicable failures, I freely confess. I have lost several *Shakespeareas*, but generally get enough to keep up the stock from spawn. I am afraid I have finally lost *Armide*, *Madame Desporte*, and indeed, with some exceptions, white-tinted seem with me unusually liable to get lost, I can hardly say decayed. But what of a fractional loss of this kind? My stock increases from year to year without, as a rule, waiting for increase from either seed or spawn. No doubt there are some old ones parted from with regret, and that if I had time and patience I might be inclined to nurse the spawn of or save seed from, a thing not always possible by the most careful fertilisation, but there are thousands of seedlings raised every year many as a rule superior to anything gone before, and though the finer kinds, especially "certificated seedlings," are somewhat expensive at first, the humblest can add to their stock by purchase from year to year. But, "what," I may be asked, "if there is a general failure, like Mr. Banks, of Shelden Lodge, near Deal, losing 50,000 in two years?" At first this seems to stun the ordinary grower, especially the inference drawn by "Delta." He says, "if Mr. Banks got a good seedling"—alluding probably to Mr. Douglas's advice to increase, and perpetuate your stock by raising seedlings—"he could not keep it; therefore the recommendation to grow seedlings is worth very little." This conclusion is not of course at all warranted.

Success last year.—Time prevented my reaching as far as Langport, Somerset, last autumn, so I cannot personally speak of Mr. Kelway's 20 acres of Gladioli, but I have a letter before me now from a gentleman who saw them, and speaks in unqualified glowing terms of last year's success there. That firm may, through your columns, be able to contrast last year with previous years. As to what I have myself seen it would be hard to imagine anything finer than the brilliant stands shown at the autumn Royal Horticultural Show in Dublin. The spikes, especially in the prize stands, were unusually large and gorgeously coloured. Lastly, as to my own experience, my losses were unimportant comparatively, while the blooms gave me immense satisfaction. The editor favourably noticed a box I sent to THE GARDEN, and if this catches the eye of the curator of Trinity College Gardens, Dublin, he will possibly remember similarly the pleasure he also expressed at seeing my blooms. Those

who grow the Gladiolus never know when to stop when referring to it, so as the season to think of growing it is coming round—I commence putting in some of the hardier kinds always in February—I may fitly conclude by briefly recapitulating how I manage to attain fair success and enjoy much real satisfaction with my limited collection. I must, however, at once premise, as with that fascinating flower, the *Auricula*, there are "rocks and dangers of many kinds in the way," and if there were not, to my mind, Gladiolus culture would lose half its charm.

Storing the corms.—This is a matter of consideration at present, so I take it first. My stock is divided into named and unnamed. The first is situated on a board floor, in a back dry room, where the temperature has not fallen below 40° Fahr., standing upright, with their stems attached, exactly as they left the ground last October and November. Some that had flowered early were taken up in September. I never let the stem rot off—one of the reasons is that the rot may continue downwards to the corm; but a better reason, for my convenience, is that to each corm—and in many cases one becomes three—with its attached spawn I closely tie the wooden labels. I could not tie them to the stems if I allowed them to wither and rot off. This tying and labelling and partial drying on a sunny day being done in the late autumn, my stock is placed as indicated, each corm resting separately on the boards, on which a layer of moist river sand has been previously strewed. Then the whole are covered all around and above with this same sand. They gradually and slowly dry out here; and I am satisfied, from close observation, that it is in this manner the fulfilment or finishing of the summer's—perhaps sunless—maturation is completed. I never lose one during winter by this method, and they turn out as clean and as hard as bullets at planting time or whenever examined. I do not agree with those who cut off the stems, or, what is worse, wring them off at storing. But I must not go further into details of storing now.

Soil, manure, and planting.—Mr. Douglas suggests preparation of the soil and manuring in autumn. Our climate is so moist that the heavy rains would possibly carry the greater portion of the soluble organic feeding material long beyond the reach of the young fibrous roots when they want it most—on commencing to grow—if this system was followed, with perhaps the single exception of retentive clay, on which I should not like to try the Gladiolus at all. However, the borders where I grow my limited stock are full of bulbs and perennials, which I could not think of disturbing, so I manure and prepare in this way: I dig a large hole, say 18 inches deep or more, and put in it a quantity of good rotten stable manure (that from a plant pit mixed with leaves of twelve months before is desirable), but whenever I had not this I tried fresh stable short manure or old cow manure without any injurious results. But this must be remembered, I never put the corm on the manure; that is, covered with clay or 6 inches of mould, and then two handfuls of sand under the corm, and two more over it. I have much faith in the silicates absorbed by the young rootlets to give firmness and stamina to both foliage and corms. If I plant early I plant nearly 6 inches from the surface, to prevent injury from late frosts, but I lean to planting near the surface. I would plant on the surface of the soil for the sake of the ripening and maturation, but that the wind would ruin them. I believe one of the secrets of failure is deep planting and want of proper ripening of the foliage, and consequent non-ripening of the corms. I give them plenty of liquid manure, and have had twenty-two flowers to one spike, often three spikes on one stem. As to varieties, improvements are made every year; and as to soil, with the exception made, any will deserve trial.

Clonmel.

W. J. M.

Chrysanthemum pollen.—Can any correspondent inform me whether it is possible to procure pollen from the *Incurved* or Japanese *Chrysanthemums* in this country?—T. K.

BEDDING FORMS OF TAGETES.

THE pretty dwarf Tagetes, of which the annexed is an illustration, is a new variety that owes its existence to that unceasing care in selection which characterises the management of Messrs. Carter's extensive seed farms at Dedham, where it has been largely grown. There is nothing specially striking in the individual flowers, which are small and insignificant, but the decorative charm or effect of the variety is found not only in its dwarfness, but in the wondrous abundance with which the flowers are produced. The colour, too—a bright orange—gives a hue that is singularly striking either in lines or in masses, and, allied to the ease and cheapness with which the plants can be raised, renders it at once one of the most popular and effective of bedding plants. It is the glory of all the tender Marigolds, all members of the Tagetes family, that once beginning to flower, cease not to produce bloom incessantly until frost finally destroys it. It is this feature which makes the single-flowered forms of *Tagetes pumila* so effective. They are certain



New Marigold, Golden Ring.

from the first to bloom continuously, and, if of a well-selected strain, to preserve the much desired uniformity of height. In spite of this well known flowering quality, however, we find some of the dwarfier Tagetes used with admirable effect as foliage plants, the pretty and elegantly-cut leafage proving useful in furnishing green carpets for taller plants. Rich soil helps to produce an excess of leafage, because the Tagetes, and indeed all the Marigold family, prefer soil that is poor rather than rich, as that is conducive to bloom. Of the double-flowered varieties *patula nana* is perhaps the best, and it is grown largely in northern districts, where outdoor tender flowers are necessarily short-lived. In common parlance all the best known of the Tagetes family are called Marigolds, and thus we hear of Africans, tall and giant flowered, and of French kinds, dwarf and variously flowered, but none know them ordinarily by their botanical appellations. It would be hardly fair to these fine double varieties to class them with the single if abundantly flowered bedding Tagetes, because the Marigold is a florist's flower, and displays in a very marked degree the improvement which the florists have made on what, like the bedding Tagetes of the illustration, must once have been very poor single flowers. This feature is in no flower perhaps more marked than in the huge yellow and orange African varieties, as in these the petals are indeed wonderfully dense and al-

most countless. As the finest double strains still, and probably always will, give us some single flowers, we can, without leaving it to the imagination, gain a pretty exact idea of what is the difference between a single and double flower of the African Marigold. Probably no plant grown shows this difference more forcibly. Further still, perhaps no double flower presents a more marked contrast to the single form, which is by reason of the comparison rendered weedy and insignificant. Let the rage for single flowers become ever so furious, we shall never see single African Marigold blooms preferred to the grand double ones, and which all who see them, especially in the cool autumn, so much admire. Probably few gardeners, even though ever so enthusiastic for the gaudy yellow hue, have yet planted a big bed of African Marigolds. It is worth a trial, especially if in a position where the wind does not play too fiercely. The effect of a big mass of glorious yellows in diverse shades seen in the dull autumn evenings amidst a setting of heavy greens, would be such as to make the æsthetic re-

joice, and the gardener who was so bold to determine to go and try again. The striped French Marigold has furnished the most popular of the family for the florist, and it must be admitted that of double flowers few can excel a really good specimen in form, fulness, or in perfection of markings. From the best strain ever grown there will not always come perfectly marked flowers, for the striping is always somewhat erratic; but some flowers will be as finely striped as possibly can be, and will be of good double form. The florist still prefers for the production of his exhibition flowers the tall and most rambling habited strain, but for all general purposes, and specially for pot culture or bedding or for ordinary decorative uses, the dwarf or compact-habited varieties are best, and of these some produce handsomely striped, others rich chestnut, others clear yellow or orange flowers, and so on, and the amount of variety very much enhances the beauty found in plants that are so wondrously floriferous. A. D.

Lawn weeds.—In reply to the query (p. 32) as to the eradication of Daisies and Plantains on lawns, allow me to say that my gardener has adopted the following with great success, but as a matter of course the means adopted cause much trouble, yet I consider the good done amply repays him. A man in the first place stretches a line across the lawn, and then goes over the inter-

mediate space with a sharp knife, cutting off the top of each plant until the white root shows itself; he has then placed in his hand a lemonade bottle with a wire fixed round the top to hold it by, and into the bottle, having previously placed in it some oil of vitriol or sulphuric acid, he dips a stout piece of wire and draws out two or three drops of the vitriol, which he places on the top of the root and kills it; it never comes up again, neither does it break out in any way from the bottom. I have tried the lawn sand, which is very effective, but it leaves a large bare patch of earth which takes some months to recover itself. The operation should be performed in the early spring when the ground is hard and dry.—H. J. BUCHAN, *Wilton House, Southampton.*

SINGLE ANEMONES.

A CORRESPONDENT, I observe, states that these Anemones prefer light, sandy soil. Now, I have a large bed containing several hundreds of these plants in full growth and flowering freely even in the winter, and yet they are in quite a stiff loam; in fact, at this time of the year so tight and sticky is it that it more fully merits the designation of clay. I very much doubt whether the plants could do better in any soil however light or sandy it may be; and, indeed, other roots in another part of the ground, where it is both warm and the soil is light and gritty, are not nearly so early, scarce showing a single flower. I think a fact like this is worth mentioning, because many may be deterred from growing one of the most beautiful of hardy spring flowers because their soil is stiff, and they fear the plants would not thrive in it. If I could cover up the whole of my bed with glass I could have at any time a beautiful lot of bloom, but when we get heavy fogs and white frosts, alternating with rain, it is difficult for any out-door flowers to look fresh and pleasing. Still the determined way in which these Anemone blooms come up even in bad weather is remarkable. Nothing but really hard frost seems to check them, and as soon as that is past and the air becomes soft and mild the rebound is great, and the blooms again expand rapidly. I lifted a few roots a week since and put them under glass. All had flowers in the bud state, and I have just been enabled to gather a handful of lovely expanded blooms of the most brilliant colours, all of which will keep well in a cool room for a couple of weeks, for being once expanded they do not, when cut, again close. In the open air there is no fear that they will open too rapidly, but if placed in a house or frame which has a south aspect, the blooms will often, when the sun shines out, open rather more rapidly than is desirable; in fact broadly expand before they are fully developed. To have the blooms in winter at their best, however, it is advisable to plant in a low frame, and in good rich soil that will nourish not only fine blooms, but large handsome leafage. This latter feature of the Anemone is worthy of special notice, because it is so handsomely cut, and only just inferior to Fern fronds for the dressing of flowers in vases. Dry roots should be purchased early and planted at once, as the drying of the roots no doubt gives material check; there is absolutely no reason why the roots should be lifted and dried, provided during the hot summer months they are sheltered with either a dressing of Cocoa fibre refuse, leaf soil, or well rotted manure. I, however, have given my bed no such protection; in fact the roots simply shifted for themselves during the summer, being only kept free from weeds. I prefer transplanting at the end of September, when some growth has been made to doing so earlier, as not only are the roots the more easily found, but, being full of growth, they the sooner root into the new soil and become established. Raising Anemones from seed is simple, and may be done with perfect success by the merest tyro. April, if under glass, and May, if out-doors, are the best months in which to sow seed. If under glass, then sow in shallow pans or boxes and in light sandy soil, first rubbing up and disintegrating the seed with

sand. Just bury the seed, water freely, and shade lightly from sunshine until it has grown. In the open ground sow in very fine sandy soil, cover thinly, pat it down gently with a spade, and water, then shade for a week or two with calico or newspaper till the seedlings are well up. A. D.

ARRANGING HERBACEOUS PLANTS.

"PEREGRINE" has not caught my meaning as regards herbaceous plants. Tall plants can rarely be planted so that their flowers come in 'solid masses close together, and so long as their flowers appear as patches of bright colour on a neutral or broken background, and do not touch each other, it does not matter whether the colours of the flowers harmonise or not. We can also have a long line of Phloxes, or of Carnations, or of Roses, or groups of these which will all harmonise, because they are all of related shades; even the yellows will not discord if we plant them beside white or the very dark crimsons. But the case is quite otherwise when we come to dwarf plants which produce their flowers in masses. Red Anemones, blue Gentianellas, and yellow Alyssums are just as discordant as red Pelargoniums, blue Lobelias, and yellow Calceolarias. We can avoid discords by separating our flowering plants by those out of bloom, but then we avoid harmonies as well, and there is no better reason why our gardens should consist of a series of solos than our music. We can have solos if we choose, but we can also have beautiful harmonies, and ones which will change with the seasons instead of being always the same, as with bedding plants. We must bear in mind, however, that the arrangement of the colours in a garden presents no real difficulty; what people who can colour have to do is to place those colours together which look well together; even where a doubt exists, the fact of the colours improving each other when placed together will settle the matter in a moment. That is how everybody who has to deal with colour from artists downwards proceeds. If you think two colours will look well together, try them; if they do not look well, try something else. All that even the best colourist can do is to name a few combinations which do harmonise and others which do not. Those who do not enjoy colour should leave the matter to those who do. Rules are only useful to those who have gone wrong and do not know how to get right again. Even for these it is only necessary to keep rid of the discordant combinations already indicated and follow the rules of good colour art, and they will soon learn to arrange their colours properly. What we grow brightly coloured flowers for is their colour, and surely any trouble is well taken which will enable us to arrange these colours so that they will improve instead of injure each other. For arrangements of cut flowers a knowledge of colour harmony can scarcely be dispensed with.—J. D.

Lilium pomponium (verum).—"P." (p. 33) speaks of this as a Lily easily grown and increased. This is not my experience of it; for though it generally flowers well the first year and fairly the second after importation, still it goes "all one way," as they say in Cheshire, and disappears in three or four years. "P.'s" descriptions are so correct that I do not suspect him, as I have done others who mention this Lily, of mistaking *L. pyrenaicum rubrum* for it; but if he or anyone else in England has grown it continuously in the same spot for ten years, I should be interested to know what are the soil and situation. *L. pomponium* was cultivated in the last century, but had nearly disappeared when Mr. G. Maw reintroduced it from the Maritime Alps, its chief habitat, about twenty years ago. Since that time it has been imported in considerable numbers every year; but those with whom I have compared notes have for the most part found it difficult to establish permanently and to increase. This is to be regretted, as it is the brightest scarlet in colour of any of the Lilies, and is less liable to have its flowering injured by late frosts than *L. chalcidonicum*, though, as stated by "P.," it flowers earlier. I have had fine bulbs of the true pom-

ponium several times from Mr. Ware, and one flowering is worth the price paid; but I should like to be told how the bulb could be persuaded to increase, and I may say the same of *L. Browni*.—C. WOLLEY DOD, *Edge Hall*.

GARDEN FLORA.

PLATE CCCLXXII.

HYBRID LADY'S SLIPPERS.

(With coloured plate of *Cypripedium Morganæ*.)

OF all Orchids none have lent themselves so kindly to the hybridiser's influence as the *Cypripediums*; of all hybrid Orchids their growth is most rapid and robust, and the result is that we now scarcely note their advent, albeit that every year brings us many novelties in this way. At the present time we have possibly fifty hybrids in cultivation, and three times that number are at the present moment existing as unbloomed seedlings in our gardens. The annexed plate represents one of the best of recent varieties, which has been named in compliment to Mrs. Charles Morgan, of New York, a lady amateur especially fond of plants and their culture, and the present plant and Mr. Taplin's hybrid *Nepenthes Morganæ* will long serve to commemorate her name in European gardens. Mr. Moon's beautiful plate renders a merely wordy description of *C. Morganæ* quite unnecessary, except so far as the facts of its parentage are concerned. *Cypripedium Morganæ* was raised by John Seden, at the Royal Exotic Nursery of Messrs. Veitch & Son, at Chelsea, a year or two ago, its parents being *C. Veitchi* (superbiens) and *C. Stonei*. After all one need not feel much surprise that two such noble parents should have produced so beautiful a hybrid, one of the best of the series to which it belongs. Ever since Mr. Dominy raised *Cypripedium Harrisianum* scarcely a year has passed without one or more seedlings making their appearance from the Chelsea Nursery, and of late years Mr. Seden has been most industrious in adding variety after variety to the already long list of novelties in this way. Other cultivators have also been successful in the same field. Thus Mr. Cross, when gardener at Melchet Court, gave us *C. Ashburtoniæ* and *C. Crossianum*. Both varieties came from the same seed-pod, and *C. Ashburtoniæ* especially shows much variety in leafage and some little variation in blossom also, so that I infer that many individuals of it were raised. *C. Ainsworthi* came as a reward to the hybridisation experiments of Mr. Mitchell, who has long had charge of Dr. Ainsworth's collection at Cliffe Point, Lower Broughton, near Manchester, whose *Dendrobium Ainsworthi* is one of the finest of all the hybrid Dendrobes, and remarkable as having been reproduced or nearly so both by Mr. Seden (*D. splendidissimum*) and Mr. Swan (*D. Leachianum*), its parents being *D. nobile* and *D. heterocarpum*. Again, Mr. Swan, of Fallowfield, near Manchester, raised *C. Swanianum* as the result of a cross between *C. barbatum* and *C. Dayanum*; and Mr. J. C. Bowring, of the Forest Farm, Windsor Forest, produced at least three hybrid variations of the genus, known as *C. conchiferum*, *C. gemmiferum*, and *C. stenophyllum*.

* Drawn from a plant in Messrs. Veitch's nursery, Chelsea, in July last.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.

Of the parentage of the last named I find no record, although I came across an interesting note as to its branched flower-spike showing the remains of thirty flowers.

Mr. R. Warner has raised also quite a series of hybrid Lady's Slippers, and it is a great misfortune that their parentage is hidden in obscurity. Judging from their foliage, however, *C. venustum* would appear in some cases to have been one of the parent species employed. On glancing through my "*Cypripedium*" notes I find that there are about sixty known species, most of them being in cultivation, so that of species and hybrids we have over a hundred kinds at present in our gardens. Who has a full collection of them? What a fine monograph a complete collection of Slipper plants would make if one could find a publisher, even if it were executed a little less sumptuously than the "*Orchids of Mexico and Guatemala*," or the "*Monograph of Odontoglossum*." I heard some whisper once of an amateur's intention to form a full collection of "all the *Cypripediums*," with the intention of publishing a monograph. If this should catch his eye, and he has a more complete collection than, for example, let us say, that of Mr. Harry J. Veitch, at Chelsea, I shall hope one fine day to receive an invitation to go and see his plants, and he may expect to see me arrive with an armful of MS. papers and sketches and lists of *Cypripedes*, all in a state of chaos; but if the whisper be a true one, I venture to think that they will have more of interest for him than anyone else whom I know at present. What a boon to posterity it would be if amateurs, while growing a little of everything such as pleases them, would but grow all of the genus they love best, and leave us, or those who come after us, a record, pictorial and descriptive, of their favourite flowers. For full information as to the species of *Cypripedium*, with references to culture, propagation, native countries, and figures, see *THE GARDEN*, Vol. VI., pp. 43 and 67; also *THE GARDEN*, Vol. IX., p. 524. The following list of all the hybrid Lady's Slippers of which I can find records to hand at present may be of interest and even of use to those fond of these plants:—

HYBRID AND SEEDLING LADY'S SLIPPERS.

Hybrids.	Parent species.
1 Domini	Pearcei × caudatum
2 Harrisianum	barbatum × villosum
3 vexillarium	barbatum × Fairrieanum
4 calophyllum	barbatum × venustum
5 Sedeni	Schlimi × longifolium
6 patens	barbatum × Hookeri
7 selligerum	barbatum × levigatum
8 euryandrum	barbatum × Stonei
9 major	barbatum × levigatum
10 microchilum	neveum × Druryi
11 enanthum	Harrisianum × insigne Maulei
12 superciliale	barbatum × Veitchi
13 marmorophyllum	Hookeri × barbatum
14 alhopurpureum	Schlimi × Domini
15 porphyreum	Roezli × Schlimi
16 calanthum	barbatum var biflorum × Lowi
17 pycnopterum	barbatum × Lowi
18 Morganæ	Veitchi × Stonei
19 calurum	longifolium × Sedeni
20 lucidum	villosum × Lowi
21 grande	Roezli × caudatum
22 Ashburtoniæ	barbatum × insigne
23 Crossianum	barbatum × insigne
24 Ainsworthi	Sedeni × Roezli
25 Swanianum	Dayanum × barbatum
26 conchiferum	Pearcei × Roezli
27 gemmiferum	Hookeri × purpuratum
28 stenophyllum	
29 discolor	
30 Williamsianum	
31 melior	
32 chloroneurum	
33 politum	
34 melanophthalmum	

* *C. Harrisianum* is interesting, as being named in compliment to Dr. Harris, of Exeter, the gentleman who first inspired Mr. Dominy with a desire to accomplish the hybridisation of orchidaceous plants.



CYPRIPEDIUM MORGANIANUM.

This list of thirty-four varieties is not offered as a complete catalogue of all the hybrid *Cypripediums* known, but simply as showing approximately their number and parentage. When I try to recollect, it is simply astonishing to find how few of these magnificent hybrids have been figured in colour; and in the present state of our knowledge I need not say that mere descriptions in words do not conjure up before the mind's eye any true likeness of the plants themselves. Lindley's test-proof of a good botanical description was that from it an artist should be able to portray the plant described. Alas! one might count on the fingers of one hand the artists who can with any degree of exactness draw a plant, even if it be placed before them.

It is interesting to find that some of these hybrids enumerated above are fertile even in the second generation. Of those which have been proved in this way are *C. Harrisianum*, *C. Domini*, and *C. Sedeni*, all of which have been made to intermarry again with pure species—*C. Ainsworthi*, *C. calurum*, and *C. albobupureum* being the resulting offspring.

It would be very interesting to know what the self-fertilised seeds of some of these hybrids would produce if tested, a point which, so far as I know, has never been experimented upon. Again, I should like Baron Schröder, or his gardener, to raise us a few hybrids from his wonderful variety of *C. Stonei*, yecept *platytanum*. "But who would be so ridiculous as to risk such a valuable plant?" whispers a cautious friend. No; I had thought of all that also. I would not suggest that *C. platytanum* be utilised as the seed parent, but no possible harm could come to the plant by its pollen being used to fertilise a less valuable species as a seed-bearer. Nearly all our evidence points to the prepotence of the male parents in hybridising, and this seems to me a good opening for a "new departure," so far as long-petalled *Cypripedes* are concerned. These hybrid *Cypripedes* open up a wide field of thought. Thus Mr. Seden told me long ago that when he crossed *C. Schlimi* and *C. longifolium* he also reversed the cross, thus making both parents alike pollen and seed parents, and yet the seeds gathered from either parent gave as results two batches of *C. Sedeni*, which to all appearance were identical. Now and then some variety appears among a batch of seedlings, but so far as I can learn this is not so common among Lady's Slippers as among plants of other genera. For example, take the five varieties of *Cattleya Fausta*, all from the same seed-pod. Yet we chroniclers may not know everything; perhaps it is better we should not. At any rate I have no doubt that Mr. Harry Veitch could open our eyes a little, for when one considers the quality of all the hybrids which come from Chelsea there arises a question as to whether some judicious selection is not practised. Be this as it may, these Chelsea hybrids are certainly among the most marvellous floral productions of our time.

F. W. BURBIDGE.

Dutch bulbs.—Last year I had my bulbs from a firm in Holland. They appeared very fine ones. I put the Hyacinths and Narcissus in pots, and they have filled them with good roots, but that is all. There does not appear to be any flower in them; such a miserable lot I never saw, and there are no signs of improvement. Can any of your readers tell me the cause? I have given them the best of cultivation.—J. S.

NEW PLANTS OF 1882.

THE year which has just been brought to a close must rank amongst the most fertile in the production of meritorious novelties; some of them have been imported at great risk and expense from distant parts of the world, but a great many of them are the results of successful hybridism. Whichever way we look there are signs of unmistakable improvement having been made in all classes of florist's flowers, as, for instance, in the once neglected, yet beautiful

Auricula, of which no fewer than eighteen received first honours last year. They are mostly due to the exertions of Messrs. Douglas, Turner, and Horner, who well deserve the congratulations of all interested in the regeneration of that attractive family for bringing out such a beautiful variety as *A. Agamemnon*, whose flowers are edged with bright green, with a slight beading of meal on the margin; body colour dark and well defined, dense white solid paste and golden tube, with very fine pip and truss; the delightful *A. Amazon*, with bright golden centre, and a maroon base to the marginal colour, edged with bright rosy cerise; or the equally pretty *A. Bluebell*, which, besides bearing very attractive flowers of a bright violet-purple colour, good paste, large pips, and excellent truss, possesses also a very handsome mealed foliage. Quite as remarkable is *A. Jumbo*, with edge clear, distinct, and of a lively green, body colour claret-black, good white paste and medium tube; and, finally, in *A. Brunette* we have a strong grower, with handsome mealed foliage and superb flower, having a broad and well defined black margin, good paste, and pale tube—indeed, a totally distinct and meritorious new variety.

In *Azalea pontica narcisiflora* we have also an exceedingly handsome variety having double flowers like those of some of the *Narcissi*, pure rich yellow and delightfully scented; whilst *A. rubiflora* fl.-pl., an introduction from Japan, has proved an attractive shrub which produces a profusion of double rosette-like blossoms some 3 inches across of a deep rose-pink colour. Hybrid *Azaleas* are not numerous, but the quality in *Azalea* Mr. F. Cobert makes up for any deficiency in quantity. This beautiful variety produces medium-sized flowers which are borne profusely on small plants; they are semi-double and of a glowing carmine crimson colour. The richly coloured

Begonias, although of comparatively recent introduction, have been already and are still being so vastly improved, that it is very difficult to say where we are likely to stop, as the new generations, the outcome of the imported plants, are so very unlike their parents, that they do not bear any resemblance to them; for instance, where is there any family likeness between the old-fashioned, although much, respected *B. boliviensis* of fifteen years ago and the truly gorgeous double-flowered varieties of the present day, which only a few years since used to be compared with enthusiastic pride by their raisers to *Gardenia* flowers for size as well as for perfection of shape? Now those are considered poor, small specimens when by the side of the last Continental acquisitions, specially the varieties brought out by Mons. Crousse, of Nancy, which may be fairly compared and without exaggeration as to size or form with good *Camellia* flowers, whilst in colours they are much more prolific than even that favourite and popular class of plants, as amongst those double flowered *Begonias* are to be found not only all the intermediate tints between pure white and the most intense deep crimson, but also all the shades between the pale sulphur colour and the darkest orange. But the newcomers amongst the single-flowered section raised here and exhibited mostly by Messrs. Laing are not to be despised; far from it. For instance, *Begonia* Arthur G. Soames, one of the finest among the singles, has perfect flowers of large size, fine form, very good substance, and of an intensely deep crimson. The charming *Begonia* Ball of Fire is a remarkably fine variety, producing its large

finely-shaped flowers of a vivid scarlet-velvet colour plentifully on small plants. In *Begonia* Madame Stella we have one of the finest of new single sorts with large and finely-shaped flowers of a glowing rich scarlet; while among the several very meritorious forms raised at Chiswick we may particularly mention the very distinct and showy variety Thomas Moore, free in growth and flowering, producing flowers of medium size of very fine rounded form and pale rosy scarlet colour, and also the vigorous habited and highly decorative *Begonia* A. F. Barron, whose perfectly formed flowers are very large and of a brilliant vermilion-crimson.

The Carnation, also a plant which had been rather neglected of late, and towards which much more sympathy is shown now, equally comes in for its share of novelties, the best of them being *C. Charles Page*, a perpetual flowering variety, remarkable for its profusion of blossoms, which form rosettes of the richest deep crimson; a very free bloomer of the tree section, named William Howard, having large flowers of a globular form, and of a brilliant cherry colour. *C. Mary Morris* proves a border variety of vigorous growth, highly recommendable, for its flowers are large and full, the petals being of good substance, and of a very pure bright, lovely rose-pink. Finally, *C. Florence*, with its large and perfect flowers of a nankeen-yellow colour, a peculiar tint even among Carnations, will keep its place as an excellent bedding variety. Half-a-dozen or so of new *Chrysanthemums* have also made their appearance; prominent among them is *C. la Petite Marie*, whose flowers, produced in great abundance, are about 1½ inches across, and pure white. It is one of the early or summer-flowering race, and is remarkable principally for its extremely dwarf growth and free-flowering habit; then comes *C. Crimson King*, which is a very fine, distinct, large-flowered variety of the reflexed class, with globose flowers of a rich chocolate-crimson. Of the Japanese section, *C. M. Desbreaux* is a very fine variety, with unusually large flowers; the florets, which are long and narrow, are peculiarly twisted; the colour is a rich yellowish brown. Several new

Clematises have also been brought out by Mr. Noble, the most striking among them being *C. Princess Beatrice*, an exceedingly handsome variety, whose large and finely-shaped violet blossoms are produced in great profusion. A steady and gradual improvement is also going on in that handsome and highly useful class the *Cyclamens*, as was shown by the interest manifested by the public as well as by the horticulturist, when on March 14 last Mr. Little exhibited at Kensington, and on March 29 at Regent's Park his unrivalled forms, for which his collection is so justly famous, including his *Cyclamen* *Crimson Gem*, with large and beautiful blossoms of an intensely rich deep crimson; *Cyclamen* *Rose Queen*, a beautiful variety, with large flowers of uniform deep rose, produced on short stalks in a compact head; and *Cyclamen* *White Gem*, a lovely variety, whose flowers are large, the petals broad, of great substance, and of pure whiteness. Of

Dahlias and Pelargoniums, to which an aggregate number of seventy-seven certificates have been awarded, being thirty for the former and forty-seven for the latter, both a very decorative and exceedingly useful class of plants, nothing too much could be said in their praise, although too numerous to warrant an attempt at description being impartially made. It will be sufficient to notice that in both cases the favourite raisers whose names have long been connected with the welfare of these very ornamental flowers, Messrs. Turner, Lemoine, Keynes, Ware, Cannell, and Pearson, have really surpassed anything that had been offered by them to the public previously. The already existing collection of *Gloxinias* has been enriched by the addition of several first-class varieties, foremost amongst them being *Gloxinia* Garibaldi, an abundant flowerer and vigorous representative of the erect-flowered type, with large blossoms, whose rim is of a fiery vermilion; the tube is white and copiously spotted. *Gloxinia* Robin Hood, with its large flowers of a rich deep

crimson, bordered with a lighter hue, will also prove an excellent novelty; whilst in *Gloxinia Cordelia* we have a magnificent form of the upright-flowered section, having unusually large blossoms of a beautiful violet-purple, copiously freckled and spotted in the throat. These very fine acquisitions come from Messrs. J. Veitch & Sons, who have also contributed some improved forms of *Hyacinths*, such as *H. Challenger*, bearing a massive and dense spike of beautiful single flowers of a reddish purple hue, with a deeper stripe running through the centre of each petal; *H. delicatus*, whose flowers of over 1 inch across are also borne on a massive spike; they are single; the colour is creamy white, flushed in the centre of each petal with a reddish buff tint, and *H. Duke of Albany* produces a close spike bearing semi-double flowers of a lively pinkish red of a pale shade with stripes of rosy red. Mr. Robert Veitch has produced a fine

New climbing Rose named *R. Marie Henriette*. It has large full blossoms of a fine globular shape in the half-expanded state, and is of a rich crimson-lake in colour. Other excellent *Roses* have also been brought out by Messrs. Bennett, Paul, and Noble, the place of honour being held by *R. Her Majesty*, a beautiful hybrid partaking of the character of the *Tea* varieties as regards foliage. The flowers are large, full, and massive, and the colour a lovely rose-pink, delicately shading off to lighter hue towards the edges. *R. Duchess of Connaught* is a remarkably free flowerer, and will prove one of the best of bedding varieties; the colour is of a beautiful deep crimson. Finally, *R. Earl of Pembroke* may be given here as an extremely fine variety, being large and full, good in substance, and of a rich, solid tone of crimson of various depths spread over the whole flower. Foremost among the genera which have benefited by the works of the hybridiser must be noted the

Greenhouse Rhododendrons of the *janivum* and *jasminiflorum* types. For several years past special attention had been paid to these by Messrs. J. Veitch & Sons, and the well-known *R. Princess Royal*, *Princess Alexandra*, *Taylori*, *Duchess of Teck*, *Maiden's Blush*, and others bear testimony to the amount of skill as well as patience which that class of plants has received at their hands. Their results, no doubt, proved both scientifically grand and remunerative, but it was given to the untiring exertions of their present *chef*, Mr. J. Heal, to produce, besides single flowers of irreproachable forms and admirable colours, some magnificent double-flowered varieties which are not mere monstrosities, but handsome and decorative plants, having, like all other double flowers, excellent lasting qualities. Amongst the new single flowered productions of last season we note first *R. Monarch*, a beautiful hybrid raised between *R. Princess Alexandra* and *Duchess of Edinburgh*. Its individual flowers, which measure 2 inches across, are borne on a dense and compact head 5 inches in diameter; they are of a delicate orange-red colour. *R. Queen Victoria* is a very handsome hybrid variety, the flowers being orange-red, shaded with a deeper hue; it is a vigorous grower and free bloomer. *R. Favourite*, also an hybrid of the *Javanese* group, has large dense trusses of flowers of a lovely rose-pink. In *R. Sir Beauchamp Seymour* we have a magnificent variety, with large flowers of a pale yellow, suffused with red and with projecting stamens of a bright red, making a pleasing contrast. It is perfect as regards form of flower, but the most gorgeous of all the single flowered varieties is certainly the one called *R. Sir Garnet Wolseley*. It bears a large truss of blooms terminating the stem and surrounded by foliage. The individual flowers, which are over 3 inches across, are symmetrical in outline, and of a soft, pale orange-red hue, suffused with a deeper tone. The double kinds have been produced in three distinct colours; they are named—*R. balsamiflorum*, a perfectly double flower of a flesh-pink colour. *R. balsamiflorum album*, a very handsome variety, having perfectly double pure white flowers produced in dense terminal trusses. The flowers in this form equal in size those of a good double *Tuberose*. Lastly, *R.*

balsamiflorum aureum has bright yellow flowers, large and full, produced in great terminal heads.

Amaryllises.—We have in *A. Duchess of Connaught* a variety with finely formed flowers of a pure white without any markings whatever; they are of a long and elegant funnel-shape, and in *A. Dr. Masters* is found the very opposite in colour to the one just described, as it is the intense brilliancy of colour, combined with the fine form of flower, which are its principal characteristics. *A. Duke of Albany* is also a very valuable addition, being a magnificent variety with flowers 5 inches across, of a vivid scarlet-vermilion, with a broad central band running half way up each division. *A. The Giant* is, as its name implies, a robust grower, producing large flowers of fine massive form; colour crimson, feathered and pencilled with white; but one of the most attractive forms on account specially of belonging to the many-flowered section is *A. Baron Schroeder*, which bears intensely deep crimson blossoms of large size and irreproachable form. In that family the last season has also produced the forerunner of a new race which we think will prove very valuable. It is certainly a most striking example of success obtained by the intercrossing of *Amaryllises*. The plant which we refer to is a lovely hybrid between the well-known autumn flowering *A. reticulata* and one of the large-flowered varieties of the *Hippeastrum* section. The flowers are large, well formed, of a pale rosy pink, beautifully chequered with a pink of a deeper shade. The foliage bears the characteristic white mid-ribs of *A. reticulata*, but less pronounced. The new hybrid also flowers at the same time as its variegated parent, viz., December and January, and will be on that account much sought after.

Fine foliated plants.—If these have not been so numerous introduced during last year as formerly, it is no doubt due to the increasing difficulty of producing subjects in any way superior to those which we already possess. Some such genera as *Croton* and *Dracena* are so rich in colour and form, that it is almost impossible to add to their numerous lists anything likely to supplant any of the old sorts. We have nevertheless witnessed the triumph of *Croton Thomsoni*, which is indeed a very handsome variety, with foliage a foot or so in length and some 3 inches or 4 inches wide. The leaves are of a golden yellow hue, broadly margined and spotted with rich green and suffused with crimson tints. Moreover, it possesses the desirable quality of colouring highly even in a small state. *C. Eyrei* is an extremely elegant hybrid between *C. majesticus* and *C. Johannis*. The leaves are long and narrow, variegated with green and bright yellow, and recurve in a very graceful way. In *C. Dayspring* we have also a handsome novelty; its oblong elliptic leaves are orange-yellow, edged with dark green, the yellow parts becoming tinged with red in the older leaves; the variegation is highly effective. Another very distinct and decorative new variety is *C. aureo-marmoratus*, whose leaves are upwards of a foot in length, rather broader than usual, and of a bright yellow colour, beautifully mottled with various shades of green. Of *Dracenas*, only two really good acquisitions made their appearance during last season—*D. fragrans* variegata with broad recurving foliage, banded longitudinally with greenish yellow, and *D. Thomsoniana*, from the west coast of Africa. It is a fine, bold, erect-growing stove plant with the habit of *Cordylina*, having a head of long bright green leaves. Among the miscellaneous list of fine foliated plants are to be found half-a-dozen new forms of *Japanese Maples*, the most conspicuous being *Acer japonicum aureum*, a variety with broad palmate leaves of a uniform pale golden hue, forming a very pretty contrast with the green kinds; and *A. polymorphum linearilobum*, a very elegant variety whose leaves are divided into very narrow leaflets. Then there is *Asparagus plumosus nanus*, which is a most elegant South African plant of dwarf growth, with feathery foliage of a bright green hue. It is of rapid growth and will prove invaluable as a decorative plant, the more so that it lasts fresh for a very long time when cut. *Begonia gogoensis*, a new species from

Sumatra, is one that will also keep its rank; its handsome leaves, which are shield-like, almost circular, measure about 9 inches across. The colour is a deep metallic green on the upper surface, traversed with veins of bright emerald green, while the under surface is red. From Borneo we have a very gorgeously attired new-comer, the *Leea amabilis*, with pinnate leaves, having two pairs of leaflets and an odd one from 4 inches to 6 inches long by 2 inches in breadth, coarsely toothed at the margin. The upper surface is glossy, metallic green, with a bright silvery band running down the centre of each leaflet; the under surface of the leaves is a vinous purple. Two very meritorious *Nepenthes* have also been added to the already numerous collection of these wonderful plants. *N. madagascariensis*, a recently introduced new species from Madagascar, is of rather small growth, and the pitchers are of a bright red colour, and produced plentifully; it is one of the most distinct of the new *Pitcher* plants. In *N. Mastersiana* we have a very handsome hybrid between *N. distillatoria* and the gorgeous *N. sanguinea*. It produces pitchers very freely, and they often attain 10 inches in length, of the shape of those of *N. sanguinea*, elegant in form and of a deep sanguineous red.

New Ferns have been introduced which will no doubt prove real acquisitions, especially the lovely *Osmunda japonica corymbifera*, which is a remarkably handsome form of the *Japanese Royal Fern*, having every frond terminated by a broad crest, which renders the plant very elegant in appearance. The stalks are of a beautiful claret colour, and the foliage of a pretty pale green. Its growth is dwarf and dense, and it will flourish well in a cool greenhouse. Next comes the very elegant *Davallia tenuifolia Veitchiana*. This light variety of *Hare's-foot Fern* from Penang has no creeping rhizomes; its beautiful finely divided fronds are produced from an underground rhizome; they grow from 1½ feet to 2 feet in length, are very finely divided, and of a pale green tint; the slender stalks are of a beautiful pink colour. *D. fijiensis plumosa* is another elegant—indeed one of the handsomest of stove Ferns; its long, finely cut fronds are produced on outside running rhizomes; they are heavily tasselled at the tips, and are gracefully arching. The robust growing *Polypodium ornatum* is also a new species likely to hold its ground among the best introductions of late years. It is a very handsome Fern, with large, widely-spreading fronds, finely divided and pale green, rising from a short, thick caudex, forming a little stem in the course of time; the stalks are of a glaucous hue. From Java we have also a Fern of very peculiar appearance, the *Pleopeltis fossa*, of dwarf-growing habit, with thick, leathery fronds, deeply pinnatifid and arranged in a low, spreading tuft. Among the hardy Ferns the most prominent is, no doubt, *Polypodium cornubiense* *Fowleri*, a most elegant variety of the common *Polypody*, and one which can only be compared to *Trichomanes radicans*, for it is more like it than any other. A very grand *Selaginella* called *grandis* has also been brought out. It is, no doubt, the handsomest of the whole genus in cultivation; its gracefully-arching fronds are of a deep green, and measure about 15 inches in height. S.

COCOA-NUT REFUSE AND ITS USES.

THIS substance has been at one time or another recommended for all kinds of horticultural purposes. Its use for potting has been recommended either by itself or mixed with soil, also as a medium in which to strike cuttings, as a plunging material, for top-dressing, and, lastly, as a manure. When incorporated with potting soil instead of peat or leaf-mould care should be exercised as to the subjects for which it is employed; in the case of most plants I should certainly prefer either peat or leaf-mould to it. I have grown Ferns in a compost of which this refuse formed a part with very satisfactory results, but with all other subjects on which I have tried it in this way the results have not been such as to warrant its continuance. When employed for potting the particles of refuse often become affected with a white fungoid

growth, and when such happens the roots make no headway even if they do not die altogether. Even if no fungus makes its appearance when it is used in the case of a general collection of plants, their roots will not as a rule be so healthy as where none is employed after they have all stood, say, six months. For one purpose it may be and often is used with advantage, and that is for mixing in the proportion of about one-fourth with soils used for potting off all kinds of quick-growing cuttings. As these remain in their pots only a short time, all that is required is a rooting medium, and one that will hold a certain amount of moisture without becoming clammy, a

A bottom heat bed in this way proves very useful for striking a great variety of things. As a substance in which to plunge pots to protect the roots from extreme changes either in or out of doors this fibre undoubtedly stands in the first rank owing to its lightness and cleanliness, and the readiness with which it may be worked; moreover, the various insect pests do not appear to much relish the idea of making their homes in it. It generates but little heat even when in a good sized heap; therefore it must not be used for forcing, but solely as a plunging material. For small bottom heat cases in which stove propagation is carried on, this fibre should

the latter, when mixed with potting soil, tends to make it clammy instead of keeping it open, while for indoor beds it has not the fresh, stimulating smell of the new fibre; and for resisting frost 1 inch of the latter in a moderately dry condition will keep out as much frost as 3 inches of the old material when in that decayed and saturated state in which it becomes after long usage.

Mulching.—Where plants are growing in exposed places a coating of this refuse on the surface of the soil is of great service in maintaining moisture about the roots during hot weather, and in protecting them from frost in winter, but its use is advocated simply as a protective agent, and not



Adiantum speciosum. (See p. 63.)

purpose which the fibre helps to fulfil, but even then I should certainly prefer well-decayed leaf-mould.

For striking cuttings it is undoubtedly a material of high value, as it seems conducive to the formation of roots, but in that case the cuttings must not be allowed to remain too long in it, as when used alone the roots soon decay. For all kinds of soft-wooded or quick-striking subjects I use the fibre alone, with the exception of a little sand mixed with it. Into this the cuttings are inserted, and when sufficiently rooted potted off without delay. Rather more care is needed during this operation than when the roots are made in ordinary soil, as when in fibre they are more succulent and brittle, and therefore liable to be broken. Again, when employed as a plunging material, as it often is in the stove, cuttings of different kinds may be struck in it, and being sheltered by the plants overhead require scarcely any attention until rooted.

be often renewed, as in such a close, steamy atmosphere it soon gets saturated with moisture, besides which the effluvia which it gives off when fresh seems to arrest decay amongst the cuttings. Where pots are plunged out of doors during summer, this refuse will tend greatly to keep them in a uniform state as to moisture and prevent them from becoming baked; and if in winter any dormant subjects are covered with 3 inches or 4 inches of this fibre in a new or unused condition, no ordinary frosts will touch them, especially if the fibre can be prevented from becoming too wet. For covering all kinds of bulbs after they are potted till taken indoors for forcing this refuse possesses a great advantage, inasmuch as it does not harbour insects, and is easily removed without breaking the young growths, even if they are an inch or two in height. For all purposes the fresh material is greatly to be preferred to that which is partially decayed, as

from any stimulating properties possessed by it. Judging by the way in which it is often used in villa gardens, i.e., sprinkled over the ground in homoeopathic doses, it would appear to be considered a powerful manure; but such is not the case, although it is of service to mix with the soil in order to lighten it when too heavy. For lightening soils it may be worked in when too much decayed to be retained any longer in the houses, but it should be spread out to sweeten beforehand, as it is apt to turn somewhat sour through the continual waterings necessary in hot-houses. In the case of Lily bulbs received during the winter I much prefer laying them out and covering them with this fibre for a little time to potting them at once, as some of the scales are generally injured in transit and the absorbent qualities of this material tend to arrest decay, while when taken up for potting any bad parts can be removed which would not have been

perceived had the bulbs been potted at once. Of course they are not allowed to remain long enough for the roots to attain any length, otherwise much damage might accrue, as from their brittle nature they are easily broken. The best time to pot the bulbs is as soon as the new roots appear around the base.

ALPHA.

FERNS.

ADIANTUMS.

(Continued from p. 10.)

A. lunulatum.—A very distinct and handsome species from the East Indies. It has a

the handsomest and most distinct of the whole genus. The fronds, which rise from an underground creeping rhizome, are pinnate, and grow from 12 inches to 20 inches high; the pinnae are very large and irregular in shape, sometimes deeply serrated, while in some cases their edges are almost smooth, both forms being generally found on the same plant. When young they are of a delicate pink or red, changing to bright green with age; they are produced in great abundance, and have their stalks stout and shining black. It requires to be well supplied with water at the roots, or it will have a wretched appearance, its beautiful fronds becoming spotted. Stove.

lobes, which are again more or less divided. It is deciduous, but should not be allowed to get dry. Stove. Some idea of its appearance may be gleaned from the annexed illustration, for which we are indebted to Messrs. Veitch.

A. pedatum.—This highly ornamental and thoroughly deciduous North American species, although perfectly hardy and most suitable for the out-of-door fernery, makes a very fine specimen for the greenhouse, where, in fact, it shows itself to better advantage, as it being of rather a fragile substance, it is seldom seen in perfection outside unless it be in a very sheltered situation. The fronds, which are produced from an underground



Adiantum palmatum.

very slender, pendulous habit, and is prolific at the apex; so much so, that it is not rare to see produced from the ends of the fronds three generations of plants; the fronds are pinnate, with pinnae alternate and lunulate, bright green in colour, and about 15 inches long, sometimes more; the stalks are of a beautiful shining black. On account of its pendulous habit and of its rapid growth, it is considered one of the best basket Ferns by all who grow it. The fact of its being deciduous accounts for its loss in many cases, as care must be taken in the winter that it does not become thoroughly dry, or it will not start again. I have always found it to do much the best if kept moist at the roots all the year round; by that means it does not die down altogether, and perhaps does not get quite as much rest as if treated as a deciduous species. Stove.

A. macrophyllum.—This beautiful erect-growing species, from the West Indies, is one of

A. Neo-guineense.—A charming species with fronds growing to about 18 inches long and very gracefully arched; they are tripinnate, the pinnae set rather far apart, and the pinnules, which are of a dark green, reminding one as regards colour of *A. Capillus-veneris*, are deeply cut, and being loosely set, give the plant a very elegant appearance. Stove.

A. palmatum (digitatum).—A very beautiful Fern with fronds of an indefinitely elongated form, produced from a stout creeping rhizome, and very well adapted for basket culture. Grown in that way it soon makes a handsome specimen, as the fronds, which are light green in colour, attain a considerable size. A very noticeable feature in the plant is the flexuose or zigzag character of the rachis, most marked towards the terminal end of the frond. The pinnules are distant and distinctly stalked, from 1 inch to 1½ inches in breadth; they are deeply cut down into from three to five large

thick rhizome, grow to 18 inches or more in length, are of a delicate green colour, pedate or bird's-foot shaped, and smooth; they are supported upon black shining stems. Greenhouse.

A. pentadactylon.—This fine ornamental Brazilian species has fronds from 2 feet to 3 feet in height, produced from a thick, fleshy decumbent rhizome; they are tripinnate, of very bold appearance, and borne upon jet black stalks; the pinnules, rhomboid in shape, are soft green in colour, except when very young and in undeveloped state, for they are then of a fine metallic or bronzy hue. It is, when properly grown, a very grand plant, and requires all the year round a good supply of water at the roots. Stove.

A. peruvianum.—This species, native of Peru, is undoubtedly one of the very finest of the large-growing Maiden-hair Ferns; its stout black, polished stalks rise to about 15 inches, supporting the ample and gracefully pendent fronds, which

grow to a length of from 2 feet to 3 feet, and are almost triangular in outline. They are produced from a thick decumbent rhizome, and are beautifully arched; they are compound, and made up of large pinnules, trapeziform, but having their basilar angles rounded and of a beautiful dark green when mature, and of a soft metallic hue in a young state. The sori are large, produced along the whole of the anterior margins of the pinnules, somewhat varying in length, but generally oblong. Stove.

A. princeps.—Not only does this splendid Maiden-hair from New Grenada possess a degree of boldness of character on account of the size of the fronds and the pinnules, but the plants are also remarkably graceful from their fulness of development and the arching and pendent position which they assume. The fronds, which are produced from a thick underground rhizome, are broadest at the base, the lower pinnæ being about a foot in length, with the lower pinnules bipinnate, so that the frond itself becomes quadripinnate; the pinnules are large, the base margin and inner side is entire, while the anterior margin is cut into broadish shallow lobes, but the sterile pinnules are minutely serrulate. The whole of the plant is of a delightful light green. Stove.

A. pulverulentum.—This very handsome evergreen species from Tropical America produces bipinnate fronds, about 20 inches high, with rachis and stalks covered with close rufous hairs; it grows into a compact plant, all its fronds rising from a thick-set rhizome; when young they are of a brilliant metallic hue, and of a rich glossy green colour when mature. Stove.

A. reniforme.—An evergreen Fern from Madeira, looking as little as possible like an Adiantum; this great distinctness alone is sufficient to give it a right to be in every collection. The fronds are produced in great abundance from a crown, are kidney shaped, of a bright shining green colour, from 1 inch to 3 inches in width, and from 5 inches to 8 inches high; they are borne on slender dark polished stalks. This beautiful species is generally considered difficult to manage, but it is only on account of its being kept in too warm a place, and often from being potted in too loamy a mixture; it only requires cool treatment; and as to its compost, it does best in a mixture of two parts peat and one part coarse sand. No loam is required. Greenhouse.

A. rubellum.—A very pretty Peruvian species of dwarf habit. The fronds are produced in a close tuft from a crown; they attain the height of 9 inches or 10 inches, and are bipinnate and triangular in outline, whilst the pinnæ are wedge-shaped and incised. They are produced in great profusion, the young ones being on their first appearance of a beautiful purplish crimson tint, changing to light green with age, but even then tinged with pink, so that a good specimen is always more or less enlivened by a roseate hue. Stove.

A. Sanctæ-Catherinæ.—The fronds of this truly ornamental Brazilian species are from 1 foot to 2 feet in height and decompound; they are freely produced from an underground thick rhizome; the stalks and rachis are wiry and jet black; the pinnules, rather far apart, are obliquely rhomboid, dark green and coarsely toothed. It requires little light. Stove.

A. scabrum (Silver Maiden-hair).—A very compact-growing and beautiful species from Chili, very seldom met with in cultivation; the fronds, which are produced in great quantity, seldom attain more than 9 inches high; they are decompound and formed of roundish pinnæ, dusted on both sides with a white farinose powder. It is generally considered a difficult plant to grow, but it is only on account of its being kept in too great heat and with too much moisture round it. I have seen it grown best, indeed to perfection, on a dry shelf with Cacti, and a very little allowance of water during winter in a greenhouse.

A. scutum, or more accurately *A. Ghiesbreghtii*, under which name, however, it is very

little known, is a beautiful plant which has sprung up in our gardens without anyone being able at present to say from whence it has come, or if it is merely an altered and improved form of some species already in cultivation. Anyhow, it has the power of reproducing itself freely from spores, as may be seen by the immense quantities yearly grown for market. It is a fine large-growing kind with somewhat the habit of *A. farleyense*, but less dense, and makes one of the finest Maiden-hairs for decoration or exhibition purposes. Its beautiful fronds are tripinnate, somewhat ovate, from 18 inches to 24 inches in length, and produced from a thick crown; the pinnæ, large, slightly crenate on the margins, are of a bright green colour; the stalks and rachis are black and shining. Stove.

A. Seemanni.—This handsome and rare Fern from Central America is of a very peculiar growth, inasmuch as in a young state the plant only produces simple fronds of extraordinary dimensions; these are heart-shaped with an elongated point, and often measure as much as 3 inches in breadth; but as the plant assumes its mature form they become pinnate, the pinnules being ovate, acuminate, unequal-sided, and drooping at right angles from the rachis. The fronds, which are produced in clusters from a thick underground rhizome, are, when unfolding, tinged with a bronzy colour, turning with age to a deep glossy green above, while their under surface is of a very pretty glaucous colour. They attain about 18 inches in height, very leathery, and are borne on deep black, shining, stout stalks. Stove.

A. setulosum.—A beautiful dwarf-growing species from Norfolk Island and the Fijis. Its fronds, which seldom grow to more than 10 inches high, are produced in great abundance from slender underground creeping rhizomes having the peculiarity of forming young plants on all their parts, thus making very compact little specimens or agglomeration of bright green bi or tripinnate fronds, whose pinnules, closely set, have a few black hairs upon their upper side. It is of very easy culture and very useful for cutting, lasting well when severed from the plant. Greenhouse.

A. speciosum.—This very elegant Fern from New Grenada resembles a Maiden-hair, but very little in general appearance, as it is of a semi-scandent habit with large tripinnate fronds borne on fleshy stalks; they frequently attain a length of 36 inches with a width of 22 inches, and their pinnules, which are very symmetrically set, often measure $1\frac{1}{2}$ inches across, their lobes cuneate and soriferous at their apex. The whole of the pinnules are covered with dense short hairs, giving the foliage a woolly feeling when touched. Altogether it is a very distinct and ornamental Fern, as will be seen by the annexed illustration (p. 61) from Messrs. Vietch. Stove.

A. sulphureum.—This beautiful dwarf evergreen species from Chili, a fit companion for the pretty little *A. scabrum*, is always regarded as a difficult subject to manage; it is, however, well deserving any extra trouble it may cause, but will succeed well under the same treatment as *A. scabrum*, viz., on a dry shelf in a cool house, with little water during the winter months. The fronds, which seldom attain more than 8 inches in height, are produced from a crown; they are tripinnate, with small pinnules, roundish when barren, but slightly incised on their edges when fertile, and covered on their underside with a more or less bright golden farinose powder. Greenhouse.

A. tenerum.—This very fine evergreen species from the West Indies is a general favourite wherever Ferns are in requisition for decoration, where it is found most useful, as its beautiful fronds, which are produced from a decumbent rhizome, grow from 3 feet to 4 feet in length, and are possessed of a very elegant character, bold, with their charming polished black stems standing upright, and the weight of the numberless broad, semi-circular pinnules causing them to curve over very gracefully; they are tripinnate, and of a pleasing light green. It also makes a grand specimen for exhibition purposes where sufficient room is allowed it. Stove.

A. tetraphyllum gracile.—A comparatively new species introduced from the United States of Columbia. It is specially remarkable for the beautiful reddish hue assumed by its fronds when first developed, and which continues until they are fully expanded. It is a close grower of moderate stature. Its fronds, which are produced in great numbers from a thick underground rhizome, are pinnate, borne on slender black stalks; they are elegantly arching over at the top, and dividing into from four to six linear pinnæ. It is a very striking and distinct species. Stove.

A. tinctorum.—This pretty dwarf-growing little species from Tropical America is not very often met with now, although it is a gem which should be in every collection. Its fronds, which rise from a compact crown, are produced in profusion; they seldom attain more than 8 inches in height; they are pinnate in form and of a rosy red in their young state, changing to bright green with age. It is about the dwarfiest of the coloured Adiantums. Stove.

A. trapeziforme.—A well-known and much appreciated bold-growing species from the West Indies. It is evergreen and makes a grand exhibition plant, its thick underground rhizomes producing fronds of a bright rich green, from 3 feet to 4 feet in length with very large pinnules of a peculiar shape. It is also a very free grower, which quality no doubt accounts for its popularity. Stove.

A. Veitchi.—No doubt the most highly coloured as well as the largest foliage of the tinted Adiantums after *A. macrophyllum* is this very elegant Peruvian species. The fronds, which reach some 18 inches high, are produced in abundance from slender underground rhizomes; they are tripinnate, very symmetrical, and borne on stout black polished stalks, and affect an erect position; the pinnules are closely set, of a bright red in their young state, and with age change to a pale green; they are also thicker and of better texture than most Adiantums. Stove.

A. velutinum.—A fine, tall, bold-growing species from Columbia; its fronds are very large and almost erect; the pinnæ are somewhat falcate and acuminate, broad, and of a dull green colour; the stalks and the rachis are densely clothed with dull brown silky scales, giving the plant a very distinct appearance. Stove.

A. venustum.—This very distinct Himalayan species is very rare in cultivation; although discovered many years ago by Dr. Hooker, it has never become plentiful. There is quite another plant which is generally known under this specific name, and found in a great many collections as well as in most catalogues under that name, but which is only a dwarf form of *A. aethiopicum*, with stems slender and brittle, of a purplish black, and round pinnules of a very light green. This variety is most prolific, provided with slender underground rhizomes, from which spring a quantity of young growths. The true *A. venustum* also produces its numerous fronds from a creeping rhizome, but their stalks are ebony black and not brittle; the colour of the upper surface of the fronds is of a bright green, while the under-surface is quite glaucous. They are tripinnate and the pinnules of two very different shapes, the fertile ones being wedge-shaped and with nearly smooth margins; whereas in the barren ones the cuneate form is not so definite, they being much more rounded and beautifully serrated all round the edges. The whole of the foliage is very coriaceous and quite distinct from the spurious form. Greenhouse.

A. villosum (varium).—This beautiful evergreen species from Tropical America is a very ornamental plant. Its fronds rise from an underground rhizome, and are of a bright colour, about 18 inches high, bipinnate, with bright shining pinnæ. It is most peculiar in having the sori in a continuous, unbroken marginal line, and its rachis very heavy. Stove.

A. Williamsi.—A very handsome species from Peru, where it is found at a great elevation,

It is probably a form of *A. æthiopicum*, and has somewhat the aspect of *A. chilense*, although the growth is not so dense. This plant is also of a more free and more vigorous constitution; its beautiful fronds, of a bright light green and very elegantly arched, often reach 2 feet long, and are supported by stalks 6 inches to 8 inches high, golden at the base, and a rachis in zigzag about 12 inches long. The pinnules are about half an inch broad, and attached by pedicels about a quarter of an inch long, so that the parts are nowhere crowded; they are membranous and of a semi-circular form. It is especially as a basket plant that this species is most valuable and as such that it is seen to its best advantage, and the more useful, as it is one of the few *Adiantums* which really make a good, effective basket for a greenhouse.

PELLÆA.

SEASONABLE WORK.

FLORAL DECORATIONS.

ORNAMENTAL Grasses impart to an arrangement a lightness and distinctive character which Fern fronds, handsome as they are, fail to give. Moreover, it is difficult to keep up the needful amount of cut Ferns without disfiguring the plants; therefore, we should grow ornamental Grasses for the purpose, thus sparing many Fern fronds. Most of the useful sorts are easily grown from seeds. We sow them in March in the open border in well prepared soil—the earlier in the month the better if the weather is favourable. We have found the following six kinds to be amongst the most useful, viz., *Agrostis nebulosa* and *pulchella*. These come into flower early, and are about the very lightest that can be grown; they are also often sown in pots, and in this manner are useful for furnishing purposes. *Briza maxima* and *gracilis* are two of the best of the Quaking Grasses. We find the former to be especially valuable, and to arrange well with Water Lilies and similar subjects. This sort is also one of the best for cutting and drying for later use. If cut while the deep green tint is in it, it retains its colour better than if left till it has assumed a brownish tinge. *Lagurus ovatus* (the Turk's-head Grass) is one of the most distinct kinds, as well as one of the best for keeping purposes if treated as just advised in the case of the *Briza*. For bold arrangements in association with large flowers this is an excellent kind. Another valuable Grass is *Eragrostis elegans*; this is a later kind than those previously named, and comes in useful for cut purposes up to the time when the early frosts spoil its colour. It is a somewhat stronger sort than the others; when well grown it attains a height of from 2 feet to 2½ feet high. It should, therefore, be allowed more room than the others in which to develop itself. The following sorts are all useful and distinct, viz., *Anthoxanthum gracile*, *Brizopyrum siculum*, *Bromus briziformis* and *giganteus*, *Hordeum jubatum*, and *Paspalum elegans*. Two new kinds have recently been brought forward, viz., *Briza spicata* and *Bromus patulus nanus*, both of which will doubtless prove useful. These Grasses, taken collectively, are about the best that can be annually raised from seed. *Stipa pennata* and *elegantissima* may be increased by division, perhaps, with more certain results than from seeds. These ornamental Grasses are all valuable in their seasons and for preserving for use afterwards, not, however, after they have been disfigured by drying. When those raised from seed are well above the soil it will be well to thin out any kind that has come up too thickly. This will throw more stamina into those that are left, rendering them more durable. The following annuals are all useful associated with Grasses, viz., *Campanula Loreyi* and its white variety, *Catananche cœrulea*, *Sweet Sultan* (yellow), *Rhodanthes*, *Linum grandiflorum coccineum*, the Corn Flowers in various colours, dwarf Poppies, single Dahlias, which have a future before them, and last, but not least, *Gypsophila elegans* and its variety *rosea*. Many more annuals might be named, but these are among the best for decorative arrangements and for using in conjunction with

Grasses. One of the hardy perennials that may be raised from seed is *Chelone barbata coccinea*; this when in flower yields good spikes for trumpet vases.

INDOOR PLANTS.

Conservatory.—After the clearing out of *Chrysanthemums* from conservatories there is often some falling off in the display. This should be remedied by having ready to take their places such plants as come into bloom, either naturally at that time, or with a little forcing. For this purpose there are few things better than the different varieties of winter flowering *Salvias*, such as those named a few weeks back. These, combined with *Camellias*, forced *Lilacs*, *Hyacinths*, *Tulips*, *Narcissi*, *Cyclamens*, *Primulas*, double and single, early sown *Cinerarias*, pot *Mignonette*, *Epacris*, *Correas*, *Genistas*, and *Azaleas*, will, if grown in sufficient quantities, keep up a display little inferior to that which may be looked for later on. It is well, in particular, to urge the claims of *Azaleas* for conservatory decoration in the two dull months, December and January, during which time there is no more difficulty in having them in good blooming condition than there is later on provided the plants have been properly prepared by having their growth made early and their buds set, but this cannot be done by turning the plants out-of-doors to set their buds when the growth was partially made the summer previous. To have them in good blooming order in winter they must be kept tolerably warm under glass through the summer, so that their buds are plump and big, looking as if they were ready to burst by the middle of September. Managed thus, there will be no difficulty experienced in getting the flowers to open freely in a moderate heat in November. In this way there is no forcing in reality required, such as would cause the blooms to come soft in texture, making them of little use for cutting. Medium-sized plants are best for the purpose, and they should never be stopped, but allowed to grow, as they will do if kept clear from insects and vigorous, a little loose, which admits of half the flowers they produce being cut with a fair length of wood attached to them, a way in which they are of much more use than when the growth is stumpy and short. It often happens that the climbing subjects employed to cover an end wall of a conservatory, or to furnish the roof, are the least satisfactory of its occupants. This is especially the case when the plants chosen are naturally of too strong and vigorous a habit. In this case they either smother everything else in the house or have to be so severely cut in as to interfere with their flowering, and, what is even more detrimental to their well-being, they generally exhaust the limited quantity of soil that can be afforded them to grow in to an extent that does not admit of its fertility being kept up by additions or manuring. Where such a state of matters exists it is much the best to remove the old plants and replace them with others of a less rampant habit; this will give an opportunity for completely removing the soil. This is essential, as with permanent plants of this kind comparatively little can be done in the way of removal without destroying the roots to an extent that would be injurious. With the same object in view those plants that will thrive in loam should have soil of that description given them in preference to peat. Whatever is to be done in the way of cleaning conservatory climbers from the worst kinds of insects that affect them, such as mealy bug and scale, should now be carried out whilst the plants are comparatively at rest, as during this time the work can be done much more effectually as well as with less injury. As I have often urged, a sustained effort should be made to completely eradicate these pests, for where nothing is done beyond periodically freeing the plants from a portion of them, the work has to be repeated indefinitely, the result being a continuous expenditure of labour, with more or less injury to the plants.

Browallia elata.—This free-flowering little plant is very useful for decorative purposes, com-

ing into bloom in a comparatively short time from seed. If some are raised in this way two or three times in the course of the year, a continuous succession will be kept up; if a little seed is now put in and stood in moderate warmth, it will at once vegetate. As soon as the seedlings are up they should be placed on the shelf near the glass and allowed to remain until large enough to handle, when they must be pricked off into small pots.

Camellias.—Where these have not yet had their annual cleaning by sponging the leaves and removing any scale insects that may exist on the shoots, it should at once be attended to. In the neighbourhood of towns, where the atmosphere is charged with soot, they are greatly benefited by having their leaves sponged two or three times a year. If the plants are turned out in beds—and still more so when grown in pots or tubs in conservatories, where some warmth is kept up during the winter—special care must be taken that the atmosphere, as well as the soil, is not allowed to get dry, or the buds are sure to drop; this is particularly the case with the white varieties, which are more easily affected in this way than the others. Where any large plants of inferior kinds exist that it is intended to graft with better sorts, they may now be headed down and grafted. Many of the numerous ways in which grafting is performed will answer, but if the plants are large and the stems a considerable length before branching out, they may be cut down 8 inches or 10 inches above the collar and cleft grafted, putting in four or six, binding the stock round so as to keep the scions in their places, surrounding the whole with ordinary grafting clay, after which they may be placed in a house or pit where a little extra warmth is kept up. I have found *Camellias* to succeed best when grafted thus early, before the sap is about to rise, as if the work is deferred too long the flow of sap is such as to often prevent the grafts taking.

Fuchsias.—Young plants struck from cuttings at the latter end of summer and that have been kept on growing slowly in an intermediate temperature will now require larger pots, for if ever they are allowed to become at all cramped for want of pot room, they will not move freely afterwards. Such as have occupied 5-inch or 6-inch pots may be moved into others 2 inches or 3 inches larger, using good turfy loam with a little leaf-mould, some thoroughly rotten manure, and sand in proportion to the greater or less quantity which the loam naturally contains; but *Fuchsias* do not require the soil to be quite so open as some other quick-growing plants do. Pot moderately firm, but not so much so as in the case of some things of a more permanent character; pinch out the points of the shoots to induce a close, well-furnished condition. Some varieties require less attention in this respect than others, being naturally disposed to branch out without stopping. A well-grown *Fuchsia* should, when in bloom, present a dense mass of pendent shoots drooping from a single stem, each clothed with healthy foliage and flowers. This state can be secured in these autumn-struck plants in a way that it is difficult to accomplish with old specimens or with later spring-struck stock, although the latter make nice small examples, but for large conservatories where size is an object with a considerable portion of the occupants autumn-struck plants are the best.

FRUIT.

Vines.—So far a mild winter has favoured early forcing, and now days are increasing in length, time apparently lost through the dark month of December may be redeemed by taking advantage of bright days for running up the temperature of the house after it is closed, and by making frequent additions of warm leaves to the internal ridges and linings which have been at work ever since the house was closed. A continuance of mild weather will lend an inducement to the maintenance of a high night temperature, but a period of rest being absolutely necessary to successful culture, a mean of 60° must not

be exceeded during the hours of darkness. Run up to 70° on bright mornings with a chink of air at the apex, and close early to insure a rise to 75° for a short time with plenty of atmospheric moisture. Continue direct syringing until the bunches are well formed and increase the fire heat if they show signs of running to tendril and drawing up towards the glass. Many growers leave off syringing as soon as the Vines break, but whenever early forcing is carried on against Nature, a good syringe in skilful hands plays a very important part in keeping the Vines clean, healthy, and vigorous through the early stages of growth. If pruning and cleansing in late houses be still in arrears, lose no time in bringing this work to a close. Avoid the barbarous practice of depriving the rods of their natural protection by scraping off the bark, but wash them well with strong soap water, and keep the ventilators open until the time arrives for starting the Vines. Prepare Muscat houses for shutting up at the end of the month by giving repeated waterings to inside borders, and have a good body of well-worked fermenting material ready for use as an economiser of fire heat as well as to produce a mild soft atmosphere, so essential to the proper filling and bursting of the buds. By taking time by the forelock, and bringing Muscats on steadily, they will break evenly, and set their fruit better than if placed under high pressure before they come into flower; moreover, having the whole of the summer before them, the fruit will become thoroughly ripe by the end of August, the Vines will have a long season of rest, and the Grapes, being finished under bright sun-heat, will be in the best possible condition for keeping after removal to the Grape room. A mid-season house containing mixed kinds may now be started in the usual way, and pot Vines which have been rested and cut down for growing into fruiting canes may be brought forward by being placed on the fermenting material. Give water sparingly, shake out, and pot when they have made growths 2 inches in length, and plunge in a bottom heat of 70°. Put in the remainder of the "eyes," using small pots firmly filled with sandy loam, and have a good bottom heat in a close pit ready for their recent tion by the first week in February. If grafting is contemplated, perhaps the best time is the rising of the sap in the Vines selected for working.

Pot Vines.—Fruiting Vines may be kept at a temperature of 60° to 65° by night, and 10° higher through the day; give air at 70°, and run up a few degrees after closing. Having selected the bunches for the crop, stop the shoots at the third joint, and allow the first set of laterals to extend until every part of the trellis is covered, but not crowded with foliage. Feed well with tepid liquid, and keep the roots well covered with fresh surface-dressing as often as the soil is washed away from them. Guard against sudden checks by the admission of cold draughts of air, or by allowing the bottom-heat to fall below 70° before it is renovated with fresh leaves in a fermenting state. If the pots are standing on pedestals, the whole mass may be turned to the bottom of the pit without disturbing the roots, which must be kept progressing, otherwise the Grapes will not set well.

Peaches.—Where numbers of houses are forced a busy time is close upon us, and in order to keep pace with daily details in this and other departments no time must be lost in getting late trees tied in and ready for starting or retarding as the case may be. In the management of late Peaches, which it is usual to retard in the spring, all pruning should be performed as soon as the fruit is gathered, when the application of fire-heat for a few weeks will bring up the blossom buds and ripen the wood to the tips. This important point having been secured, vigorous young trees may be tied in full length; but should there exist a doubt as to their ripeness the strongest shoots may be cut back to a triple bud which always contains a shoot-producing bud in the centre. If the trees have not been attacked by insects dis- pense with paints and strong dressings, which fre-

quently do more harm than good, and wash well with warm soapy water, or a weak solution of Gishurst Compound, 4 oz. to the gallon of water. Large trees which produce an abundance of blossom may be top-dressed with good rotten manure as soon as they are tied in. Young ones will set their fruit best without the manure; but in each case the roots must be well supplied with water from the tanks, as the buds are now swelling and a short supply of water will prove fatal to the crop. Give an abundance of air by night and day, and to counteract the influence of this mild weather, run off all portable lights when the external air stands above 40°. In cold gardens where the open air Peach crop is uncertain, large span-roofed houses of the most simple and inexpensive character, if judiciously planted with the best late kinds, will soon clear their cost, as the demand for late house fruit is considerably on the increase, and, like late Grapes, pays better than early forcing. For this house such varieties as Barrington, Walburton Late Admirable, Gregory's Late, Prince of Wales, Sea Eagle, a fine free bearing kind which keeps a long time after it is gathered, the Nectarine Peach and a few of the high-coloured mid-season sorts, including Bellegarde, Royal George, and Dymond. Nectarines, being less valuable, a good yellow, like Pitmaston or Pine-apple, Stanwick Elruge, and Albert Victor might suffice. If the houses are built lofty and planted with trained standards, Bays, Aloes, and a host of half-hardy subjects may be kept in them through the winter months.

Early houses.—By this time many early houses will be in flower, and former directions having been followed, the blossoms will be strong, free from aphids, and capable of bearing a free circulation of air—a very important item in the fertilisation of all kinds of stone fruit. On fine days the temperature may rise to 70° with free ventilation, and it may descend to 50° on mild nights, or 10° lower when very severe. Fertilise the blossoms with a camel's-hair pencil; when the pollen becomes buoyant, discontinue direct syringing, but keep the atmosphere soft by damping all available spaces as usual on fine days.

Cucumbers.—A few seeds of Telegraph may now be sown in small pots filled with light, rich soil, and placed near the glass in a light, well-heated pit. Cuttings of a good strain may also be struck in a sharp bottom-heat, provided they can be taken from healthy plants which are free from insects. To ensure success, select firm, short-jointed shoots, insert them singly in small pots filled with fibry turf, previously warmed to a temperature of 80°, plunge under bell-glasses, and treat as seedlings after they are well rooted. Where Cucumber houses are divided into sections, now is a good time to take one in hand and divest the plants of all the fruit and a portion of the old foliage which may have become infested with spider or mildew—two of the worst enemies we have to contend with in winter culture. Cleanse the house and glass, syringe with a mild insecticide and top-dress the beds or pots with fresh virgin loam and horse manure. If worms have found their way into the beds or pots, warm clarified lime water will soon dislodge them. See that houses in full bearing are not over-cropped, feed well with warm liquid manure and guano water alternately, fill the evaporating pans with the same, and top-dress the roots with fresh maiden loam little and often. With increasing length of days syringing may be more frequent, provided it can be done without raising a scalding steam from the pipes when they are hot. Many houses of winter Cucumbers are ruined by scalding steam from highly heated pipes, and it generally happens that the mischief is not discovered until it is too late to seek a remedy. Amateurs and others who grow their Cucumbers upon the old-fashioned principle and depend upon their own seed beds for plants, should now set about getting the materials ready for making up a bed sufficiently large to receive a one-light frame. Good stable manure, well worked and fermented, and sound Oak leaves, in equal proportions, will work up well together.

FLOWER GARDEN.

THE exceptionally mild, open weather is proving a boon to all who have much planting or top-dressing labour on hand. Owing to recent winters being so severe, and work consequently being delayed, we have long arrears of the latter kind of work to make up, and others, no doubt, are in the same position. As a matter of course, some must stand over for another season; it therefore follows that the trees most requiring renovation should have attention first. For all Conifers and American plants the top-dressing is vegetable soil, that is, peat or well-rotted leaf soil. If well decayed stable manure can be afforded to be mixed with it, the trees will better appreciate it. Before applying the dressing, remove all the loose top soil, Moss, Couch Grass, or other troublesome weeds, and then give at least double the quantity of the new dressing in lieu of the old soil cleared off, well firming it over the roots, and if the trees are on turf, the sods may be at once rolled back, but should not be beaten down till a good soaking of rain has taken place to wash the soil in about the roots. Ornamental trees of every sort that seem waning may often be resuscitated by treatment of this kind. Thorns, Beeches, Limes, Oaks, and the like are not particular as to character of soil, provided it is good. For these kinds of trees we usually use the refuse from Vine and other fruit tree borders, and apply the manure in the form of a mulching over the entire space of the new dressing. When the weather is such that top-dressing cannot be proceeded with, the trenching of ground, draining, &c., by way of preparation for new plantations, should be done, it being desirable that all planting be completed and the roots established in their new quarters ere there be danger of a check from drying March winds or early summer drought.

Bedding plants.—It is now time that any plants that are required in quantity and of which the stock is limited by reason of restricted space for wintering should be started into active growth for the production of cuttings. Coleus, Iresines, Alternantheras, and variegated Pelargoniums are among those that we have now so to start, and of the kinds to be raised from seed the following are now being sown, viz., Cannas, Solanums, Ferdinandas, Grevilleas, Ferulas, Centaureas, and Chamæpeuces; all are sown in pans and covered with glass till germination has taken place; bottom heat required 65°, top heat 70°. It is too early as yet to sow such quick growing kinds as Castor-oils, Hemp, and Maize, because if sown now the pots get so full of roots that the plants get stunted before planting-out time. Cannas that were lifted and wintered in sheds may now be divided into single crowns, and be potted in small pots and started into growth, but the slower the growth is excited the more robustly will the crowns come up. Dahlias, too, sorts that are required in quantity, should be at once placed in heat; they produce cuttings most freely when planted on a bed of leaves in the propagating pit. Cocoa fibre refuse or leaf soil is just as good to plant them in as the best soil that can be got. The single varieties are now so much to the front that everyone will be expected to have them, and now is the time to set about their production. Violas, Calceolarias, Gnaphaliums, Echeverias, and Sempervivums in cold pits have suffered this season from damp more than they usually do from frost, and to prevent further mischief in this direction they should be frequently picked over, and every particle of decayed foliage removed, the surface-soil stirred to hinder moss formation and prevent a soured state, and air should be freely given whenever the weather is fine and unaccompanied by a frosty air.

Sowbread.—I have now an interesting specimen of Sowbread (*Cyclamen europæum*) before me. It has four full-blown flowers, three of which are perfect, but the fourth has a six-parted calyx instead of being a five-parted one. There is nothing else irregular about the plant. The corolla

is notched on all the flowers with a revolute limb, and the capsule has five valves. In all my researches in botany I have never seen anything more curious, as this plant has not been tampered with in any way.—THOMAS E. WARDE, 9, *Charlotte Street, Bedford Square.*

THE CARNATION AND PICOTEE.

(Continued from p. 32.)

To beginners in the cultivation of this plant I should recommend a selection from the following varieties:—

CARNATIONS.

Scarlet flakes.	Crimson bizarres.
Clipper (Fletcher)	Rifleman (Wood)
Jas Cheetham (Rhodrick)	J. D. Hextall (Simonite)
Annihilator (Jackson)	John Simonite (Simonite)
John Bayley (Dodwell)	Albion's Pride (Headley)
Sportsman (Hedderley)	Albert Chancellor (Abercrombie)
Bayley, jun. (Dodwell)	Warrior (Slater)
John Ball (Dodwell)	Eccentric Jack (Wood)
Wm. Mellor (Dodwell)	John Harland (Adams)
William IV. (Wilson)	Stanley Hudson (Dodwell)
Rose flakes.	Scarlet bizarres.
Jas. Carter (Adams)	Admiral Curzon (Eason)
Flora's Garland (Brooks)	Dreadnought (Daniels)
J. Merryweather (Wood)	Sir J. Paxton (Ely)
Rose of Stapleford (Headley)	True Briton (Hepworth)
Mary Ann (Fletcher)	Lord Napier (Taylor)
John Keet (Whitehead)	Mars (Hextall)
Sybil (Holmes)	Mercury (Hextall)
Lovely Ann (Ely)	Othello (Dodwell)
Mrs. Anderson (Dodwell)	Mr. Holiday (Dodwell)
Purple flakes.	George Rudd (Dodwell)
True Blue (Taylor)	George (Dodwell)
Jas. Douglas (Simonite)	Campanini (Turner)
Juno (Baldon)	Pink and purple bizarres.
Earl Stamford (Addis)	Sarah Payne (Ward)
Premier (Millwood)	Falconbridge (May)
Squire Meynell (Brabbin)	Unexpected (Wood)
Dr. Foster (Foster)	Jas. Taylor (Gibbons)
Mayor of Nottingham (Taylor)	Purity (Wood)
Florence Nightingale (Sealey)	Twynford Perfection (Young)
	Dr. Masters (Dodwell)

PICOTEE.

Heavy red edge.	Light purple edge.
Brunette (Kirtland)	Cynthia (Turner)
John Smith (Bower)	Ann Lord (Lord)
Miss Small (Fellowes)	Minnie (Lord)
Mrs. Wilson (Fellowes)	Mary (Simonite)
Master Norman (Norman)	Her Majesty (Addis)
J. B. Bryant (Ingram)	Cheltenham Beauty (Abercrombie)
Mrs. Dodwell (Turner)	Silvia (Simonite)
Lothair (Fellowes)	Fanny (Lord)
Peers (Turner)	Emily (Addis)
Dr. Epps (Smith)	Heavy rose edge.
Light red edge.	Fanny Helen (Niven)
Violet Douglas (Simonite)	Miss Lee (Lord)
Clara (Bower)	Edith d'Ombrian (Turner)
Thomas William (Howdy)	Juliana (Turner)
Rev. F. D. Horner (Lord)	Mrs. Payne (Fellowes)
William Summers (Simonite)	Miss Horner (Lord)
Mrs. Keynes (Fellowes)	Royal Visit (Turner)
Rev. F. D. Horner (Turner)	Mrs. Nicholls (Simonite)
Heavy purple edge.	Elise (Kirtland)
Alliance (Fellowes)	Louisa (Addis)
Norfolk Beauty (Fellowes)	Light rose edge.
Mrs. Douglas (Simonite)	Mrs. Allcroft (Turner)
Mrs. Niven (Niven)	Daisy (Dodwell)
Mrs. Chancellor (Turner)	Julia (Dodwell)
Zerlina (Lord)	Edith Turner (Abercrombie)
Lizzie Tomes (Dodwell)	Miss Williams (Norman)
Tinnie (Dodwell)	Ethel (Fellowes)
Alice (Lord)	Estelle (Fellowes)
	Miss Wood (Wood)

CLOVES.

Yellow grounds.	Rosa Bonheur, Ghost, Mrs. Teigner, Susan Askey, Mrs. Wheeler, Purity, Sulphur King (All raised by C. Turner.)
Alice, Aurora, Cyprus, Congress, Eleanor, Gazelle, Flavius, Lady Aitchison, Ne Plus Ultra, Sultana, Bride, Coronet, Fire-eater,	

Perpetual or Tree Carnations.—Twenty years ago or more there existed a Tree Carnation, such a Tree Carnation, and such a stalky, lanky, dyspeptic-looking thing it was, that few, if any, cultivated it at all. Mr. Turner, of Slough, however, took these really useful plants in hand, and by dint of judicious crossing with foreign seed and assiduous propagation, raised the nucleus of the beautiful collection we now have. They are called Tree Carnations, because, instead of keeping a compact little herbaceous plant, they rear themselves on a stem like a dwarf standard Rose. They are called Perpetual Carnations because, as one set of blooms dies down, another springs up

to take its place, so that these plants have a very much more protracted season of bloom than ordinary varieties. The name winter-flowering Carnation speaks for itself. It is their winter-flowering habit which makes them so valuable for bouquets, &c., for they have not often the characteristics so much sought for by florists in the blooms of the show section, and there are no exhibitions devoted to these flowers, though the earlier blooms are frequently exhibited in a class by themselves at the exhibitions of the florist section.

Habit.—As a rule you will find Tree Carnations as dwarf shrubby plants, but there are some sorts which exhibit a strong tendency to climb or trail, such as *Souvenir de la Malmaison* and *La Belle*. As to varieties, they exist as in the florist section, namely, flakes, bizarres, Picotees, and selfs, but the selfs are the most cultivated in consequence of their great commercial value as cut flowers.

Soil for seeds: Loam, 1 part; leaf-mould, 1½ parts; silver sand, 1 part; well rotted manure, 1 part, to be used rather dry than otherwise. For pipings or layers: Loam, 1½ parts; leaf-mould, 1 part, silver sand, 1 part; well rotted manure, half part. For potting and repotting: Loam, 2 parts; well rotted manure, 1½ parts; silver sand, 1 part. All these composts should be thoroughly mixed and allowed to lie exposed to wind and sun (but not to more rain than can be helped) for as long a time as possible before any attempt is made to bring them into use.

Propagating by seed.—These Carnations may be very easily raised from seeds, which should be very carefully sown in March or April about an inch from one another in a well-drained shallow pan. Fill the pan to within an inch of the brim with the compost prepared for seeds, the coarsest part at the bottom, and the finest at the top. Sow the seeds regularly distributed, and sprinkle them lightly with very friable leaf-mould and silver sand. Let the seed pans be put into a cool greenhouse where they will be protected from late frosts or noxious winds and rain, but that is all. They quickly grow, and when they have made a few pairs of leaves let them be put in round the edges of pots filled with the same compost as that in which the seeds were sown. When they have attained a height of about 3 inches they may be potted with a little ball of earth, if possible, singly into small pots, and grown on till winter, not allowing any side shoots to grow up the first 3 inches at least of the stem, when, if you are lucky, some of them may flower, after which they may be treated as established plants.

By cuttings.—The principal way of increasing Tree Carnations is by cuttings or pipings, which should be taken in three batches; the first very early in January, as soon as possible after the 1st, the next in March or April, and the last in the end of October or beginning of September. The youngest off-shoots make the best pipings, so the smallest growths at the sides of the main stem should be used as soon as they have made two or three joints. Early in January, as aforesaid, take off the first set of pipings, as young shoots as possible, or, if they are at all older, the lowest pair of leaves must be completely peeled off, leaving only the soft wood underneath. They must then be cut off clean, close up to the joint, and put into pans prepared in the following manner: Take a pan some 4 inches or 5 inches deep, and put a layer of drainage at the bottom. Over this place a thin layer of fine moss sprinkled with a little lime or soot to keep out worms. Then fill up to within 1½ inches of the brim with the compost previously described, and on the top scatter half an inch of silver sand; into this pan or box let the cuttings be put about 2 inches apart; and the soil pressed pretty firmly about them, and let the pan be put into a frame or warm house. In about three weeks or a month they will be rooted, and then they may be potted off singly and grown on till early winter, when they will flower well. In March or April repeat the process, excepting that the pans need not

be placed in such a warm position as those struck earlier. It is as well to keep them always in a cool pit till autumn, but where this is not available, let them be placed in a cold frame after they have been potted singly till they become established, and then put them in the open air in a moderately sheltered place. As soon as they require it shift them into 5-inch pots in the compost before recommended for potting, placing a layer of moss mixed with lime or soot immediately over the crocks. Be careful not to let the plants make any off-shoots or side-stems for the first 3 inches, as it is of great importance that air should circulate freely below the branches, damp being particularly fatal to this class of Carnations. The third batch of cuttings should be put in at the end of August or beginning of September in the following manner: Prepare a bed under a north wall thus: Make a compost of silver sand two parts, loam one part, cow manure half part, and dig it well into the ground. Take off cuttings of rather strong young wood, peeling off the lower leaves entirely, and put them in about 2 inches from one another. If the weather is fine and hot they will root very soon, but in most cases they will root early in October. Pot them up about eight or ten in a 12-inch pot, and keep them in a cool house, pinching off shoots as fast as they appear till spring, when they may be potted singly in 6-inch pots and treated as ordinary plants. Do not cut off the tips of the grass, as is sometimes recommended. These cuttings should be cut off very clean with a very sharp knife; in fact some growers prefer to "pull" the pipings, which is done by taking the tops of the grass and pulling it till it breaks off or draws out at a joint. When first put in they should be watered rather heavily to settle the soil firmly about the roots. In all cases where they are put under glass the latter should never be removed till they are rooted, so as to keep up a temperature of about 60°, under which conditions they will often root in a fortnight or less. Grown in a high temperature like this, they must be very gradually hardened off before they are exposed. Be careful not to overdo the richness of your compost at any time. Cocoa-nut fibre and charcoal are very good additions to the compost if mixed in moderate quantities, as they tend to keep it open, moist, and sweet.

By layers.—Tree Carnations being of so stiff a habit, are not at all well adapted for layering. If the branches were bent down to the ground they would in all probability snap, so if this mode of propagation is adopted they must be layered into small pots placed on the surface of the ground or flowering pot. This operation, if performed at all, should take place about February or March, but, as I have said before, the best mode of propagation is by cuttings or pipings.

Potting.—The cuttings, as already directed, should be potted into 3-inch or 4-inch pots. About the middle or end of May they should be potted into their flowering pots, which should be 6 inches or 7 inches across, unless they are very large, old specimens suitable for repotting. It is best, however, not to keep them in pots more than two years, for the best flowers are produced the first year, and the greatest profusion the second, after which they should be bedded out. Let the pots be thoroughly clean, and place at least 2 inches of drainage at the bottom. On this place a layer of moss sprinkled with lime and soot, and then enough compost to bring the ball from the 3-inch or 4-inch pot to within half an inch of the top of the new pot. Then carefully turn out the small pot and remove the drainage and old moss; gently scratch the lower surface and sides of the ball to loosen the roots, place the ball into the new pot and carefully fill in with fine compost to within three-quarters of an inch of the top of the pot; give a slight watering, and stand the pots in a sheltered place on stages or coal ashes under a north wall. They should now and then be watered with lime water (*i.e.*, water in which a little lime has been slaked) to expel worms.

Repotting.—The first year the plants will flower best in 6-inch pots, but when they have finished their first season of bloom, or about February, they will have to be repotted. Turn the plant out of the pot in which it has flowered and remove the old drainage, moss, &c. Remove as much of the old soil as you can without damaging the roots in any way, unless the old roots are very voluminous and fibry, in which case the very fine and meagre fibres may be cut off. Then repot the plants into the same pots, which should be thoroughly cleaned before repotting, and repot them in as much of the fresh compost as possible. They may be stood in a cool pit or house till May, when they must be shifted (for the second bloom) into pots 9 inches larger, thus 6-inch into 8-inch, 8-inch into 10-inch, placing sticks neatly to them at the same time; in these pots they will flower the second year. Second year plants may be kept on from year to year in 8-inch or 10-inch pots, unless, as I strongly recommend, they be treated as suggested in the next paragraph.

Subsequent treatment.—When the layers or cuttings have been potted, they should be placed in a sheltered spot beneath a north wall till the end of August, in the case of young plants carefully stopping all shoots up the sides of the stems, and in the case of old plants preventing them flowering by pinching out the buds as they appear. After the end of August stopping may be discontinued and the plants induced to make a strong head at the top of the stem, but guard still against flower until the beginning of October by pinching out the buds as they appear. After that buds may be encouraged. At the end of August they must be top-dressed with a mixture of fresh loam and manure well rotted and be thoroughly saturated with lime water finally to expel worms from the pots. Place stakes to any of the plants which have not been already tied up, let them be carefully cleaned, placed in a cool greenhouse and periodically watered with weak manure water or other stimulant. Keep them tied up neatly, but not too closely, for if tied together so that air cannot circulate among the branches, green-fly and mildew attack the plants; therefore large specimens will want two or three stakes to a plant. They must be kept in the cold house till November, earlier or later, as you want them to flower. For early flowering they must not be stopped after July and must be put into the greenhouse early in November; if for midwinter, they must be stopped until November, and be placed in the house afterwards. For spring flowering, stopping must be continued till they are put into the house early in November. Water frequently overhead until the bloom appears, and periodically stir the soil on the surface of the pots to admit air to the roots. The houses in which they are bloomed should have a night temperature of at least 50°. They do not require to be forced. This is a mistake too often made with this winter flowering section. Be careful not to let the soil in the pots become too dry, but guard especially against keeping them too moist, one of the worst enemies of this plant being damp. Keep them quite clean, and with the above directions a succession of blooms ought to be obtained from November till March. Often these plants make long lanky, weak stems; this must be prevented by placing the plants near the glass when they are put into the greenhouse.

Bedding.—For cutting from freely in the summer there is nothing like these perpetual flowering varieties, and for all the ordinary florist purposes I should strongly recommend making a good bed of these plants. Let the cuttings be struck in early spring; as soon as they have thoroughly rooted and the weather is settled, warm, and fine, let them be planted out in beds about 12 inches apart. Let the bed be situated under a south wall and prepared in the following manner: dig into the ground very thoroughly about equal parts of good, sound loam, thoroughly rotted manure, and good sharp sand, so as to keep the soil rather inclined to dryness. The plants in the bed must be made to grow into short standards about 6 inches from the ground, as of course in the open air,

their enemy, damp, will attack them with great perseverance. As soon as they are bedded out they must be neatly staked or else they present a great field for destruction to boisterous winds and rains. A good way to produce standards and at the same time increase your stock is to let the shoots grow on the standard stem till they get two or three joints, when they may be at once piped as before described. They are when grown thus in beds most extraordinarily prolific bloomers, so I prefer to leave the bedded-out plants to their own devices and pipe in spring from the potted plants. If the plants throw up a quantity of very late flower buds (as they sometimes will) they should be potted up to flower indoors. After the first year of planting they grow to an enormous size, so after two years or so they must be moved 2½ feet or 3 feet apart, and this will not be found at all too wide after a season or two. In winter the ground over the roots may with advantage be strewn with litter and Cocoa-nut fibre as a protection from frost, but as a rule when well established these plants are quite as hardy as common Cloves. It is a very good plan, and the one I invariably pursue myself, to plant out, not cuttings or seedlings their first year, but plants which have twice done duty in the greenhouse, for these winter Carnations flower best as to quality the first season, but the second year plants are always the most profuse bloomers. After the second year they become large and unmanageable, and so are best planted out. When planting these Carnations it is as well to dig a hole and fill it with good sandy loam, well mixed with soot as a protection against wireworm, which will speedily find these plants out unless this precaution is taken. It is very convenient when the plants are in the bed to grow the back rows as tall standards. This takes some patience, but with perseverance it may be accomplished; a good long stick should be placed to the plants, and one shoot trained carefully up it, not allowing it to make any flowers or side shoots; the lower branches will continue to flower, but should be very considerably thinned down to three or four, so as to give the standard shoot a better chance. Each year let the flower bud on the top of this stem be pinched out, and as soon as it appears leave one side shoot on close to the top and train it up as a continuation of the first shoot. Protect this shoot with straw in winter, and in a few years you will have standards on good strong stems a yard high. Each successive year let the plant make a head of Grass and train up a shoot of the new head, cutting off the shoots from the lower part of the stem which formed last year's head. A very excellent form of bedding is practised with old plants very often when one has a border in the greenhouse. The plants when turned out of the pots in spring may be put in here in the ordinary way in good rich sandy earth, and they will flower either long before or long after the ordinary potted Tree Carnations according as you stop or encourage them.

Climbing kinds.—Some sorts of perpetual Carnation are what are called climbing kinds, because they grow up long and straggling, and are best trained against a trelliswork or round a pillar in a moderately warm greenhouse. They should be potted and treated exactly as the ordinary kinds until they begin to show a tendency to climb by spindling up long-jointed, thin and ragged. The pots should then be moved to an airy corner of the greenhouse against a trellis or pillar, to which the shoots as they advance should be carefully tied and twined; or else sticks should be arranged round the pots, and the shoots twisted round and round them after the manner of ordinary creeping plants in pots.

Saving seed.—This operation is not a matter of such importance or difficulty with winter Carnations as with the ordinary show varieties. As regards time to save, I prefer the spring, and therefore save from plants which have been kept to flower rather late (March or April), as there is more chance at that time of year to ripen the seed than if one depended on the short periods of sun which we get in the winter time. There is much

more pollen on these varieties, as they very often produce seed of their own accord, and this fertile property renders the operation of crossing for new varieties one not of difficulty, but of tact to perform the operation exactly at the right time before the bloom is self-fertilised. As these flowers are not often exhibited, their chief value lies in their beauty and usefulness as cut flowers; the chief points to be borne in mind beyond substance and form are purity of colour (in a self), distinct marking (in a flake, bizarre, or Picotee), and size in all. As I have just remarked, their chief value and use is as a cut or bouquet flower; the very pure and characteristic colours are most sought after, but in this class of Carnation there is a great field for the raising of "fancies," i.e., blooms of distinctly characteristic tint and marking, such as are usually carefully avoided among exhibition varieties, such, for instance, as Sir Garnet Wolseley, Tricolor, Princess Christian, and Hermann Stenger, which are all curiously beautiful flowers. The operation of crossing is similar to that described for show varieties, but the seed takes longer to ripen, and is even more liable to rot and damp off. Insects will not be so troublesome as with the ordinary kinds, in consequence of the time of year, but plants set for seed must be allowed every second of sun that can possibly be obtained for them.

SPRING TREATMENT.—In spring the plants will be going to rest after the bloom, and must be stood out in a warm sheltered spot after being potted as above described.

SUMMER TREATMENT will consist mainly in stopping the buds to prevent the plants flowering and keeping them clean from dust, dirt, and insects which attack the plants a good deal during the time they are under glass in frames at the end of the summer.

AUTUMN TREATMENT.—Stopping may be discontinued and the plants housed for flowering as described, and so on into the

WINTER TREATMENT, which, as before set forth, must be carefully adhered to when the plants come into bloom, especially as to not letting them get too wet.

Diseases and insect enemies.—The principal disease of the Tree Carnation is the immediate consequence of its chief enemy, damp. This is a state of things that must be particularly looked to after stopping has been discontinued and the flower buds have begun to form. If the roots are kept too moist, the buds decay and drop off as soon as they ought to begin to swell; it is, therefore, of great importance to see that the drainage is thorough and perfectly efficient, and to keep the surface soil well stirred to admit air to the roots. Never water, unless the soil feels dry on burrowing with the fingers under the surface of the soil in the pots. Whilst the plants are kept close the chief insect pest will be found to be green fly, which must be carefully brushed off as soon as it appears. It not often happens that a grub settles itself round the base of the stem, and, eating away the bark, kills the plant. This must, therefore, be periodically searched for, not waiting until the mischief is irremediably done and the yellowing of the leaves indicates the presence of the intruder. Periodically the plants get infested with red spider or affected by mildew when the temperature has been kept too hot or dry. The cure for this, which should be set about as soon as symptoms show themselves, is effected by means of liberal sulphuring with flowers of sulphur tied up in a muslin bag. The plants must be carefully gone all over, and when the sulphur has remained on for three clear days it should be washed off with a rag or syringe. Mildew and rot are often produced by careless tying up. If all the shoots are tied together in a bunch they soon become affected, so when necessary three or even four stakes must be put to a single plant.

The best varieties now cultivated are as follows: Avalanche, white; Congress, vivid scarlet; Hermann Stenger, rose, flamed with light rose; Garibaldi, rosy scarlet; Miss Jolliffe, pale pink (Masters); Indian Chief, deep crimson; King of

the Belgians, deep rose (Turner); Empress of Germany, white, flecked with rose (Turner); Eclair, dark crimson; A. Alegatière, bright crimson; Vulcan, bright scarlet; Lilian's Glory, light rose; Fairy Queen, rose flake (Turner); Tricolor, pink and purple bizarre; Guelder Rose, white, fringed (Turner); Rose Perfection, rose (Turner); Bride, pure white; Oscar, yellow self; Prince of Orange, yellow Picotee, red edge; Princess Christian, pink fading off to white (Turner); Mons. Baldwin; Proserpine, bright scarlet; Gloire de Lyon, bright scarlet; Duke of Wellington, bright scarlet; La Belle, white (Blackley); Celestial, Picotee; Rosy Morn, deep rose; Scarlet Defiance, rich scarlet; Queen of the Belgians, white striped with rose (Turner); Sir Garnet Wolseley, buff Picotee, red edge (Turner); Jessica, white (Turner); Mrs. Fowler, bright rose (Turner); Coronation, bright scarlet (Turner). A.

KITCHEN GARDEN.

EXPERIMENTS ON POTATO CULTURE.

DURING the past year a very important series of experiments has been conducted on the Albert Model Farm, at Glasnevin, near Dublin, with the view of testing the comparative productive and disease-resisting powers of different varieties of Potatoes. The results obtained are very important, and, at a time when the ravages of Potato disease are being keenly felt, these results possess peculiar interest. The land selected was dressed with 20 tons of farmyard manure per statute acre. Thirty-three varieties of Potatoes were obtained, and planted on February 17 and the crop was raised on September 20. Perhaps the most striking feature in the results is the remarkably low average yield realised. The gross yield of the thirty-three varieties tried does not average more than 5 tons 14 cwt. per acre, while in 1881 and 1880 the gross average produce of the different varieties of Potatoes grown at the Albert Model Farm was respectively 9 tons 10 cwt. and 10 tons 10 cwt. per acre. These results, we believe, are fairly illustrative of the character of

large portion of the enormous quantity of Potatoes now grown in Ireland as the staple food of the cotters and small tenants. Not to speak of its liability to disease, which is alarmingly strong, the Potato is very susceptible of damage by close, wet weather—characteristic features of the Irish climate. The first lessons, therefore, which these experiments would seem to teach are that Potatoes form an exceedingly risky crop in a wet, hazy climate, and that in an abnormally wet season a small yield may be looked for.

The produce derived from the different varieties will be indicated more clearly by the following table than by any summary of the results, as from the table the relative positions of the various sorts, and the gross yields, as well as the quantities of marketable, small, and diseased tubers, will be seen at a glance. It will be seen that the lead in marketable tubers is taken by the Reading Hero, a new variety that did well in England last year. It gave very close on 8 tons of marketable Potatoes, and only 6 cwt. 2 qrs. of diseased tubers. The White Rock variety gave the highest gross yield, but its much greater proportion of diseased Potatoes brought it below the Reading Hero in marketable tubers. Then the Imported Scotch Kemp also exceeded the Reading Hero in gross yield, but having shown disease in more than one-fifth of the whole crop, it fell to the fourth place in the list arranged by the marketable test. The Scotch Kemp gave more disease tubers than any of the others, but the Flounder variety showed a larger proportion of disease to its gross yield, nearly one-fourth of its total produce having been diseased. The loss by disease could not, on the whole, be said to be very heavy, although in a few instances it was considerable. Ten of the varieties, it will be seen, entirely escaped disease; but of these the Magnum Bonum and Early Vermont were the only sorts that gave more than 5 tons of marketable Potatoes.

The following table shows the gross yield per acre, and the quantity of marketable, small, and diseased Potatoes obtained from the different varieties arranged in accordance with the yield of marketable tubers.

Variety.	Gross yield per Statute Acre.	Marketable.	Small.	Diseased.
	T. C. Q. LB.	T. C. Q. LB.	T. C. Q. LB.	T. C. Q. LB.
Reading Hero	10 4 1 0	7 19 2 0	1 13 1 0	0 6 2 0
White Rock	11 6 2 0	7 16 3 14	1 12 1 0	1 17 1 14
Scotch Champion	9 9 1 0	7 7 2 14	1 19 0 14	0 2 2 0
Imported Scotch Kemp	10 12 1 14	6 13 0 0	1 7 0 0	2 12 1 14
Magnum Bonum	7 9 1 14	6 11 1 14	0 13 0 0	—
Railway	6 8 2 0	6 0 1 0	0 4 3 14	0 3 1 14
Grampian	7 11 3 14	5 2 3 14	1 10 3 14	0 18 0 14
Red-skin Flourball	5 14 1 14	5 2 2 14	0 9 3 14	0 1 3 14
M'Causland's Seedling	6 8 3 0	5 2 0 0	1 2 0 0	0 4 3 0
Flounder	8 13 3 14	5 1 0 0	1 7 0 0	2 5 3 14
Early Vermont	5 7 3 14	5 0 3 0	0 7 0 14	—
Skerry Blue	7 4 2 0	4 19 2 14	2 3 0 0	0 1 3 14
Paterson's Victoria	6 4 2 14	4 19 0 14	0 16 1 14	0 9 2 14
Fluke Kidney	5 8 1 14	4 18 0 0	0 10 1 14	—
Dalmahoy	6 6 0 0	4 16 3 14	1 0 2 14	0 3 2 0
Beauty of Hebron	5 19 1 0	4 14 1 0	1 5 0 0	—
Red Bog Kemp	5 3 0 14	4 8 0 0	0 14 2 14	0 0 2 0
Reading Abbey	5 2 1 14	4 5 2 14	0 8 2 14	0 8 0 14
Scotch Down	6 2 1 0	3 18 2 14	2 3 2 14	—
Snowflake	4 14 2 14	3 9 0 14	1 0 1 14	0 5 0 14
Early Oxford	5 7 2 14	3 8 3 14	1 15 1 0	0 3 2 0
Early Rose	5 1 2 14	3 7 1 0	1 13 2 0	0 0 3 14
Pride of America	4 11 3 14	3 6 0 0	1 5 0 0	0 0 3 14
Mitchell's First Early	3 17 1 0	3 6 0 0	0 9 0 0	0 2 1 0
Mona's Pride	4 4 0 0	2 9 2 14	1 14 1 14	—
Rivers' Royal Ash-leaved Kidney	3 10 0 0	2 9 0 0	0 16 0 0	0 5 0 0
Schoolmaster	3 17 3 14	2 8 1 0	1 1 2 14	—
Purple Forty-fold	3 17 3 0	2 6 3 0	1 10 0 14	0 0 3 14
Rector of Woodstock	2 12 0 0	1 19 3 0	0 12 1 0	—
Veitch's Improved Ash-leaved Kidney	2 11 0 14	1 17 2 14	0 13 2 0	—
Covent Garden Perfection	2 17 3 14	1 14 2 0	1 3 1 14	—
Coldstream Early	2 7 0 0	1 12 1 0	0 12 3 0	0 2 0 0
Myatt's Ash-leaved Kidney	2 5 2 14	1 7 1 0	0 16 0 0	0 2 1 14

the Potato crop throughout Ireland in the last three years, and they bring out very clearly the main cause of the distressed condition of the poorer districts of the country at the present time. The small crop of Potatoes in Ireland this year was brought about chiefly by the excessive rainfall in the month of July and in autumn, and here we have fresh evidence of the great desirability of strenuous efforts being made to discover and introduce some hardy and suitable substitute for a

The future of the Potato.—I observe a note (p. 17) as to the origin of the Potato. Both historically and botanically it may be of interest to have all possible information as to that matter, but far greater interest attaches to the future of the Potato, for without doubt it has a great future before it. We might, under ordinary conditions, congratulate the present generation that it has kinds as regards table quality far in advance of what were the best varieties of fifty years ago.

Reasoning from analogy (for in gardening everything must be either progressive or otherwise), Potatoes will in the future be much better than they have been in the past, proving more profitable to the grower and more nutritious to the consumer. Our only difficulty with the Potato lies in the disease, but that may in time be largely subdued. Mr. Jensen has, in his eminently practical way, pointed out methods which, if universally adopted, might help very materially to keep the Peronospora in check. With fine new kinds in abundance and with more enlightened treatment the Potato should yet have a great future.—A. D.

ROTATION OF CROPS.

THAT moving to fresh soil, if of a suitable character, does tend to benefit a plant is, I think, certain; or, if it is inconvenient to move the plant, if the fresh soil can be brought to it and placed within reach of its roots, a corresponding advantage will be obtained. Sometimes, where the sub-soil is capable of improvement, the new soil suitable for some crops may be found on the spot by going deeper down than hitherto. In this way vegetables, such as Potatoes, Onions, &c., have been grown for many years on the same land without any apparent falling off in bulk or quality, especially if the seed is changed frequently. Though Potatoes and Onions are largely composed of water, yet by reason of their bulk they certainly do take a good deal out of the land; still they do not exhaust it like Cabbages, which in most gardens occupy the ground for a much longer period. Most of the so-called permanent crops would be much improved by more frequent removal. Strawberries, all are agreed, are improved by being shifted every three years or so on most soils; and I have long been convinced that if Raspberries were moved more frequently the fruit would be finer and the crop generally of more value. I like to move the plants bodily, that is, dig them up as one would dig up any other fruiting bush or tree, and after discarding the oldest stools, plant a selection of the best canes on the new site. In this way there is no trouble in establishing a Raspberry plantation, for the plants have good accumulated roots to begin work with; and a mulching of manure when the days lengthen will swell the fruit to a good size. Rhubarb, Seakale, Globe Artichokes, and Horseradish, all usually classed as permanent crops, would be better moved at frequent intervals. I like to sow a portion of each annually so as to have plants of different ages. This is important in the case of Rhubarb and Globe Artichokes, giving a successional character to the produce as well as adding to its size and succulency.

Herbs, such as Sage, Thyme, Mint, &c., often occupy the same beds too long, and become patchy and unsatisfactory in consequence. Indeed, nearly all the herbs, especially those increased by cuttings, such as Sage and Mint, will be better shifted annually by cuttings planted in April and May. The beds when so managed always have a close, full appearance, are more productive, and suffer less during severe winters than they otherwise would do. And it is not uncommon for Sage, Fennel, and Tarragon to be much injured by frost when the plants remain long enough in one place to get straggling in habit.

Fruit trees on most soils are much benefited by having their roots lifted, even if the trees cannot be lifted out altogether and moved to a fresh site. Though this is a matter of the very first importance, scarcely anybody gives it as much attention as it deserves. In this respect I do not think much progress has been made since Bacon wrote recommending the manuring of fruit trees with fresh soil. Then again

Hardy herbaceous plants of nearly all kinds are better for renewal occasionally. Some plants, such as Fuchsias, when isolated, seem to thrive when left alone. But in the case of plants that have to struggle with rivals a renewal of soil is one of the best roads to success. How very

poor the flowers of herbaceous Phloxes become when left on one spot more than two or three years. And the same thing occurs with Pyrethrums, Potentillas, and all the class of hardy florist flowers. A few things chiefly having bulbous or tuberous roots do best without any disturbance; for instance, the winter Aconite now springing up should occupy a position where the spade or fork is never used; and the *Alstroemeria* and many others dislike interference.

THE CHRYSANTHEMUM AND ITS CULTURE.

(Continued from p. 35.)

It is interesting to find that the Siamese have adopted the Chrysanthemum as their national emblem. Breynius in 1689 described it as *Matricaria japonica maxima*, from which name we may infer that the earliest known large flowering kinds came originally from Japan, especially so as he speaks of yellow, white, bluish, purple, rose, and crimson varieties. Linnæus in 1753 referred to two species, *C. sinense*, with large white flowers, and *C. indicum*, with very small yellow blossoms, both double and single.* The Dutch florists seem to have been the first to cultivate *C. indicum* (Pompones) which had found its way to Amboyna and Malabar. Rheede figures it as early as 1699. Kæmpfer noticed it in 1712, and Thunberg describes it (also as *Matricaria*) in 1784.

Large-flowered Chrysanthemums.—The credit of introducing the first living plants of the large-flowered or *C. sinense* race (1789) belongs to M. Blanchard, an enterprising merchant of Marseilles. The consignment consisted of three varieties, white, violet, and purple, the latter only reaching him alive. This identical variety is so well figured in the *Botanical Magazine*, t. 310, that we have no doubt as to its identity. It was not the wild type, but one of the many semi-double forms at that time cultivated in Chinese gardens. This kind caused such a sensation, that Sir A. Hume and Mr. John Reeves turned their attention to introducing other of the Chinese varieties. These, according to Mr. Salter, were as follows: In 1798 the Rose and Buff-coloured varieties were introduced; in 1802 the Golden Yellow, Sulphur Yellow, and Quilled Pink; in 1806 the Spanish Brown; in 1808 Large Lilac and Quilled White; in 1816 the Tasselled White; 1817 the Superb White; 1819 the Red Purple and Flamed Yellow. In 1820 only twelve distinct varieties were known in England. In 1821, however, came the Paper White, Large Pale Purple, and Small Single Yellow; this last possibly may have been the one grown at Chelsea in 1764. In 1822 came the Early Crimson, a semi-double flower with open flat florets in size and form like Marigold, and one or two others. In 1824 Mr. Parks, a collector for the Royal Horticultural Society, sent home about twenty kinds—the Brown Purple, Blush Ranunculus, Curled Blush, Changeable Buff, Clustered Pink, Early Blush, Golden Lotus, Late-flowering Yellow, Pale Pink, Pale Buff, Parks' Yellow, Quilled Pale Orange, Starry Purple, Tasselled Yellow, Two Coloured Incurved, Two Coloured Red, Windsor Yellow, and Yellow Waratah, the first of the Anemone section, both ray and disc, being yellow. In 1826 forty-eight varieties were growing in the Horticultural Gardens at Chiswick, only fifteen varieties being known in France in 1822.

In 1850 Mr. Salter tells us that the varieties usually seen on exhibition stands were: Annie Salter, Beauty, Bixio, Christine, Campitroni, Defiance, Duke, Golden Chester, Goliath, King, Lysias, Mad. Comerson, Mad. Poggi, Nonpareil, Orlando, Pearl, Pilot, Phidias, Princess Marie, Queen of England, Temple of Solomon, Vesta, and Two-coloured Incurved. Most of these were grown in 1865, but as numbers of growers increased great improvement took place not only

in England, but in France and the Channel Islands. In Guernsey, Messrs. Clarke, Smith, Pethers, Wolsey, and Davis raised many good kinds, including Sir S. Carey, Abbé Passaglia, Beverley, General Bainbridge, Lady Harding, Lady Slade, Prince Alfred, Novelty, Cherub, Little Harry, Rifleman, and many others. Mr. Ingram, of Fro-more, raised several good kinds, Pompones Little Gem, a late-flowering kind, being good in colour and form. Mr. Salter, writing in 1865, says that only six or seven of the varieties originally introduced were then in cultivation, and only one Chinese name was retained, viz., Golden Lotus—some of these native names being, as he informs us, curious and interesting, such as White Waves of Autumn, Purple Pheasant's Tail, Gold Thread, a name more recently aptly applied to one of the Japanese varieties; Purple Butterfly, Crystal White, and Yellow Tiger's Claw. In 1830 seedlings were first raised, in France, the produce being remarkable for variability, much to the delight of the amateurs of Toulouse and Avignon, who now began to christen their seedlings after their national celebrities. Chevalier Bernet, of Toulouse, raised the first European seedlings, some of these being, as Mr. Salter tells us, still (1865) highly prized. Among these were Christine (Ne Plus Ultra), Chevalier Damage, Maréchal Duroc, and insigne. Other growers followed, such as MM. Boisgiraud, Regnier, Rantonet, and at a later date MM. Bonamy, Pelé, and Lebois.

The first English seedlings were raised in or about 1830 by Mr. Isaac Wheeler, gardener and porter at Magdalen Hall (now Hertford College), Oxford. These he reared from home-saved seeds at Beaumont Buildings, in that city, and on December 2, 1832, he exhibited some of his seedlings in London, and received a silver Banksian medal for them as the earliest seedling Chrysanthemums raised in England. This medal, and also a drawing of one of the plants, may yet be seen, being in the possession of a member of the Wheeler family still resident in Oxford. Other seedling varieties were raised in Norfolk by Mr. Short and Mr. Freestone about the year 1835, Nonpareil, Norfolk Hero, and Prince of Wales, with others, being the pioneers. About 1836 seedling Chrysanthemums were produced in the Channel Islands for the first time, and a great improvement began to be effected among large flowered varieties. Many of these early Channel Island varieties were obtained by Mr. Chandler, then of the Vauxhall Nursery. Beauty, formosum, and lucidum were really good show kinds. In 1838 Mr. Salter settled at Versailles, and, finding the climate suitable, imported many of the best known varieties from England, and set about their further improvement. In 1840 his collection of English, French, and Jersey seedlings amounted to between 300 and 400 distinct kinds. In 1843 seedlings began to be raised in the nursery at Versailles, and some of the results are given by Mr. Salter himself as follow: In 1844 Annie Salter, Mad. Poggi, and Queen of Yellows; in 1846 Fleur de Marie, Cyclops, and Nancy de Sermet; in 1847 came Queen of England, one of the best of white kind for cut blooms. The first public Chrysanthemum show for cut blooms was held at Stoke Newington in 1846. To Mr. Fortune, as has been stated, we are indebted for the original Pompones from China, namely, Chusan Daisy and Chinese or Omnium minimum. These were introduced in 1846, and thence dates a new era in Chrysanthemum culture so far as this section goes. In the "Gardener's Magazine of Botany" for 1850 we find many varieties of these French Daisy kinds described, and four sorts are represented in a coloured plate.

Modern Japanese varieties.—Both the large-flowered and Pompones varieties were largely grown and much improved up to 1862, when again Mr. Fortune introduced a new strain in the shape of seven varieties from Japan. So singular were these in shape and colour from all reputed standards of perfection of the time, that they barely escaped total neglect and consequent extinction. At the present day, however, these once-neglected kinds stand in the first rank as decora-

tive plants, and finer and still finer varieties make their appearance every year raised by Major Carey and others in the Channel Islands and on the Continent. Mr. Salter in 1865 lamented that some of the best original Chinese tasselled kinds were wholly lost. Of those then grown, however, he mentions Golden Lotus, Quilled Pink, Tasselled White, Tasselled Yellow, Two-coloured Incurved and Yellow Waratah. Where are these kinds now? Lost, no doubt, in the race after novelty. One Japanese kind which Mr. Fortune tried to bring home was unfortunately lost on the way. This had its florets edged very beautifully with a hair-like fringe. Writing from a florist's point of view in 1865, Mr. Salter says: "The form of the flower has become so beautiful that it seems scarcely possible any amount of cultivation can improve it, but both size and colour may be augmented."

It is true that we have many fine selfs white, yellow, orange, rose, and crimson, but violet and scarlet are at present unknown. There are but few edged, mottled, striped, or tipped varieties. Now, to-day we have, however, form more perfect in Mrs. G. Rundle; colour more vivid in Progne, Crimson Velvet, and others, and size has been considerably augmented by improved methods of culture, if not also by actual seminal variation. In the modern Japanese varieties we have form and colour of the most beautiful, and also another valuable, quality, many of them blooming a month later than the other kinds, and so we can extend the Chrysanthemum season by their aid. Early blooming races of large flowered, and also of Japanese varieties, are now a desiderata, and we yet live in hopes of seeing the Chrysanthemum in all its forms thus rendered amenable to open-air culture in our climate. A blue Rose may be an impossibility, but we are told that a variety of the Chrysanthemum exists in Japan with blue flowers. It is represented very frequently on Japanese porcelain, both ancient and modern, especially that of Satsuma and Kioto; it also appears on *cloisonné* enamels and embroidery. In the "History of Nin-toku-ten-wau" the following passage occurs: "In 386, in the seventy-third year of his reign, seeds of the Chrysanthemum were first introduced into Japan from a foreign country, both blue, yellow, red, white, and violet." The Japanese commentator remarks: "By a foreign country is meant the kingdom of Paik-tse, one of the States of Corea." F. W. B.

AMERICAN NOTES.

Celery culture made easy.—I believe I have learned the easiest way to grow a family supply of Celery. We this year filled our old hot-bed frame, 3 feet by 12 feet, with Celery plants, setting them about 8 inches apart each way, making 60 plants in the frame. They have grown splendidly, and as fast as they grow we fill in with earth, and they blanch nicely. I believe that they would have done as well if planted closer, say 100 plants in the frame. The advantage is that they occupy but little space, are not much trouble to cultivate, and require much less water than if planted in the usual way, with the rows 6 feet or 8 feet apart, besides a much smaller quantity of earth answers for banking up for bleaching, and of course less labour. If one has not a hot-bed frame, he can set boards round the edges of a bed in the garden, and manage in the same way. Boards 1 foot wide should be used, and very cheap refuse timber will answer for the purpose.—*New York Tribune*.

Dry sand as packing.—The Citrus men of Los Angeles, Cal., have made a discovery of great value to Florida. Dry sand is the best packing for Oranges and Lemons. It must be quite dry and no paper must be used. The fruit must touch the sand. Experience warrants keeping for five months at least. The dry sand has absorbing power that apparently takes up all exudations subject to decomposition, the rind being very porous. Naturally the thoughtful mind suggests that, on the same principle, dry sand must have a similar preservative effect on other fruits, such as Pears, Plums,

* It is curious to note that single flowered Pompones after having been lost sight of for over a century are again coming into favour. Of such is *New Departure*, as now grown by Messrs. Cannell, with white ray florets and a golden disc. (See GARDEN, Jan. 6, 1883, p. 8.)

Nectarines, Apples, and other smooth-skinned varieties.

Classification of soils.—Professor Johnston classifies soils, says the *Massachusetts Ploughman*, according to their clayey or sandy proportions, thus: First, pure clay, from which no sand can be washed. Second, strong clay or brick clay, which contains from 5 to 20 per cent. of sand. Third, clay loam, which contains from 20 to 40 per cent. of sand. Fourth, loam, which has from 40 to 70 per cent. of sand. Fifth, sandy loam, which has from 70 to 90 per cent. of sand. Sixth, light sand, which has less than 10 per cent. of clay.

Labels.—We think that the label problem is solved. Lead pencil upon zinc will endure for many years—nobody knows how long. Over three years ago we marked a zinc label 2 inches long as follows: "Ulmus gras. Written with lead pencil Aug. 20, 1879." On the other side was written: "President Gale's suggestion." President M. P. Wilder has since told the readers of the *Rural New Yorker* that he has used these zinc labels written upon with common lead pencil for many years. When first letters are written, they show very indistinctly—just as if written upon glass; but in a few days they grow more distinct and finally show as plainly as if upon painted wood. Copper wire alone should be used, for the reason that iron wire soon rusts, and the rust is washed over the zinc. This label is so far free from objections that we are now using it for all of our plants as the old wood labels wear out or the marking becomes indistinct.

The Switzer, a new Russian Apple, grows wonderfully fast in the nursery, rivaling, if it does not excel, in vigour the widely-spread Haas. The Switzer fruit as to quality is by excellent judges very highly commended.

Tomatoes.—Dr. Hexamer says he obtained a supply of Tomatoes for a month after the frost had destroyed the crop in the open ground in the following way: Dig up the plants carefully, with as much of the entire and uninjured roots as possible, and plant them in the ground in a cold greenhouse, watering as may be necessary. They soon recover from the wilting, and continue to ripen the fruit on the branches.

Rye and sheep in orchards.—We find a statement, in some of our exchanges, of the management of an orchard, which has so many good points that we give the substance below. The trees are cultivated for twelve years while young with hoed crops, and with enough manure to keep them in a good growing condition, which is determined by the length of the annual shoots. A thorough summer fallow succeeds, and in the autumn the mellow ground is sown with Rye and Timothy, followed by sowing Clover in spring. Sheep are turned in when the Rye is a foot high, and it will continue to sprout up and grow as it is eaten off. As soon as the young, wormy Apples drop the sheep eat them. The sheep are taken out in time to gather the Apples. They are pastured in the orchard for four or five years, or until the growth of the trees becomes diminished. The ground is then ploughed and fallowed as before. Unless the trees are in a thrifty condition, a broadcast top-dressing of manure is applied in autumn every alternate year.

Evaporating fruits on a small scale.—Fruit raisers who have a limited supply of fruit often wish to know of the facilities for doing the work of drying with their own hands, without much outlay. We lately examined the work of a neighbour who performed all himself. He uses the American dryer, costing 75 dols. (formerly 40 dols.), which will dry twelve bushels of Apples in a day, although much of his fruit is so wormy that he can cut only nine bushels. A hundred pounds of coal does the evaporating for twelve hours. Four hours are required to complete the process, or four bushels at a time. A bushel will make five pounds of evaporated fruit. Wormy and defective Apples will give only four pounds. They are pared, cored, and sliced by machinery. The entire cost of drying is three cents per pound of dried fruit.

Manuring Apple orchards.—Intelligent orchardists discovered the advantages many years ago of fertilising the ground in Apple orchards by top-dressing with yard or stable manure. We have seen old trees, partly dying and pronounced entirely superannuated, so far recovered by copious and broad top-dressing as to give again good and heavy crops. At a late meeting of the Dayton Horticultural Society, Mr. Waymire stated that he had five Bellflower trees remarkable only for their unfruitfulness. He heavily manured four of them, and from these he had good crops. The fifth, which was not manured, bore next to nothing.

Planting black Walnuts.—Mr. J. H. Joly gave to the Montreal Horticultural Society directions for planting black Walnuts, of which the following is the substance: Avoid transplanting the trees if practicable by planting the nuts where the trees are to remain. The rows should be 4 feet apart each way. At this near distance the trees will grow up without lateral branches (which are apt to be torn off by snow or wind), and they may be thinned as their growth requires. The nuts should be sunk about 2 inches in the ground. The rows should be perfectly straight, set with a line, and marked from place to place with stakes, so as to show accurately the young plants the first year in cultivating. The ground must be thoroughly prepared beforehand, and the richer, the more rapid the growth. Always sow in the fall if practicable. If the nuts are left till spring out of the ground, they become dry and will not grow. We have found no difficulty in transplanting the young trees at 5 feet or 6 feet high, and have measured a number set in streets more than twenty years ago which are now about 14 inches or 15 inches in diameter.

Large trees in Massachusetts.—Some of the members of the Massachusetts Horticultural Society mentioned at one of its meetings the dimensions of trees of great size growing in the vicinity of Boston. Mr. G. Hill said that one of the white Oaks in the Waverley district in Belmont is 8 feet in diameter, and that 8 feet of its trunk would make two cords of wood. Another, nearly 100 feet high, was hollow, so that a man of ordinary height could lie down at full length in it. Agassiz said they were the largest white Oaks in the United States. Mr. W. M. Hunt spoke of a magnificent Elm near his house in Concord, which is 88 feet high, and has a spread of 125 feet. The trunk a foot up is 8 feet in diameter; three of the branches are each over 3 feet in diameter. Mrs. Horner knew a Chestnut at Georgetown, 147 years old, which was over 4½ feet in diameter.

Large Strawberry plantation.—Some of the western journals give an account of the extensive and well managed Strawberry plantations of Mr. Parker Earle, of Cobden, Ill., who is widely known as one of our most skillful fruit cultivators. He has twenty acres of the Crescent, and several acres each of Downing, Capt. Jack, Sharpless, and other sorts. The Crescent succeeds admirably in wet seasons. His entire eighty acres are liberally treated with manures. Before being sent to market, the fruit is thoroughly cooled in cooling houses, and it is then shipped in refrigerator cars, by which soft berries are carried with safety. Besides the wide Strawberry plantations there are thirty acres of the Turner Raspberry, and sixteen acres of Blackberries. Mr. Earle has also eighty acres of Pears on another, of which fifty acres are in bearing, and one-half are Bartlett's, but many have died of blight.—*Country Gentleman*.

The late frost in Ireland—December commenced with 9° of frost, which kept increasing until it reached 30° on the 9th, 29° on the 11th, again 30° on 10th, 26° on the 15th, zero on the 14th, and 1° below that point on the 15th; then a thaw set in. From the 1st of the month till the 15th we had altogether 176° of frost, which almost equals in rigour the cold of 1879–80. The readings just quoted, I may remark, were taken from a thoroughly reliable, self-registering, maximum and minimum Negretti & Zambra thermometer; also I may add that we lie low and are subject to late

spring and early autumn frosts. Four or five years ago we had all half-hardy flower-garden plants and tender vegetables in the kitchen garden cut over by frost so early as September 3. As regards the late frost, fortunately we had an even depth of 6 inches of snow, which thoroughly protected all low-growing vegetation, such as herbaceous roots (now for the most part dormant), Cabbage plants, and the like. Broccoli are all killed where not "laid;" those laid, however, have wintered so far wonderfully well, being doubly protected by their own leaves and snow. Brussels Sprouts stood firm, likewise Cottager's Kale, a most useful vegetable. Those which have succumbed more or less are Curled Borecole, Cabbages, and Savoys. Several rows of Backhouse's Broccoli planted later than the main crop afford an instructive hint. They were pricked out on a north border in nursery rows until we could find room for them, when they were planted out finally a month after the others, and they are now as fresh as if they had not been subjected to frost at all, a fact worth remembrance.—S. K. T., *County Antrim*.

PROPAGATING.

DROSERA DICHOTOMA.

THIS Sundew is one of those curious plants rarely seen in cultivation. It is a native of Sidney, New South Wales; and although it was introduced into this country nearly thirty years ago, under the name *Drosera binata* (Bot. Mag., t. 3082), it still remains very scarce in British gardens. Hitherto, the mode of increasing the plant has been by sub-division of the crown of the root, which is done during early spring before the leaves unfold. This is a slow method of propagation, as the plants require to be of considerable size before subdivision can be resorted to. Of late years attention has been directed to the root propagation of the *Ipecacuanha* and other plants. Mr. Lindsay, Royal Botanic Gardens, Edinburgh, endeavoured to increase this Sundew by root propagation, and his efforts have been crowned with success. The roots for the purpose of propagation are generally taken from strong growing plants during the process of crown division. They are black, and of a wiry consistency, and are cut into numerous pieces from half an inch to an inch or more in length. These are laid on the surface of shallow earthen-ware pans or flower-pots, filled with a mixture of sandy peat soil, and are covered about half an inch deep with the same mixture. They are then enclosed with a bell-glass, and are placed in a damp, warm, propagating house. In the course of a fortnight, swellings begin to appear on the surface of the detached roots, which increase in length till they reach the surface of the soil. This generally occupies five weeks. When the leaves become developed, they are mostly of a binate form, and soon cover the surface of the pan as if they had been a crop of seedlings. When about 2 inches in height, they are separated and put into small pots, containing soil similar to that in which the roots were originally placed, with the addition of some chopped Sphagnum moss freely mixed through it. If carefully attended to, they soon make excellent plants. This Sundew may be grown to a large size, and will flower abundantly either under basket culture in Sphagnum moss, or in pots covered with Sphagnum, and placed in a damp, but sunny situation, or in shallow pans of water. It thrives well in a greenhouse, or in cool glazed pits, placed near the glass. It also succeeds in the rock garden, where a flat saucer is sunk below the pot to prevent the moisture from escaping. In such a situation it was kept alive during the winter of 1871, merely having some loose leaves thrown over it. Under open-air culture, however, the plants generally become black with dust and insects, collected by the viscid secretion given out by the leaf glands. Other species may also doubtless be propagated by cuttings from the root like the *D. dichotoma*. The first species introduced from Sydney to Kew was named *Drosera binata*, having each leaf once forked. Judging from the figure of this plant in the "Botanical Magazine,"

it must have been drawn from a weakly specimen, as the flowers are small compared with those which the *D. dichotoma* produces. In cultivation this plant seems to vary much; the original binate form has, no doubt, becomes dichotomous, and can also be reversed. In proof of this, several of the plants now in the Edinburgh Garden have their leaves binate, although produced from the dichotomous form by sub-division and root formation, while some plants have their leaves divided into two, three, four, and five parts on the same individual. These circumstances satisfy me that there is no permanent distinction of these supposed species, and as the dichotomous form is the most prevalent, it ought to retain the name. Planchon, in his excellent paper on the *Droseraceæ*, published in the "*Annales des sciences naturelles*," vol. v., makes the *D. binata*, *D. dichotoma*, *D. pedata*, *D. intermedia*, and *D. Cunninghami* all synonymous. He also states that the leaves often vary on the same specimen, a fact confirmed by the specimens in the Edinburgh Garden.—*Edinburgh Botanical Society's Proceedings.*

GARDEN DESTROYERS.

MEALY BUG.

THE discussion that has taken place on the destruction of this, the worst pest with which gardeners have to contend, is a fitting subject for this time of the year, for it is during winter that its annihilation can be attempted with the best results. I had some plants once in exchange affected with it. In winter they showed no sign of it, but when spring came it quickly made its appearance and spread apace. We kept on battling with it more or less for two years, during which time it got possession of six or seven plant houses and the Vines in a house adjoining the stove. The plants were yearly getting larger, and I could see that if the bugs were not got rid of the work entailed would be enormous. The first thing done was to move the plants out of the principal stove, disposing them in two other houses. The tan was then cleared out of the bed, the coping taken off the wall which enclosed it, and laid afresh in new mortar. Every joint of the brickwork and every crack or crevice in it was filled up with fresh mortar, and the whole had three coats of hot limewash. The woodwork was alike treated. Paraffin was not then known as an agent for the destruction of insect life, but we used the much more expensive ingredient turpentine, brushing it in where there was a crack or a joining in the wood, or between the wood and iron-work, using putty where needful, with two coats of paint laid on in a way that would seal up any eggs that were left; the plants were then thoroughly washed with

Gishurst, five or six ounces to the gallon of water, some being dipped. Such things as *Stephanotis* were taken down, the pots laid on their sides and the tops steeped overhead in the mixture; those that were syringed were laid down on their sides over a large trough and turned over and over, much more time being expended in this way than usual; the soil was taken from the surface of the balls and the mixture brushed right down well to the collar of the plants before putting a little fresh material on the top. In this way the whole of the stove stock was gone through; two other houses that were the most affected were similarly treated, and all the heat-requiring plants on which the insect thrives and breeds were brought into them. All the stock infested were thus gone over four or five times; two men did nothing but dip and syringe for eight or ten weeks; as soon as they got through one end they began again at the other. Although in the first instance the care and labour bestowed were such that one might have thought nothing living could have escaped, yet still we found some, but in all cases they appeared to be full-grown insects and had lost a good deal of their mealy jackets. No eggs or small fry were found after the first dressing. The other houses that had contained affected plants were all cleaned

and painted, including the vinery, which as soon as the leaves were ready to drop was pruned, and such of the bark as was loose rubbed off, but not scraped. The Vines were then dressed with the ordinary clay mixture, which was thinned with water in which 8 ounces or 10 ounces to the gallon of Gishurst had been dissolved. They were painted over with this three times before the end of the year. The same precautions as regards the painting and lime-washing the house were taken that had been exercised in the others, and the means collectively were successful, as I was completely rid of the pest for several years, until it was got again, as I supposed, on some specimens that had been at an exhibition, and there staged in dangerous proximity to others that were affected. The bugs got possession of some *Dipladenias* and *Ixoras*, from 4 feet to 5 feet through, before they were discovered, but in this case they had not got into the wood or brickwork, and were got rid of by three or four successive washings. This time I used Stevenson's "Abyssinian Mixture," a much more effectual remedy for bugs than Gishurst, but neither this nor anything else I have tried at all approaches

Paraffin as a destructive agent for bugs. Gishurst, though useful in some cases, is one of the last remedies I should now employ for bugs, as, like a good many other insecticides, unless applied too strong for many plants to bear, it is not certain to kill. If the plants are large, excepting the few things that admit of being steeped overhead for a time in the cleansing liquid, it is scarcely possible to get at every insect and every deposit of eggs at a single or even a second dressing. Some of our large specimens that were affected the second time of having the insect had each two men at work on them with syringes for over an hour, keeping them continually turned, and giving them a shake now and then so as to separate the leaves in such a way that the liquid would reach every particle of surface, sopping it with a sponge into the cracks in the bark about the collars of the plants and up the stems, loosening all the ties where the nests of young fry laid between the bast and the sticks, and painting every stick afresh before again using it. It is only by close attention to such small matters as these that anyone who ever has a considerable number of plants affected by mealy bug can expect to get completely clear of it. Of the different

Dressings for Vines, I have not the slightest hesitation in giving the preference to the coal tar and clay mixture for the simple reason that it is the most effectual and the least dangerous. It is not nearly, indeed, so dangerous as paraffin diluted with water, inasmuch as the paraffin is of such a thin, searching nature that it penetrates at once to the inner living bark, whereas the tar mixture lies like paint on the outside, yet, even without necessarily touching every egg that may be deposited underneath, its strength and odour are such as to kill them. It is all the more certain to do so, as it is a long time in drying up and evaporating, and when the Vines are coated with it, as they should be as soon as the leaves are off in the case of late started houses, it has plenty of time to effect the work which it is required to do. Those who know and have seen what the effects of the pernicious scraping are when carried so far, as is sometimes done, until the green living bark is all but perceptible, will not require to be told that to do anything more than remove the loose outside shreds of dead bark before using the tar dressing is to court injury. When Vines have been close scraped into the quick I have more than once seen the crop half destroyed through dressing with the ordinary mixture of clay, soft soap, and sulphur when the sulphur has been used too freely, and mischief can scarcely fail to follow the application of a still more powerful agent like coal tar if it is brought in contact with the living under bark.

T. BAINES.

Paraffin as an insecticide is one of the very best that can be used, and also one of the cheapest, but such directions as the following are

misleading: "In syringing with this mixture, the syringe should be drawn full and again discharged into the vessel, then quickly refilled and discharged on the plant." This is a very unsafe way to use paraffin, as I and many others have proved. Some years ago I carefully followed the same instructions, using one wineglassful of paraffin to three gallons of water applied to some *Crotus*. The result was some of my plants died, and the others lost every leaf. I therefore discontinued paraffin for some time, but meeting with a friend who said he used nothing else, and that he mixed it with soft soap, I ventured again to try it, and this time was more successful. I find it now to be the best of all insecticides for general use. I mix it thus: to half-a-pound of soft-soap, I add one pint of hot water, stir until the soap is thoroughly dissolved, then add half-a-pint of paraffin and stir well; to this I add two quarts more of hot water and put the whole into a stone bottle and shake it well before using. This I always have in readiness, and for syringing or sponging we dilute it as may be necessary. It mixes readily with cold water, and thus mixed may be safely applied to any plant.—J. LAINE, *Randon, Leeds.*

NOTES OF THE WEEK.

MAGNOLIA CAMPBELL.—We learn that this Sikkim tree, said to excel all other *Magnolias* in the splendour of its blossoms, is about to flower at Lakelands, Cork.

DIARIES.—We have received Charles Letts's admirable diaries, which are as well produced as it is possible to make them. Among others is one on housekeeping and poultry keeping which have advantages for some.

NEW REMEDY FOR PHYLLOXERA.—A French chemist claims to have discovered a method of overcoming the danger threatening vineyards from the ravages of the *Phylloxera*. His process is to inoculate the vines with the phenol poison. The *Phylloxera* does not attack plants thus treated, and is extirpated for want of food. The Vines are in no way injured by the inoculation process.

TREE PLANTING IN THE ISLE OF MAN.—By direction of Sir Henry Loch, Her Majesty's Commissioner of Woods and Forests, a large extent of Crown lands in the Isle of Man is about to be planted with forest and ornamental trees. About 500 acres are now being so planted on the mountain called Archallagan, where cabins have been erected by the contractors for the accommodation of the men. Messrs. Little & Ballantyne, Knowlfield Nurseries, Carlisle, have been entrusted with the contract, and already the first instalment of a quarter of a million of young trees has been shipped from the Carlisle Nurseries for the work.

FASCATED ECHEVERIA.—The other day the Rev. H. H. Dombrain drew our attention to a plant of a curiously fasciated *Echeveria secunda glauca*, from Mr. Brown, gardener at Great Doods, Reigate, with whom it originated. The stem is flattened much in the same way as in the *Cockscomb*; the plant which we saw was some 6 inches broad, and the crest furnished with crowds of tiny leaves of the same glaucous grey hue as in the normal type. It is very similar to the variety of *Sedum reflexum* called *monstrosum*. It is an interesting and curious monstrosity, and perhaps will be fuller developed later in the season.

JAMAICA BANANA TRADE.—A large and increasing export trade in Bananas is being carried on between Jamaica and the United States, chiefly from the ports of Kingston and Port Antonio, from which regular lines of steamers ply monthly or bi-monthly to New York, Philadelphia, Baltimore, and New Orleans, each of them carrying from 5000 bunches to 10,000 bunches. Jamaica contains a good many Banana plantations, varying in size from 25,000 plants to 200,000 plants, for the most part cultivated by the small settlers in the different parishes. These holdings generally consist of three or four acres of land. The cultivation is very primitive. The land being

cleared by a big iron hoe, a hole is dug and the sucker is planted in it, in most cases Nature doing all that is necessary; but in larger plantations the Bananas, the trunks of which reach a height of 8 feet or 10 feet, are planted with some degree of system in the form of squares, and trenches are dug for irrigation, the Banana thriving best in damp, stiff soil. A bunch consisting of eight pips is the usual size of fruit for shipping.

AURICULA CULTURE AT ROCHDALE.—At a meeting held on Monday last at Rochdale, attended by well-known cultivators of this flower, it was resolved to revive the Auricula show in that town. The forthcoming show is fixed to take place on the day following the exhibition of the Natural Auricula Society at Manchester. Mr. C. M. Royds, J.P., Rochdale, was elected president; and Mr. Samuel Barlow, J.P., Stakehill; Mr. R. Gorton, Eccles; and Mr. William Bolton, Warrington; vice-presidents. Mr. James Cheetham was requested to accept the office of hon. secretary and treasurer, and Mr. James Brodie, Mitchel Street, Rochdale, is to be the assistant secretary.

ROYAL EXOTIC NURSERY, CHELSEA.—We understand that Messrs. Veitch & Sons have just acquired the freehold of this nursery, the area of which is about 5½ acres. This has been a nursery for nearly 70 years. In 1814 Mr. Knight commenced business here, and was subsequently joined by Mr. Perry, who, after Mr. Knight's death, sold the business in 1853 to the late Mr. James Veitch, then a nurseryman at Exeter, and to whom a lease was granted which would shortly have expired. This nursery as a centre, and the numerous auxiliary nurseries which belong to it, make Messrs. Veitch's establishment rank amongst the most valuable and extensive nursery businesses in this country.

NEW LONDON NURSERIES.—Though many of the old London nurseries have ceased to exist, new ones are constantly springing into existence to take their places. Among those recently established is the Morland Nursery, Portland Road, South Norwood, belonging to Mr. Bausé, several years manager of the General Horticultural Company's Melbourne Nursery, at Anerley, and well known in the gardening world as a skilful hybridist, and for the many beautiful plants, such as Caladiums, Coleuses, Dieffenbachias, Ferns, &c., with which he has enriched our collections. Mr. Bausé intends now to cultivate a general collection of ornamental plants, particularly those of the fine foliaged type, such as Palms, Crotons, Ferns, and already his houses are crowded with an excellently grown stock of these and numerous other classes of plants. We hear, too, that Mr. Tudgey, so well known both at metropolitan and provincial flower shows as a successful exhibitor of stove and greenhouse plants, has started in business as a nurseryman at Waltham Cross. Having acquired the fine specimen plants from his previous employer, he intends to exhibit them in nurserymen's classes.

A LILY SCREEN.—We have come to a time when naturalistic designs begin to replace to some extent the conventional twistings of a very popular school—lines without meaning or suggestion. There is now in New Bond Street (No. 67) a specimen of a screen boldly painted with hardy Lilies as they grow in the garden. It is very effective and artistic, and worth a visit from those who have the opportunity. Among the various arts at which women may successfully work is that of flower painting. Many get a feeble degree of power in it, seldom enough to make their work worth looking at a second time. They often present their drawings for republishing long before they can either draw, compose, or colour. The life is worn away by so many petty "accomplishments," that no strength or soul is left with which to take up anything with the devotion and ceaseless loving work necessary. Yet here no "model," costing so much per hour, is required, but beautiful things are around us everywhere. Yet so idle and weak are those who dabble in drawing, that all the lovely aspects of flower and tree life in Nature are allowed to pass unseized.

FORESTS AND HAILSTORMS.—Herr Riniker, chief forester of the canton of Aargau, Switzerland, brings forward some interesting facts tending to prove that a direct connection exists between forests and hailstorms. In support of the theory that where there are forests there are, as a rule, no hailstorms, it is asserted that in the region of the Lindenberge, a low chain of mountains stretching for a distance of about 20 miles in the southern portion of the canton, and with an average height of about 800 feet, hailstorms were very frequent at a time (some twenty years back) when the mountain slopes were in considerable part denuded of their forest growth, but that since the period of partial re-plantation (in 1868, with a growth of Fir) hailstorms gradually decreased in frequency, and altogether ceased with the year 1871. The explanation offered by Herr Riniker for the facts as observed is, that the meeting of the negative electric current drawn from the earth by the trees with the positive electric current saturating the hail-clouds, produces heat sufficient to prevent the complete congelation of the clouds, even to melt the hailstones that may have already been formed from them, thereby converting the frozen particles into rain.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At the annual meeting held the other day at the Bedford Hotel, Covent Garden, Mr. G. Lambert in the chair, the annual report and audited financial statement were read and adopted. From the balance-sheet it appeared that the annual subscriptions amounted to £1141 8s., the largest sum, it is said, which has ever appeared under that heading, while the donations received amounted to £679 10s., and other items brought the income up to £2326 17s. 6d., which, with the sum of £441 14s. 10d. brought forward from 1881, made a total of £2768 12s. 4d. The expenses during the year amounted to £1679 2s. 1d., and included the payment of £1220 13s. 4d. in pensions and gratuities, and £700 have been invested in 3 per cent. Consols, leaving a balance in hand of £377 17s. 9d. The number of pensioners on the books last year was 82—40 males and 42 females; and the amount invested in 3 per cent. Consols in the names of the trustees is £14,750. With reference to the Pension Augmentation Fund, the amount collected last year by 313 collectors was £602 7s. 5d., the expenses incurred in connection therewith being £61 4s. 3d. The total amount received on account of this fund is £1926 14s., and £1800 have been invested in 4 per cent. Victoria bonds. Sir Trevor Lawrence, Bart., M.P., was elected a vice-president in the room of the late Mr. G. W. Norman, and the election of officers resulted in Mr. Wrench being again appointed treasurer; Mr. Sherwood, a trustee in place of the late Mr. William Hurst; Mr. John Lee, Mr. J. F. Mes-ton, and Mr. James Gray (re-elected) as auditors; Mr. Sherwood, Mr. Jacob Rose, Byfleet; Mr. Bruce Findlay, Manchester; Mr. R. P. Ker, Liverpool; Mr. B. Maller, Lewisham; and Mr. John Roberts, Gunnersbury, as members of the committee in place of the retiring members; and Mr. E. R. Cutler, as secretary, for the forty-first time. Nineteen persons were placed on the pension list.

CATALOGUES RECEIVED.

- W. Watson's (Newcastle-on-Tyne) Descriptive Spring Catalogue.
J. Farmer & Co.'s (Bishopsgate, London) Wholesale Trade List of Seeds.
W. Tait & Co.'s (Dublin) Garden and Flower Seeds, Potatoes, &c.
T. Horsman's (Bradford) Choice Garden Seeds.
P. J. Kanes' (Kells, Co. Meath) Amateur's Annual and Seed Catalogue.
W. Samson & Co.'s (Kilmarnock) Spring Catalogue of Seeds and Plants.
Charles Turner's (Slough) Annual Seed Catalogue.
W. Rumsey's (Waltham Cross) Seed Catalogue for Garden and Farm.
F. W. and H. Stansfield's (Manchester and Pontefract) Select List of Hardy Ferns.
J. Cheal & Son's (Crawley) Illustrated Catalogue of Garden Seeds.
Laing and Mather (Kelso), Seed Catalogue.

Shoddy.—"R." speaks (p. 6) in high terms about this waste, and all he claims for the Lancashire shoddy may be true. Practically, I know nothing of the kind from that quarter. What I wish to do is to put your readers on their guard respecting some sorts of shoddy. I have had some experience with certain kinds, and have also seen them used by others; there is shoddy and shoddy, and the bulk of that made in the woollen districts of Yorkshire requires to be used with much care, even for strong-growing crops, whilst for the flower garden it is quite unsuited. The "extracting" process consists in soaking the rags in oil of vitriol, diluted, of course. That destroys the vegetable fibre, which falls to dust when passing through the machinery, and so the shoddy is made; the vitriol may be traced for a long time; there are other kinds not so made. Some years ago Hop growers used to give a good price for shoddy from these parts; that was before the vitriol process became so general. Now they will not have it at any price, and I have repeatedly had tons of it offered to me for the fetching. I tried a few cwt. and I have yet cause to remember the parts where it was laid on; many plants were damaged, and even now where the waste came to the surface may be seen masses of fungoid growth. A nurseryman used it for plunging Roses and Clematises in; it heated and did a deal of damage in that way. Besides, where young shoots came in contact with it they were eaten off as by slugs. It had the same effect where used as a top-dressing. I think, therefore, before anyone uses shoddy something should be learned as to the kind, as I am sure the vitriolised cotton dust is a poor manure and a dangerous stimulant, to say the least about it.—J. WOOD, Woodville, Kirkstall.

I have for some time used shoddy as a manure, and find it very useful for plants, vegetables, and fruit trees.—C. FISON, Merlwood, Parkstone, Dorset.

Lima Bean.—Referring to the paragraph (p. 45) describing the success met with in the cultivation of this Bean in America, allow me to ask if anyone grows it in this country? and, if so, with what results?—J. H.

Nymphæas and Nelumbiums.—What is the best material in which to pot choice Nymphæas and Nelumbiums? also the best time to start them, and the temperature at which the tank should be kept?—AQUATIC.

Hay ashes (J. B.).—The ashes from the burned stacks will make good manure, especially if soaked with liquid from the stable yard or cow house. Apply it to all crops for which ordinary manure would be useful. The sand mixed with the ashes will do no harm.

Boundary fences.—Would someone acquainted with such matters kindly answer the following questions: I have bought a small business; part of the land has been let for building purposes, but I cannot tell when the owner intends to build. What I wish to know is whether he is not bound to fence his part off, and, if with a wall, what height ought it to be? I am intending to put a fence 6 feet high up to my boundary. How near can I go to the divisional line? also, is it quite legal to plant the fence very near his ground, so long as it is on my own, and I do not allow it to encroach on my neighbour's? I am really in a fix what to do; all I want is what is fair and just.—W. J.

Books (E.).—Fawkes' Horticultural Buildings, 171, Fleet Street.

Fruits and flowers (F. W. S.).—Try Messrs. Webber, Covent Garden, for fruit, and Dickson for flowers.

Names of plants.—*G. Nisbet.*—*Gesnera oblongata*, apparently—*S. S.*—1, *Gaultheria Shallon*—send in flower; 2, species of *Pteris*, send better specimen; 3, *Nipholobolus Lingua*; 4, *Franciscea eximia*.—*J. Crook.*—The *Salvia* appears to be *S. involucreata*, but the flowers had fallen from the specimen you sent. Send a good spray with foliage of the *Lantana*.—*J. H.*—Appears *Zygopetalum crinitum*, but the flower was too much damaged to be accurate.—*Ferndown.*—1, *Correa pulchella*; 2, *C. speciosa*; 3, *Epiphyllum truncatum*; 4, 5, 6, are leaves of *Eucalyptus*, which we cannot name without fuller material.

COMMUNICATIONS RECEIVED.

C. W. D.—W. W.—B. S. D.—J. S. W.—T. B.—W. J.—H. H.—W. J.—D. T. K.—E. H.—H. P.—C. & Co.—J. H.—D. B.—C. W. A.—W. J. M.—C. R. A. H. G.—M. B. S.—C. L.—E. H. A.—F. W. B.—W. P.—J. N.—S. T.—G. B.—Hopton.—Delta.—L. & B.

"This is an Art

Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare*.

PROFITABLE FRUIT CULTURE.

ALTHOUGH not what may be strictly termed a market grower, I have had good experience in fruit growing districts, and number among my personal friends several practical men who not only are successful fruit growers, but who are particularly good judges of what kinds and varieties are most profitable. I venture, therefore, for the benefit of intending planters, to supplement the valuable and concise information conveyed in *THE GARDEN* (p. 18) with a few observations of my own.

Competition, it appears, owing mainly to the extensive imports, is now very keen, and it is not entirely a question, when selecting, as to which varieties are most prolific, but which sell the most readily. With this end in view, the intending grower at the outset should frequently visit the markets and ascertain, as far as practicable, what is most in demand at the different seasons, the best methods of sending, and other serviceable details. The friendship of a salesman is especially valuable, not only then, but later on when the orchards are in full bearing, as these men know better than anyone what should be grown, how to send the produce, and when best to push the sales. It will be found that there are three very important agencies in connection with the success of a fruit grower, and which should not be lost sight of by beginners, viz., suitable soil, favourable position, and convenient locality of the orchard.

Soil.—Not a little depends upon the natural soil of the intended site. A shallow surface soil, with perhaps a gravelly subsoil, is altogether unsuitable, as the majority of fruits that ought to be grown succeed only on a comparatively strong and deep soil. To double dig this, however, on a large scale is almost out of the question; but a well-horsed sub-soiler will do much to break up and eventually improve the hitherto unbroken subsoil. If naturally retentive of moisture and imperfectly drained, then by all means resort to artificial draining; but rapid shallow draining must be guarded against, or this may prove nearly as injurious as stagnation. As a rule, the subsoil only requires draining, and this both deeply—say about 4 feet—and at wide intervals—say about 20 feet, or midway between each row of trees. This, with good outlets, will insure the requisite slow, but certain percolation of the surface water through the whole depth. With regard to a

Favourable position, as a rule I should prefer to plant an orchard on a gentle declivity, with a S.S.W. inclination, and would provide a belt of Spruce or other Firs to afford further shelter from easterly winds, which so frequently greatly injure our orchards. If a comparatively light soil prevails, then I should prefer a level, but not low-lying position for an orchard, avoiding land in proximity to a stream, which inevitably contributes to, if not the sole cause of, late spring frosts. We not only are anxious to secure a good "blowth," as an abundance of bloom is suggestively termed by the natives of some of the western counties, but like to avoid the great anxiety prevailing in low-lying districts till a good set is secured. More than is at first apparent depends upon commencing fruit growing for profit in a

Favourable locality, and this, to deserve the designation, should be in the neighbourhood of a large provincial town, or within comparatively easy distance of London. After a fair experience in more northern districts, I can safely assert that better crops on an average can be secured in the more favoured southern counties, and there is a greater certainty of effecting better sales in London than elsewhere, not excepting even such important towns as Manchester, Liverpool, Leeds, Notting-

ham, &c. Kent, Surrey, Sussex, Essex, Herts are all available for the production of, and each does contribute largely to, the requisite supplies of fruit. The south-western counties are all highly favourable for fruit culture, but the bulk of the produce must be sent to a great distance to secure profitable prices, the demand in such towns as Bristol, Bath, Southampton, Portsmouth, &c., apparently not being extensive. At times fruiterers in these important towns can give good prices for a moderate quantity of fruit, and it may be best to let them have it. As a matter of fact, however, many provincial fruiterers are in close business relations with London market salesmen, and from them procure the bulk of their choicest fruits. At times the fruiterers find it necessary to send much surplus fruit to the salesmen, and this does not improve the "returns" of the growers. Another advantage attending the proximity of an orchard to a large town is the certainty of being better served by the railway companies, and in this case the produce will be delivered quickly and well.

What should be grown.—There are certain kinds of fruits that invariably prove profitable, and which may safely be planted in large quantities. Of these, the most in demand are Damsons, kitchen and preserving Plums, kitchen Apples, black and red Currants, Gooseberries, Strawberries, and Morello Cherries. As will be seen, nearly the whole of the foregoing are applied to two or more purposes, being either fit for dessert, making into jam, or for cooking. Damsons are also largely employed in the production of a dye, while Plums are frequently bought up wholesale for various purposes. Kitchen Apples, notably the early sorts, sometimes sell very readily; besides they are available before the heavy foreign supplies reach our shores. Black and red Currants are extremely popular fruits, and I am informed on good authority that the former are largely exported; added to this they seldom fail to bear well. Gooseberries give two chances, being oftentimes very profitable when sold in a green state; besides this, insures the thinning of heavy crops, and thereby greatly affects the quality of those left to ripen. Strawberries are an expensive, but at the same time remunerative crop, as when sent in good condition they find a ready sale (at least such is my experience in the metropolitan markets, to which I ought perhaps to state my remarks have especial reference). Standard trees of Morellos when planted in the middle of an orchard seldom fail to bear heavily, and a remarkably pretty sight they present. Dessert Cherries occasionally prove extremely profitable, but are a glorious uncertainty, nevertheless.

Apples generally, Pears, Filberts, and Raspberries each in their turn may prove profitable, and may well be grown in limited quantities, the aim being to have as many chances as possible. At times, though seldom of late years, there is a glut of Apples in the market, many sending in large quantities to avoid storing, and in this case probably the "returns" are *nil*. If properly stored, and this is no easy matter, the American and Canadian supplies spoil the markets, and, strange to say, our Transatlantic brethren better understand what sorts are the best adapted to the work and prove most saleable. Neither do they risk failure by sending inferior or mixed samples. All their fruit, are even in 'size, bright in colour, and, in addition, whether rightly so or not, are considered adapted to either culinary or dessert purposes. Here lies the secret of their undoubted success in finding good markets, and their tactics should be imitated by would-be successful fruit growers in this country. That is to say, a few only really good sorts should be grown, but the bulk of the trees should be of varieties adapted for either purpose, and if highly coloured so much the better. When sending, keep the very small fruits back, or, at any rate, in separate sieves, as they tend to spoil the samples, and hinder the sale accordingly. Pears are not to be depended upon, but a few rows may occasionally prove profitable, none more so than "Williams," as the costers and others sensibly abbreviate

Williams' Bon Chrétien. Raspberries seldom fail to crop heavily, but they travel badly, and, as a rule, have to be sold locally.

Filberts and Cobs only succeed in rich, loamy soils, such, for instance, as will grow good Hops. In Kent they are particularly well managed, and in a good season more than compensate for the labour bestowed upon the orchard. They are either disposed between the widely-planted rows of Apple trees or are alternated with the Apples. They are not allowed to grow at random after the manner of the Hazel in hedgerows, but are trained similarly to Red Currant bushes, only much taller, or, as some prefer, similar to a dwarf Apple tree with a clear centre, and are as closely pruned, with the exception of retaining a quantity of spray-bearing catkins to provide pollen for the proper fertilisation of the apparently insignificant, but most important, fertile flowers.

A good arrangement, of which I for years have had an insight into, might well be adopted by others. The orchard comprises all the kinds of fruit I have mentioned, with the exception of Strawberries, these after the first seven years being grown quite clear of all other crops. All the Apples, Pears, Plums, and Cherries are grown as standards, the lines as a rule being formed with one sort, running through a length of about 20 feet apart, the trees in the lines being the same distance asunder. All the available space between the trees each way is rather thickly planted with Gooseberries, Currants, Raspberries, and Filberts—large breadths, each containing several thousand plants, being thus worked in. When the standard trees had grown considerably and the bushes become crowded, half of the latter were removed and planted in a new orchard. On the same farm numbers of Damson trees were planted almost in the hedgerows and are doing well; and if a new hedge should be required (and they are sometimes serviceable in preserving a path or restricting a right of road), these are formed of either Gooseberries or Currants. Every foot of ground is thus utilised, and should be in every case. Many of the trees I have seen planted or have assisted to plant were "miserable scraggs," and these are preferred to vigorous and more attractive looking trees. Being probably grown on a poor soil, the change, instead of being injurious proves highly beneficial, and the trees soon get established and grow freely. It is advisable to stop the lower branches, but as they materially assist to swell the stems, they should on no account be removed till this is accomplished. Trees infested with

American blight should by no means be planted, as this pest is not easily eradicated, and if allowed to spread, quickly ruins an orchard. Experienced men are always anxious to procure trees true to name, but are doubly solicitous with regard to the possibility of having American blight sent to them. They would destroy these infested trees rather than plant them. In planting, unless the young cultivator has secured the services of a trustworthy and experienced foreman, no dependence whatever should be placed upon untried workmen. If left to the latter, the chances are the trees and bushes will be both mixed and badly planted. A spit taken out with a spade, the roots of a bush thrust in, and the soil returned without breaking and trodden in, will not answer in an orchard, if it does sometimes for nurserymen. A good-sized hole should be dug, the bottom made firm, and on this the roots, previously trimmed where bruised or unequal, may be evenly disposed and surrounded with well broken-up soil. Deep planting, although it saves stakes (I know of no other reason why people should plant deeply), is simply ruinous. If the soil be poor, it should be enriched at the commencement, and all well-established trees and bushes on any soil well repay for annual and biennial top-dressings with fresh manure. Very seldom do market growers resort to root-pruning. This is rendered unnecessary by simply withholding the knife after the trees are once framed out. Let alone, they soon fruit abundantly, and all that is necessary is to occasionally shorten

back straggling shoots and to thin out where crowded. The bushes are annually pruned.

A selection of varieties that have been found profitable in a southern county is as follows: Of Apples—Keswick Codlin, Manks Codlin, Lord Suffield, Red Quarrenden, King of the Pippins, Duchess of Oldenburgh, Hawthornden, Cellini, Cox's Orange Pippin, Blenheim Orange, Warner's King, Reinette du Canada, Fearn's Pippin, Jolly Beggar, Stirling Castle, and Sturmer Pippin. Pears—Williams' Bon Chrétien, Louise Bonne of Jersey, Duchesse d'Angoulême, Crasane, Beurré Diel, Hacon's Incomparable, Hazel, Beurré d'Aremberg, and Beurré Rance. Plums—Early Rivers, Victoria, Orleans, Green Gage, Coe's Golden Drop, Pond's Seedling, Washington, and Mitchelson's. Cherries—May Duke, Bigarreau, Black Tartarian, Elton, Red Jacket, Kentish, and Morello. Gooseberries—Whitesmith, Early Sulphur, Crown Bob, Red Warrington, Golden Drop, and Lancashire Lad. Of Red Currants—Raby Castle and Red Dutch; White Currants—White Dutch; and of Black Currants—Lee's Prolific and Black Naples are preferred. Strawberries—Alice Maud, Vicomtesse Héricart de Thury, President, Sir J. Paxton, Dr. Hogg, British Queen, and Eleanor are all largely grown for the markets, though, as a rule, the growers depend upon three varieties and which form a good succession. I ought not to omit mentioning that the Damsion largely planted by those in the secret is the Cluster or Crittenden Prolific.

FRUIT GROWER.

STRAWBERRY CULTURE.

AMONGST all hardy fruits there are none that so soon repay—and that with liberal interest, too—for high cultivation as the Strawberry; moreover, it will thrive in almost every variety of soil, provided the culture is suited to the particular kind of soil that has to be dealt with; yet there is a best soil, and all who are fortunate enough to have this will find little difficulty in carrying out cultural details:—

Soil.—A deep loam, inclining to clay, or what may perhaps be best understood by the term, "neither heavy nor light," is suitable for Strawberries, but of the two I would prefer that clay had the predominance; and this fact should be kept in view in the preparation of other kinds of soils. If, for instance, a light peaty soil has to be dealt with, it should first of all be trenched as deeply as the nature of the subsoil will admit, then be given a heavy dressing of well-rotted manure, this to be forked in, and then to be well consolidated either by rolling or treading, this consolidation serving to some extent the same purpose as the stiffer loam. All light soils, of whatever nature, should be similarly treated. The one prerequisite in regard to heavy soils is effective drainage, and deep cultivation is just as desirable as on lighter soils, but a manure of lighter character may be employed, such as long stable litter, spent hops, or vegetable soil.

Preparation of the plants.—These should be had from runners, layered into 3-inch pots early in July. A piece of turf in lieu of crock should be used for drainage, and the pots be filled with good loam, which should be well firmed in the pots and then be plunged between the rows of the old plants. Select the strongest runners, and secure them on the pots with pegs, and keep them well supplied with water. In from three to four weeks they will be well rooted and ready for planting out, and as soon as this is the case the operation should on no account be delayed, otherwise the plants get root-bound in the pots, and are liable to be checked in growth by the ball getting so dry that when planted out new roots have to be made before the plants start into growth.

Planting.—First, as to season. Well, any day in the 365. But as with soils, there is also a best time to plant, and that is the month of August. This, too, is the only season if the mode of preparing the plants advised above be followed; and though, of course, it does not follow that this is

the only successful way, a comparison of results between this and taking off rooted runners that have been simply layered on the ground, or the planting out of old forced plants, would soon decide waverers in the matter in favour of the first-named plan. Next, manner of planting. Use trowel and fingers only, making the hole sufficiently large to admit of fine soil being placed round the roots with the fingers; this done, use the trowel, and with the handle of the same well ram the soil about the roots, and the lighter the soil the harder should be the compression of it about the balls of the plants. Next, distance apart of plants. This must necessarily be regulated somewhat by the nature of soil and sorts grown, but, as a general rule, 2 feet apart in the row and 2 feet 6 inches from row to row will be ample space, but none too much where the ground has been prepared as just recommended.

Varieties.—Of these there are far too many; indeed they are to be had by the score, the difference in many being perceptible in name only, or at all events such a trifling difference as not to warrant their being grown as distinct kinds. After trial of very many kinds, I name two only as the best sorts to grow, viz., Vicomtesse Héricart de Thury and President; these never fail, are of first quality, prodigious croppers, good growers, and travel well—properties that are alike desirable for the market and for the private grower. To any that require a greater variety I would recommend Keen's Seedling, British Queen, and Sir Charles Napier as being the next best kinds.

General culture.—Mulching is of first importance, and should be done as soon as the plants are put out with the best manure that is to be had. This will render artificial watering unnecessary, except in exceptionally dry, hot weather; and as winter approaches it should be added, too, as a protector to the crowns and surface rootlets. The spring and summer culture will be simply to keep the plantation free from weeds, and perhaps a mulching with clean straw or litter as soon as the fruit is set. I say perhaps, because very frequently the autumnal mulching gets so washed by the winter and spring rains as to make it unnecessary to replace it for the purpose of keeping the fruit clean. As soon as the fruit is gathered and the necessary runners have been obtained the plants should be cleared of all runners and dead foliage, the old mulching removed, and be replaced by well decayed manure, and this will end all the attention requisite till spring-time, except it be an occasional weeding. Digging between the rows should never be thought of till the plants have to be dug up, which, at the latest, should be after the third time of fruiting.

W. W. H.

SHELTER FOR FRUIT TREES.

THE violent gale that swept over this country on April 29, 1882, whereby all trees exposed to its fury were defoliated, and the crop nearly destroyed in a few hours, gave us one more lesson of a most practical kind as to the value of shelter not only from cold north-east winds, but also in a smaller degree from all points of the compass, for in this case it was not the cold, but the violence of the gale lacerating the leaves that caused the mischief. The gale began in the south-east and gradually worked round to the west, where it died away, leaving its track as visible as if fire had passed through the branches. Disheartening, however, as the prospect was early in May, it was surprising how soon the trees recovered, and the beautifully clean growth that was made later in the season, and the smallness of the crop, giving them a decided rest, has allowed them to perfect a splendid show of buds for another season. Apple growers for market are therefore by no means discouraged by the failure of one season's crop, or dismayed by American importations. The demand for fruit appears to grow quite as rapidly as the power to supply it; we may, therefore, look for an increase in the way of Apple orchards for some years yet to come. We may also look for distinct methods of Apple culture becoming more

marked as time passes onwards. Wide-spreading orchard trees, though they do bear great crops of second rate fruit, must in many cases give way to dwarf trees of the very best kinds, and that will bear fruit of the best quality. Anyone interested in Apple culture could hardly fail to notice that dwarf trees in gardens or in other sheltered spots mostly carried good crops even last year, and although the cost of planting an acre of Apples at about 10 feet or 12 feet apart is a large increase on first outlay compared with the ordinary cost, yet the fact of trees on the Paradise stock fruiting well the same season in which they are planted makes the prospect of return on capital invested a far more immediate affair than when the notion prevailed of planting trees only for the benefit of future generations. One November I planted many of the sorts enumerated in previous numbers as dwarfs on the Paradise stock, and they carried a better crop in proportion to size than any of the large orchard trees, fruit of some of the early kinds like the Red Astrachan and Irish Peach being gathered within eight months of planting. I would strongly advise all intending planters of dwarf trees to only plant those on the Paradise stock; it does the dwarfing far better than the knife; a little pinching of the strongest shoots in the growing season is all the pruning they require; the less pruning indeed the better, as all cutting off surplus shoots is so much wasted energy. Extension-grown standards expend their force on growth and are afterwards fruitful, while the dwarfing stock limits the supply of sap, thereby curtailing growth, so that while the fruit is of maximum size and abundance, the growth from the first is minimised to its proper amount.

Gosport.

J. GROOM.

Josephine de Malines and other late

Pears.—The ripening of Josephine de Malines in December is not an unusual occurrence with us. This season we commenced using them on the 22nd of that month; these were from a south wall. We are now using the same variety from a west wall; they are all of good size and flavour this season. Last year they were ripe by the latter end of November, and were all over in a short time, most of them turning soft instead of ripening, and those that did ripen were poor in flavour. Glou Morceau is very good with us this season; this variety commenced to ripen in the beginning of November, and lasted about seven weeks, a few being used on most days during that time. Last season, although we had a good crop of this variety, and also of good size, we were not able to use many of them, as, like Josephine de Malines, nearly all of them rotted instead of ripening, and those which ripened were not worth eating, whilst this season they are delicious. Bergamot d'Esperen we rely upon to supply us through February and March; last season its fruits all shrivelled long before this date, but this season, at the present time, they are quite sound, and do not as yet show any signs of ripening; this and Olivier de Serres I consider to be the two best late Pears. Easter Beurré we can generally keep until the end of March, but with us it is seldom worth eating, being mealy and flavourless.—A. BARKER, Hindlip.

Beurre d'Amanlis Panachee Pear.

Amongst Pears there are few that have secured a better reputation than has been accorded to the Beurré d'Amanlis. It is large, handsome in appearance, and of fair quality; it comes into use amongst the earlier varieties in September, and at that season has no equal, and it is an almost certain cropper. Very rarely indeed does a season pass without a crop of Beurré d'Amanlis; consequently it has found much favour with the market growers. Mr. Dancer, of Chiswick, grows it extensively—a pretty good criterion of its worth—and finds it to be one of the most profitable sorts. The tree is a very free and somewhat strong grower, and succeeds well on the Quince—so well indeed, that it is used as the intermediate stock for those varieties that do not themselves take freely on the Quince. There is a striped (*panachée*) form of this Pear in every respect the

same as the type excepting that it is far more beautiful, the broad bands or streaks of yellow and rosy orange with which it is furnished being exceedingly pretty. This variegation is not uncommon, every fruit being more or less marked, and remaining so until quite ripe. It is exceedingly handsome for the exhibition or dinner-table, and should be grown in preference to the ordinary form. Portions of the young shoots are frequently striped in the same manner; very rarely the leaves.—*Florist*.

MISTLETOE CULTURE.

To grow Mistletoe upon suitable trees is by no means a difficult matter if only the seed be set in a natural way. I have a Hawthornden Apple tree with many luxuriant and fruitful growths of this interesting plant upon it, and my own raising, and the simple means by which I have here and elsewhere succeeded might be described in almost a single line of print. I stick the naked seed upon the clean, smooth bark of a young bough, and protect it for a year from birds and insects. It is, however, a curious fact that nearly everyone who asks how it is done will volunteer the supposition that a slit is made in the bark to cover the berry; but slits in the bark are altogether unnatural and unneeded. Nothing in Nature suggests such a plan. There is no wild bird that goes oddly out of its way to insert Mistletoe seeds under the bark of proper trees; no beetle, under the impression that it is providently laying by something for itself, bores holes for the storage of Mistletoe berries, and conveniently forgets its buried treasure in order that its industry may be turned to another account.

The seeds depend for their successful germination upon some agency that affords them a chance of adhering to the bark. They seem to need that soft texture for a seed bed until the time comes for them to penetrate the harder tissues of the inner wood. They cannot thrive upon the rugged old bark that is congenial to Mosses and Lichens, though they will start into growth almost anywhere—inside their own berry, or on a gatepost. To produce a plant a Mistletoe seed must come in contact with the bright, clean, vital bark of a young stem or bough, and into this one, and often two, green fangs from the seed will soon be seen to fasten themselves by a sucker-like mouth. These bite the bark, and nothing more is visible of the first year's growth. In the second year the body of the seed is absorbed and the green fangs strengthened; but still no upward growth is observable. The roots progress among the fibres of the wood, and the bark is made to swell as if there were a knot beneath. This is a sure sign that the young plant is safe, and in the second year's stage of growth. In the third year's course there will be developed a tiny pair of Mistletoe leaves, perhaps from the green stem that broke from the seed, but this is very frequently dead, and the pair of leaves rise as from a sucker. There will soon be several of these young stems, and when once their leaves are developed the growth becomes bold and rapid. Although only one joint of stem and its pair of leaves are produced in a year, other stems keep breaking from the neighbourhood of the seed, and there is soon a "bunch." At the fifth year the sex of each plant will be discernible, for the Mistletoe is dioecious, and for this reason I have always planted a group of four or five seeds together, so as to have both flowering and fruit-bearing plants near each other; but it is surprising to see how the pollen from a single male will set the berries on plants quite separate on the same tree or growing about the garden on different ones.

Sowing.—The seeds may be sown whenever a ripe berry can be had, and if this is an old one on the plant it will be found already sprouted within. It is best to sow them in the late spring if they can be had fresh, for the advancing foliage helps to hide them from the birds, that have keen eyes and sharpened appetites in winter. They are best placed on the under side of young boughs, and

may be protected for the first year by a wrapping of gauze; that, however, should not press upon the seed. This will preserve them from birds and also from snails and wood-lice and such like, but must not be so arranged as to form harbourage for vermin.

The flowers are insignificant as such, the female being only four green points surrounding a viscid stigma; and the male a four-cleft cup of pollen, that adheres in a very firm way to the inner side, like the sand on sandpaper. These flowers expand in the early spring, and last several weeks, the crops of berries depending upon some spell of dry, it not fine, weather, to enable the pollen to be blown about from the male flowers. The fall of the leaf, or rather the change, on this evergreen plant is curiously sudden. All at once, in the mellow summer, without one sign of weariness or serenity, the large, old foliage drops off, leaving only one (and that the last) pair of leaves to furnish the plant at every extremity, and for a short time it has a leggy, stripped appearance. Mistletoe is very fond of the Apple tree and various Poplars, and also grows well on the mountain Ash; on the Thorn I have only had it rather crabby. Of course its life is dependent on that of its foster parent, and its vigour varies with the health of the supporting tree. Often as I have tried to get it on the Oak, I have only once succeeded, and most unfortunately the branch on which I had established a nice young plant got lopped off by an all too unobservant woodman. For those who are anxious to save time, I may say young Apple trees with Mistletoe on them may be had. It does not perceptibly affect the fruitfulness of the tree when not sown too much upon it, and one would willingly sacrifice for its sake a few Apples. F. D. HORNER.

Kirkby Malzeard, Ripon.

PROPAGATION OF MISTLETOE.

I AM glad to see that some one is taking an interest in the propagation of this curious and not unhandsome parasite. Being naturally slow of growth and multiplication, it is not unlikely that the large and increasing drafts made on it annually at Christmastide will, sooner or later, result in a dearth that will take years to rectify. The following method, which I have adopted with great success on several occasions, is recommended by Loudon ("Arboretum et Fruticetum," p. 1023) and Burbidge ("Cultivated Plants," p. 383). The berry should be rubbed gently but firmly backwards and forwards on that part of the tree to which it is desired to affix the plant; the smoother the bark the more certainty of success. There is a knack in holding the berry in the hollow formed by bringing the first joints of the first and second fingers together, which is easily acquired with a little practice, otherwise the performer may have a difficulty in keeping it fast from its slippery nature. The rubbing process should be continued till almost all the viscid matter is removed from the seed, leaving only enough to keep it firmly attached to the bark. If properly performed as regards the selection of suitable stocks, and fully ripe berries are employed and at the proper season, success is almost a certainty. I have never failed in getting at least 70 per cent. of the seeds to germinate, the others no doubt being imperfect seeds. No incision of the bark is necessary. If sown in the latter part of February or March, germination commences in a few weeks. The first indication of it is the appearance of a dark coloured proboscis-like radicle, which at first holds itself erect, but, after having attained sufficient length, gradually and gracefully bends over in the form of an arch and fixes its point on the bark. The point of this radicle then swells out, and seems to act as a sucker in procuring nourishment for the embryo. If more than one radicle proceeds from one seed, they each represent distinct embryos, and eventually become separate plants.

Some prefer to perform the operation earlier than the date just named, but I think it best to delay it till the approach of the natural season of

growth, and this also allows the berries full time to come to maturity. The only stock I have used is the Mountain Ash, always preferring the under-side of a branch, as in that position the seeds are less liable to offer temptation to birds, which, I believe, are a chief means of failure as regards the propagation of Mistletoe; they are fond of the succulent matter which surrounds the seeds, and therefore this should be rubbed off as already described, or some sort of protection should be put over it when the seeds are inserted on a tree. Burbidge gives a long list of trees on which this parasite has been found, chiefly deciduous, such as Apple, Oak, Sycamore, Brier, Ash, Lime, Elm, Willow, Birch, Poplar, and Hazel, and also the Silver Fir. And Loudon makes mention of its being found in immense quantities on *Pinus sylvestris* in the neighbourhood of Magdeburg.

Wedge grafting in spring on Apples or Limes is also recommended by the former author as being successful. This I have never tried, but intend doing so this spring, and hope to prove the practicability of it. Can some one give me any information regarding a red-berried variety, mentioned by Loudon as occurring in the vicinity of Jerusalem, or of a variegated form mentioned by Burbidge, and whether it is persistent? The mythological, legendary, and poetical allusions in reference to the Mistletoe, as given in the "Arboretum et Fruticetum," are well worthy a perusal by any one interested in this curious parasite.

Altrincham, Cheshire.

JAMES GREEN.

COLOUR IN THE FLOWER GARDEN.

ALAS for the poor amateur! What has become of him during the time this discussion has been proceeding? If he has had the patience to wade through it, what a state of muddle he must be in. Well may "Peregrine" exclaim that if we have to go through a probation in such elaborate detail, we shall, like the rustic, have to go back to "first principles" and beans and bacon. Notwithstanding all that has been said on this subject, I say let the amateur arrange his colours in accordance with rules which, I repeat, are practised every day by every artist, and if he should be at any time criticised on that point, he will have something definite to fall back upon as justification. In each of my articles I have been compelled to quote freely from "J. D." for the purpose of showing that his best efforts of tasteful management, instead of being adverse to the theory I have advocated, tend most, unmistakably to support it. Why he should repeatedly bring forward practical witnesses to upset the complementary code, but whose evidence only spoil his own case, I cannot say, except it be that unless they were supported in theory by the said code, they would be too odious to be allowed even to take the oath in the witness-box. Here is an almost solitary case of genuine evidence. "The best contrasts to place on a grass-green ground are the bluer shades of green, blue, yellow, white, and tinted white." May not this "greenery-gallery" lady stand down? Here are other witnesses who play him false in his last article. "Where the bordering line is yellow, the centres will be best mauve and white." (Mauve is a shade of purple; therefore we have our purple and yellow.) So it is throughout the sentence. Again, "with blue, white, and primrose, orange-brown and crimson, or green and creamy white with pink would be suitable." Further on, "I should always surround a bed of scarlet Pelargoniums with a very broad band of neutral greens and greys, &c." So on to this *moreau choisi*: "A good harmony of red, blue, and yellow, with red as principal, could be arranged in seven beds"—the very arrangements he later on stamps as discords. They may be softened down in various ways by the interposition of related tints and neutrals, but our old friend the complementary theory is the principal factor in the composition.

In his valedictory sentence a suggestion is made that each must test the amount of colour perception he possesses for himself. Excellent! And to

that end I will give a table of single and compound contrasts and harmonies, so that he who runs may read, and compare for himself with the coloured plates of *THE GARDEN*, Vols. XXI., XXII.—that is, if he be not already satisfied:—

HARMONIOUS COLOUR TABLE.

The numbers refer to page in Vol. XXI. for coloured plates, with an asterisk for Vol. XXII.

All Reds in gradations		Where one colour only is used.	Red	6*, 46*, 230*
"	"			
"	Yellows	"	Green	"
"	"	"	Brown	"
"	"	"	Yellow	"
"	Greens	"	Purple	2, 6
"	"	"	Olive	"
"	Purples	"	Blue	"
"	"	"	Orange	"
"	Oranges	"	Gray	"
"	"	"	Red	"
"	Browns	"	Yellow	252*, 574*
"	Olives	"	Blue	"
"	Citrons	"	Green	"
"	"	"	Purple	6, 328, 424, 441
"	Grays	"	Orange	"
"	"	"	Brown	"
"	"	"	Olive	130
"	"	"	Gray	"
"	"	"	Red	22, 114, 76*
"	"	"	Yellow	312*, 400*
"	"	"	Green	"
"	"	"	Red, Yellow,	118*
"	"	"	Purple	"
"	"	"	Orange, Green,	274*
"	"	"	Brown	"
"	"	"	Orange, Green,	552*
"	"	"	Gray	"
"	"	"	Yellow, Blue,	378*
"	"	"	Purple	"
"	"	"	Yellow	80, 91*, 486*
"	"	"	Green	"
"	"	"	Purple	"
"	"	"	Yellow	"
"	"	"	Green	236, 138*, 503*
"	"	"	Brown	"
"	"	"	Red, Blue,	312
"	"	"	Green	"
"	"	"	Red, Blue,	166*
"	"	"	Orange	"
"	"	"	Purple	146, 366, 386,
"	"	"	Green	406
"	"	"	Gray	"
"	"	"	Purple, Olive,	254
"	"	"	Brown	"

Harmony is augmented by interposing between two colours softer shades of the same—neutral greys, white, or related tints.

I have had to be rather roughshod in classifying the colours, but it is quite sufficient to say that no single coloured plate has appeared in the last two volumes of *THE GARDEN*, printed in pigments, in which each of the three primary colours, red, blue, and yellow, does not appear, either in a pure form or mixed into secondary or tertiary combinations, but ever present; and surely we shall not have these colour arrangements also marked "executable." Let the amateur, then (and others), arrange his garden beds or borders in any of the above combinations, and if he be so unfortunate as to be unable to see beauty in them himself, submit them to his visitors, who may. Were we all to be debarred from attempting harmonious arrangements until we had passed through such examinations as are suggested, we could no more hope for beauty in our gardens than the youth could speak German whose only acquaintance with German was that his brother played the German flute, and that his fruit-knife was of German silver. We should have to say "we cannot arrange colours artistically ourselves, but we once read a correspondence in *THE GARDEN* in which the disputants said they could." To the amateur I originally named I would say, "Read no further;" but to such as have waded after us through all sorts of mixtures, I would say that most of this correspondence might have been spared us had "J. D." at the outset mentioned the fact of his having been afflicted with attacks of colour-blindness to red. His hatred of red and green can thus be accounted for; and *en passant* I may remark that the colour artists of *THE GARDEN* have given us three to one of this combination. I regret to say, however, of "J. D." that he must see colours where they do not exist, if we may judge from his statement that "London warehousemen cannot match delicate shades of colour, and even in the height of summer when the air is purest, a dozen shades of grey merge into one." On November days when "particular" fogs of pea-soup colour and consistency prevail, it is so, I agree, but let anyone go and inspect the

Turner collection of water-colours under the National Gallery (and see what he does with primary and secondary combinations by the way); let him go to our picture exhibitions on an ordinarily clear day, and I will warrant that unless his perceptive faculty be aborted or suppressed, there will not be many tints merged into one unless the artist intended them to be so in a natural way. At that rate our metropolis, instead of being the home of pictorial art, would shrivel out of itself every bit of coloured art.

Throughout I have gone on the assumption that the chemical cell contents of leaves and flowers, the presence of pigments, so deal with a white ray of light, containing, as it does, all colours, as to absorb all but one hue which is reflected to the eye. I have tried to show how those reflections may be arranged so as to please the eye instead of offend, just as a milliner would arrange ribbons on a lady's bonnet; and although there has been much said on the scientific theory of light which would be new to some readers, I did not yield to the temptation of following into this field, else why my original article asking for a "hark back" to something which could be resolved into practice for the benefit of a large class of gardeners particularly. On the other hand, I think "J. D." got on the wrong line at the commencement of the journey by interposing coloured glass between the eye and the light ray. He has dealt all along with direct light and its effect through a prism instead of dealing with the reflected colours of pigments. For instance, light through red and yellow glass does not make orange, whereas reflected from red and yellow pigment it does. In like manner red and blue for purple, and so on through the whole chapter; hence his list of correct combinations (except where he borrows from the theory I support) is reduced almost to unity, and may be properly styled unique. Thus, having got the wrong direction to start with, small in its beginning, like many other things, his list of discords comprises nearly the whole list of colour harmony, several combinations of which he allows, and thus contradicts himself. For example, he says: "These three last, citrine, green, russet, are beautiful as Nature uses them; scarlet and blue are passable (scarlet partakes of the nature of orange); green and purple are passable." He appears to lose sight of the Shakespearean quotation which meets our eye every week on the opening page of *THE GARDEN*, that "the art itself is nature" if he condemn the scarlet Pelargonium with its green leaves; the purple and yellow blossoms of *Solanum Dulcamara*; the blue and orange flowers of *Exacum macranthum*; the golden and purple sunset mixing in the eye with the green verdure; the varied tones of grays, olives, and russets of vegetation's sunset—glorious autumn. Are we to try and imitate Nature in her colour combinations? Must we agree to differ, as "J. D." says on page 3? or may we not differ to agree with Pope—

All discord's harmony not understood,
All partial evil universal good?"

Horsforth, near Leeds.

R. A. H. G.

RECENT PLANT PORTRAITS.

Anthurium Scherzerianum var. Madame Emile Bertrand (*Illustration Horticole*, plate 470).—A double plate of a fine hybrid form of this well known plant, raised by M. E. Bertrand, and somewhat resembling M. Bergman's *A. Rothschildianum*, with bright red spathes mottled all over with pure white.

Pescatorea Lehmanni (*Illustration Horticole*, plate 471).—A very beautiful and conspicuous flowered Orchid, with large rosy violet flowers, each petal clearly and distinctly margined with pure white; also known under the name of *Zygopetalum Lehmanni*, and is a native of the Equatorial Andes, whence it was introduced by the collector whose name it bears.

Pellonia Daveauana (*Illustration Horticole*, plate 472).—A beautifully variegated-leaved greenhouse trailer, with small and inconspicuous green flowers borne in bunches on stiff upright

stems well raised above the foliage. This plant was introduced by M. Godefroy-Lebeuf, and was originally described and figured in the *Revue Horticole* of Paris by M. Carrière under the name of *Begonia Daveauana*. It seems well adapted for the decoration of hanging baskets in a warm greenhouse.

Phlox decussata (group of six varieties—*Revue de l'Horticulture Belge* for January, 1883).—These fine new hybrids are from the collection of M. Burvenich, of Gendbrugge.

Caraguata cardinalis (*Revue Horticole* for January 1, 1883).—A very handsome vermilion flowered Bromeliad, a native of the Western Andes of New Grenada and Ecuador, whence it was introduced in 1876 by M. André. W. E. G.

INDOOR GARDEN.

MARIE LOUISE AND NEAPOLITAN VIOLETS.

THE Marie Louise well deserves the many eulogies bestowed on it for its good and free-flowering qualities, especially as a late summer and early autumn variety. The blooms are also very fine and richly coloured. The quantity of flowers that may be gathered from it from August to November is something enormous; but for midwinter, when the supply begins to diminish in the case of this variety, the Neapolitan is just in its glory. Our plants of the last named sort are now masses of flowers and buds. This characteristic of the Neapolitan in succeeding the other at this season makes it especially valuable; therefore an equal quantity of both kinds should be grown where a continuous supply is required. The Neapolitan is doubtless the more difficult to manage, but under good cultivation the flowers are equally fine as those of *Marie Louise*. We find a half-shaded cool and moist border the best position to produce good plants. Violets are very subject to red spider, and must have plenty of water in hot weather. If there is the least suspicion of red spider when the plants are lifted in the autumn for placing in frames, it is a good plan to dip all the foliage in a solution of nicotine soap, as unless thoroughly free from that pest the leaves will damp and rot off in damp, cold weather when the frames are kept more or less closed. On the other hand, if the foliage is healthy, this great evil will be avoided. We use ordinary two-light frames placed on beds made of leaves and stable litter in preference to brick pits, as we find the plants remain close to the glass throughout the winter; whereas, when planted in brick pits, from the gradual subsidence of the material in which they are planted, they settle too far from the glass. With double mats in sharp weather, and manure linings if necessary, it is an easy matter to keep the temperature at 45° in the sharpest weather, a temperature which suits the Violet well. A rise of 5° or 10° should be allowed if the sun should shine at this dull season.

WILLIAM ALLAN.

Guntton.

GREENHOUSE PLANTS FROM SEED.

FEW have any idea what numbers of different kinds of plants there are suitable for the decoration of greenhouses and conservatories that may be raised from seed, and got up large and strong enough to flower the same season. First and foremost come the

Tuberous Begonias, which, as regards showiness, are quite unsurpassed. To have these really good the seed must be sown early; and as it is very fine it is necessary to have the soil in the same condition and quite smooth on the surface, where the seed should be scattered and not covered, except with just a sprinkling of sand to hold it in its place and prevent damping when the plants come up. This they will do speedily if the pots or pans in which the seed is sown be placed in moist heat and have a sheet of glass or some damp moss laid over them till the seeds germinate, when a frequent gentle bedewing with water from a syringe will keep them right. As soon as the young plants are large enough to handle they

should be pricked off in pans filled with rich mould, and returned to the stove or other house in which they can have the benefit of a genial growing temperature till they become strong, when they may either be potted singly or planted out thickly in pits or frames where they can stand till they show bloom. The best can then be selected and the remainder used for bedding, a purpose for which these Begonias are well suited. Next in point of importance to the Begonias are

Gloxinias, which have been so much improved of late, as to render the flowers very large and fine in texture and colour; and although requiring stove heat in which to raise and start them, they will stand well in any ordinary greenhouse during the summer. The way in which the seed should be managed is to fill a pan with sifted peat or a mixture of peat and loam pressed firm and level and then watered through a fine rose, when, after standing a few hours, all will be ready for sowing the seed. This requires the same protection and care as that of the Begonias, and can only be got up successfully by treating it in a similar manner. Gloxinias being shade-loving plants should be placed where they can be protected from sunshine, but at the same time they need plenty of light, and generally do best on a shelf near the glass, where, if they can have a temperature ranging anywhere between 60° and 70°, their growth will be rapid and strong.

Cinerarias have also become greatly improved; instead of the small, thin, narrow petaled flowers which we used to see, they are now round and regular, and often as large as a five-shilling piece. To possess plants bearing flowers such as these it is necessary to obtain seed from good strains. The first sowing should not be made later than March, as plants raised then will flower quite early in winter and last long in bloom. By sowing again early in May others can be had to succeed them and keep up a supply till the spring. The soil best suited for Cineraria seed is a mixture of leaf-mould and loam, which, with the addition of a little well-rotted manure, is also the best in which to grow the plants, as, being light, they can root freely in it and find the kind of food they require. The best place in which to grow Cinerarias during summer is a damp pit or frame with its back to the sun or in a place naturally shaded, as then they can be kept cool and enjoy the full light without shading, conditions under which the leaves acquire great size and substance. To prevent premature flowering they must have no check from want of potting or water, but be shifted on as they require it, and always be kept properly moist at the roots. The only insects that affect Cinerarias are red spider and green fly, the former of which may be kept in check by syringing late in the afternoon during dry weather, and the latter must be destroyed by fumigating with tobacco, which must be done cautiously, or the plants will be injured.

Primulas.—Amongst these there is now great variety, and as few can grow all, the best way is to get a mixed packet of the choicest sorts and sow in April, which is quite soon enough to get them strong and good for the winter. Seeds of Primulas being dear, it is necessary to take great care in sowing them, as any failure in getting them up is very disappointing. The way in which I have been always most successful is having a well-drained pot or pan, and filling it with sifted peat and leaf soil, and after watering, sowing the seed, and just covering it; then I use a bell-glass or lay a piece of ordinary glass over the top. Managed in this way, and placed in gentle heat, every good seed will germinate; whereas when kept wet and slopped with water, nearly all rot. Like Cinerarias, Primulas require shade and moisture, and the two may very well be kept in the same frame during the summer and treated alike, as the conditions that suit the one agree with the other, although it is perhaps best to have them in separate frames.

Calceolarias have not been forgotten by the florists, as they, too, show that great improvement has been made, as the blooms are quite double the size they used to be, and display the

most varied and wonderful markings. The middle or end of June is quite soon enough to sow herbaceous Calceolarias, and the best place to get the seed to germinate is a north or shady border under a hand-light, where it can be kept moist and cool. Being very fine, it should be sown on the surface and treated in the way recommended for Begonias and Gloxinias till the plants are up, and when these are large enough they must be pricked off in light soil and kept close and moist till they get a fresh hold. This they will do in a few days, and in a short time after they will be ready for potting. Light, rich soil is the most suitable for Calceolarias, which, during the whole of summer, require shade and an atmosphere well laden with moisture. This is best secured by having the plants in a frame standing on the ground on a floor of coal-ashes, by sprinkling or watering which every evening a damp, genial air may be produced. In the autumn and through the winter a pit or house is necessary to keep the plants in, and if they have a temperature ranging from 40° to 45°, and a light position near the glass, they will grow very sturdy and strong, and push up fine heads of bloom. As soon as they begin to show signs of this, liquid manure is a great help, but at no time should it be given strong, weak and often not only being the safest, but best.

Cyclamens are also far ahead of what they used to be, and are quite indispensable for the embellishment of greenhouses, flowering as they do in the depth of winter. To have them next year at that season seed should be sown at once in light sandy soil or peat, and placed where it can get a good brisk heat in a stove, where it will quickly germinate; soon after that it will be necessary to pot off singly, when the best place for the plants will be on a shelf near the glass. There they should be kept in a nice growing temperature till about the end of May, after which time they will do well in any cold frame if shut up early after being syringed or damped down. Some plant them out in peat beds in shady places in the open, which is a very good plan as far as old roots are concerned, but to get young, fresh raised ones strong it is necessary to keep pushing them on all the season, and this can only be done under glass.

Celosias are plants that make a fine display, especially the best forms of *pyramidalis plumosa*, the inflorescence of which is exceedingly graceful and beautiful, and produces a very fine effect in a house where it lasts a long time in perfection. Besides being many shades of scarlet and rose, there is a yellow variety of the above-named *Celosia* which should be got to grow with the others, as they then show up well by contrast and help to set each other off to the greatest advantage. Unless plants are wanted very early, a month hence is quite soon enough to sow seed, as raised before that time they are apt to draw up weakly and not furnish well at the base. To have them do this later on the plants must be kept well up to the glass in a light sunny position where they can have a temperature ranging between 60° and 70°. The soil that suits *Celosias* best is a light rich one, such as loam and leaf-mould in about equal parts, and to keep the plants clear from red spider, they must not be allowed to get dry at the roots, and they should be freely syringed overhead.

Balsams still hold their own as decorative plants during the summer, and when well grown are unsurpassed for their general usefulness and the fine show they make, as they flower in the greatest profusion. To have stocky, good plants, seeds should not be sown till April or later, and the plants must be kept well up to the glass and have plenty of room between for the lower branches to spread. In potting it is necessary to keep the collar well down, and also to peg or tie the side shoots so as to bring them low down; if this is done early while they are young and tender, they soon assume a natural position and lose any stiff look they would otherwise have. Balsams, being gross feeders and quick growers, will take a good deal of manure, and if this is quite rotten

and mild the soil and manure may be equal in bulk. The best place to grow Balsams is a light house or pit where they can be plunged in bottom heat and kept with a fair amount of air at the top, which keeps the plants short-jointed and strong.

Petunias make fine pot plants, especially the double and semi-double kinds, both of which can be raised from seed, and if this is sown in March the plants will flower by the middle of summer, if nursed on and got strong. Petunias do best plunged out of doors after the end of May, as the growth they make there is more hard and woody, and produces many more flowers than that made indoors. If kept under glass the plants should have plenty of light, with full sun and a good amount of air, or they are sure to draw and present a weedy appearance. S. D.

PROPAGATION OF THE DAHLIA.

IN large nurseries where Dahlias are propagated to a great extent, the work of propagation has to be commenced early in the year, and a low pitched lean-to house, with a south or east aspect is generally used for the purpose. This is heated by means of hot-water pipes passing along the house immediately underneath the propagating bed, which is raised near the glass. The roots are placed on the bed, and partially, but not entirely, covered with soil; this is kept fairly moist, and when a temperature of from 70° to 80° is maintained, a number of young growths spring up round the crown, and of these cuttings are made. The propagating house is generally at the end of a snug potting shed, so that the tender cuttings should not be brought into contact with cold currents of air, for the Dahlia is a plant of peculiarly tender growth, and is soon affected by cold.

In addition, it is usual to have a series of brick pits sunk below the ground level, so that manure lining can be placed about them to heat the beds. These pits are indispensable, for it is found that the cutting house is required almost entirely for obtaining cuttings, and striking these cuttings has to be done in the brick pits. In these pits a moist heat of about 60° is required, and should be maintained as equally as possible. But let us return to the cutting house. When the shoots are about 3 inches in length, they are taken off close to the roots and inserted in pots containing light soil and then placed in the brick pits plunged in soil. When rooted, and this is a pretty quick result, the cuttings are potted singly into 2½-inch pots, returned to the hot bed, where they are kept close for a few days, and then follows a careful and gradual process of hardening off, so that by the middle or end of April they can occupy a cold frame. The great thing is to keep the plants sturdy, dwarf, and stocky, and this can be secured only by constant care and attention. Amateur cultivators, who require but a few plants, can begin the work of propagation early in March, using for the purpose an ordinary hotbed in which the roots can be placed, and, resting on a bed of soil, be also covered with it, but not to hide the crown. When the shoots are about 4 inches long, the roots may be divided with a sharp knife, leaving a piece adhering to each cutting, and in this way good plants are formed after they have been potted and plunged in the hotbed.

Too much heat or damp must be guarded against, and also, if there is a decline of heat, fresh manure must be added. In all stages of the work of propagation the peculiarly tender character of the Dahlia must be borne in mind, and the effects of cold guarded against. It is surprising what a large demand for Dahlias still exists, though new varieties do not fetch the high prices they did twenty years ago. Dahlias are largely grown by gardeners, and as they can be purchased so cheaply, many find it better to buy than to propagate. The liking for single varieties of the Dahlia will give a great impetus to the work of Dahlia propagation this spring, and, without doubt, increase the demand for the large show varieties also. They are still very popular as border plants, and they are likely to remain so for

years to come, notwithstanding they are subject at times to many disparaging remarks. R. D.

FERNS.

BEST CULTIVATED KINDS.

Adiantopsis radiata (*Cheilanthes radiata*).—This interesting evergreen Peruvian Fern is of a very striking habit, and although closely related to the genus *Cheilanthes*, it resembles much more an *Adiantum* with its beautifully polished slender stems as black and as shining as those of any Maiden-hair Fern. The fronds, which are produced freely from a succulent crown forming a short caudex with age, are of a bright dark green, from 10 inches to 15 inches high and 8 inches or 10 inches across. The pinnæ, which in their turn are pinnate, start all from one point, and thus form an uncommonly pretty radiating frond with six to eight branches. This plant dislikes loam. Stove.

Aglaomorpha Meyeniana.—A fine species from the Philippine Islands, also known under the synonyms of *Polypodium* and *Drynaria* *Meyeniana*, from which genera, however, it is perfectly distinguishable by the beautiful fertile portion of its fronds, which hang out so prominently that it gives the plant quite the appearance of what is called one of the flowering Ferns. These fronds, barren in their young stage, with age become all fertile; they average, when in the latter stage, 24 inches to 30 inches long, two-thirds of which are barren, that is to say, the lower portion of the frond, which is also cordate at the base; they are pinnate and of a leathery texture, and produced from a fleshy rhizome covered with light brown shining scales, which add very much to the beauty of the plant. It is, as a rule, a difficult plant to manage in pots, but it thrives apace if treated like a *Platycerium*; either planted on a stump, in a shallow pan, or in a hanging basket, care should be taken that its rhizomes be not buried in the soil, which should be pure fibrous peat, on which they should be pegged down, free scope being allowed for extension. This plant, as curious as ornamental, will soon repay for the extra trouble bestowed on its culture. Stove.

Alsophila.—Although over two dozen arborescent *Alsophilas* are known in herbariums, and many of them are even to be seen in botanical gardens, there are only eight or ten species which are really worth cultivating from a decorative point of view. They mostly come from Australia, Brazil, and the West Indian Islands, and all have a tendency to attain great dimensions; some of them, such as *A. excelsa*, *contaminans*, and *pycnocarpa*, being exceedingly rapid growers, are often seen in their native habitats, where they grow in dark, moist places, with stems 30 feet or more in height; there they produce large heads of magnificent long fronds. To induce them to make equally good growth under artificial conditions it is necessary that the *Alsophila*, as well as indeed any other Tree Fern, should have an abundant supply of water allowed them, which will produce more efficacious results by its being distributed over the stems with a syringe liberally during the summer, taking care to moderate the sprinklings during the winter months, without, however, suspending them altogether. They also require a good quantity of moisture at the roots. Like all other arborescent Ferns, a very little pot room will be found sufficient for *Alsophilas*, which should be potted, tubbed, or, better still, planted out in the houses in a compost of three parts of peat, one of good fibrous loam, and one of sand as coarse as procurable, in which they will delight and grow luxuriantly for years without requiring further attention than constant moisture at the stems, and partially shading especially over the young growths. Those marked "greenhouse" will, during the winter, stand a temperature of 40° or 45°, and prove a valuable addition to the winter garden vegetation.

A. armata, from Brazil, is a very elegant species with a stem comparatively slender and covered

with whitish spines. The fronds, of a pleasing light green colour, are tri-pinnate, often 6 feet or more in length, and of a graceful appearance; their stalks and rachis are also densely clothed with the same white spines as the stems, although of smaller dimensions. In their undeveloped state the fronds are covered with large white and light brown chaffy scales. Stove.

A. australis.—This noble and magnificent Australian Tree Fern is one of the handsomest of the genus. It is also probably one of the best known arborescent kinds, forming a generally very straight stem of great height and well proportioned—neither too slender nor too bulky in appearance. A stem of 15 feet high generally measures about 24 inches to 28 inches in circumference, and produces a somewhat flat head of numerous fronds from 5 feet to 9 feet long, bipinnate and of a light green colour. Their stalks and rachis, although not spiny, are very rough when touched, and covered at the base with dark brown chaffy scales; they are also of a more coriaceous texture than most other Tree Ferns. Greenhouse.

A. capensis.—This very interesting species, from South Africa, is seldom met with in collections, although it is of easy culture and is very attractive on account of a sort of Hymenophyllum or Trichomanes-looking growth covering the crown, and which is produced by the lower pinnæ becoming abortive and forming a mass of membranous segments, so that each frond in coming increases the quantity of this peculiar growth, which does not fall with the leaves, but remains behind, giving the stem all the appearance of being covered with filmy Ferns. The stem is slender, seldom perfectly straight, and rarely attains more than 10 feet in height. It often produces young plants on its sides, being in that respect totally different from the *Dicksonias*, *Cyatheas*, and most of the other *Alsophilas*. The fronds, which are not very abundantly produced, are of a bright pale green and from 3 feet to 5 feet in length; they are tripinnate and serrated at their margins. Greenhouse.

A. contaminans (*A. glauca*).—A very robust species from the Philippine Islands, producing beautifully bipinnate fronds from 8 feet to 12 feet long. The pinnæ, set rather loose, are of a very fine glaucous colour underneath, and of a bright glossy green above. Every part of the frond is very brittle. It forms a slender stem, which is said to attain great dimensions in its native habitat, but which to my knowledge has never reached more than 5 feet or 6 feet under cultivation. The base of the gigantic fronds, that is, their junction with the stem, is of a peculiar purple colour, and the stalks as well as the crown are densely clothed with long white chaffy scales. Stove.

A. excelsa.—This species, no doubt the most rapid grower of the whole genus, comes from Norfolk Island. Young plants of it are yearly sacrificed in enormous quantities for indoor decoration, as very little time is required from the seedling state to get them strong enough to be useful for that purpose, but those which are kept and grown on soon make a fine tall stem, producing a fine head of massive upright fronds, often reaching 4 feet in length; they are of a light green, and their stalks as well as the crown of the plant, which is very succulent, are densely clothed with broad, light-coloured chaffy scales. Stove.

A. pruinata.—Although very scarce in cultivation, this beautiful Brazilian species deserves every attention, if only on account of its distinctive characters, which should not be allowed to pass unnoticed. The handsome fronds, which are as glaucous underneath as those of *Cyathea dealbata*, are produced from a thick caudex rather than from a real stem. They are tripinnatifid and very finely cut, of a shining green, and the pinnules deeply toothed at the margins. They grow from 3 feet to 6 feet long; the thick clump generally produces several crowns or heads which can be divided. Greenhouse.

A. pycnocarpa.—A Brazilian species of perfect habit very seldom met with in collections. The stem, which is thick and thorny, rises from 12 feet

to 15 feet in height and produces long bipinnate arching fronds with pinnæ and pinnules set far apart, the latter almost lunuliforme and serrated at their edges; they are of a very pleasing green colour and possess the advantage of remaining for a very long time on the plant. Greenhouse.

A. Rebecceæ.—This handsome Tree Fern, of recent introduction, is well furnished with broad fronds from 2 feet to 3 feet in length, and arching very gracefully over. They are bipinnate, and their almost black stalks make a striking contrast with the glossy deep green to be seen on the upper surface of the fronds.

A. Van Geerti.—A very distinct and highly ornamental Tree Fern, whose stem never reaches a great height; it is slender, tortuous, of a bright brown colour, and, like the stem of *A. capensis*, produces young plants on its surface, which, after a while, can be detached. Although of comparatively short stature which the stem is, it produces very fine fronds 5 feet to 6 feet long of lanceolate form; they are bipinnate, and have their pinnæ deeply toothed; a quantity of short black spines cover the stalks all over, which are of a light brown colour. It is of very good habit, the fronds being conspicuously arched in a very graceful manner. Greenhouse. PELLÆA.

ROSE GARDEN.

BANKS FOR TEA ROSES.

THE useful article by Mr. George Paul in last week's GARDEN on raised beds for Tea Roses reminds me that some of the finest Teas I have ever seen have been on banks, and the latter in counties so widely separated as Lancashire, Warwickshire, and Essex. In the two former the Roses were on raised banks of considerable height and area, but quite detached from walls or other buildings. In the latter the bank was in front of a south wall, and fell with a sharp pitch from it. In all the Roses were remarkable for their vigorous growth and abundance of flowers. The additional warmth to root and top was no doubt the chief cause of the more perfect condition of the Tea Roses on banks. Bold banks of earth also afford the best of all protection against wind. This mode of making use of the earth itself in sheltering vegetation has not been developed to anything like the extent to which it is capable. For the purposes of shelter banks are far superior to raised beds, though no doubt these are better for Teas in many cases than level or sunk beds. But in climates such as East Anglia, raised beds or banks must be used with caution and judgment. Inspired by some striking examples, our first rosery here was formed of raised beds, and happening to have a few hot, dry seasons in succession, not a few of the Roses succumbed to the drought, and since then we have mostly got back to a level surface. Still, where abundant supplies of water are available, or the normal rainfall is more ample, raised beds or banks for Teas and other Roses have many advantages. For example, they are more effective in the landscape. One of the strongest arguments in favour of standard Roses is they lift the Rose several feet above the ground, and thus break up the level monotony of the Rose bed, border, or rosery. But by diversifying the surface of the ground to start with, the beauty of the Roses may be made to sweep over hills or undulate in graceful curves through lovely dales, thus immensely improving the line of beauty as well as heightening the effect of every Rose or group by constantly changing the standpoint from which it is seen. For example, how different Roses look in sunlight and shadow looked up to or looked down on, seen near at hand or from a distance, examined singly or seen in masses. Undulating banks would afford rare facilities.

For the tasteful grouping of Roses as well as for their closer approach and more facile enjoyment. The two latter are of great importance. Too often, as at present cultivated, the Rose is al-

most inaccessible to the delicate, infirm, or aged. The dwarfs are too low, the standards too tall, the rosery too far off or too damp to be safely visited at all times, especially at the witching time for Roses—the early morn or dewy eve. Placed on undulating banks, we can get as near to them as we choose; and intersected with dry paths, each Rose or group may be reached at any time of the day or night and in all kinds of weather. Nor must the improved climate on raised beds or banks be overlooked. Mr. George Paul takes note of this in his remarks on raised beds for Teas. Some reckon an elevation of a few feet of little moment in a climatal point of view. It is, however, far more important than appears at first sight. Slight elevations above dead surrounding levels act on the atmosphere somewhat as an upstanding rock, even of small dimensions, on the smooth waters of the sea; the latter breaks the still water into spray. The raised bank or bed does the same to the air, and whatever disturbs its stillness tends to conserve its warmth. Nor is this all; the coldest line of the atmosphere is probably within a distance of from 2 feet to 6 feet of the earth. It may be impracticable to raise single beds bodily above that line. Bold banks may readily be raised above the line of greatest cold, and, besides the unevenness of the ground line, keeping the air in constant motion, prevents it from reaching the low minimum it would reach on level ground. Another advantage of raised beds and banks is the deeper and drier root runs provided for the Rose. The Rose where it thrives, and the Tea Rose in particular, is a deep-rooting plant. It has also a tendency to root more deeply as well as more rapidly on raised beds or banks than on the flat. Various causes may be assigned for this, such as the better quality, greater depth, higher temperature, and drier character of the soil. Where the latter is not allowed to run into aridity, it no doubt favours the rooting of Tea Roses and most others as well, the greater dryness at the root remaining, especially in winter, also furnishing a powerful antidote against severe frosts. No one but practical cultivators familiar with what so often seems the mere erratic doings of the frost and its differing degrees of melting power within a few yards, could have any correct idea as to the wonderful power that dry soil has to arrest and not to augment its destructive effects. From this cause alone, two plants alike in age, character, size, one is frequently taken and the other left; and no doubt, could our rosaries be more generally formed on bold, undulating ground, we should have far fewer fatalities among them, and could grow the Teas and other more tender varieties to greater perfection.

Earthing up Roses.—Permit me to express my pleasure at seeing the advice I have often given in *THE GARDEN*—that of earthing up Roses for protection as one would Potatoes—reiterated by such an experienced rosarian as Mr. George Paul. Practised as he recommends, it not only renders the collars of the Roses frost-proof, but keeps the roots comparatively dry, and hence warm enough to be safe. With safe collars and safe roots, everything is safe with Teas the following season.

D. T. FISH.

VARIABILITY, ESPECIALLY IN ROSES.

It is admitted by nearly all who have studied the laws which govern the vegetable and animal kingdoms that variability is the universal rule. If I say nearly, it is because a very distinguished writer whom I esteem has written recently that reproduction is the rule and variation the exception. But in support of his opinion he has not adduced one example, nor explained why there are not two grains of sand of the same size or the same weight; why there are never two leaves of the same tree identically alike, nor two seeds of the same pod producing two plants in every respect the same; or why we never meet with two twins resembling each other exactly. Time and reflection, and particularly observation, will, it is to be hoped, settle this question. I have been myself for a long while in error respecting it. I attributed the variation obtained from seed to the

interference of insects, and thought that when rambling amongst flowers they carried the pollen from one variety to another and thus produced crossings. But my friend M. Carrière pointed out my mistake, and directed my attention to the natural law of variation. I searched for proofs, particularly amongst Roses, and I soon perceived that nearly always natural fecundation takes place before the expansion of the flower buds, and that consequently the intervention of insects was of no avail.

What makes me desirous to call the attention of Rose growers to this subject is that its evidence, the law of variability, is not generally perceived, principally as regard horticulture, and that because it is in the vegetable kingdom that there is the largest field for study. Is it not the expectation of getting something new by variation that induces us to raise plants from seed? It is in the Rose tribe that variation has without our intervention given us so much delight, by the numerous and beautiful varieties raised since the beginning of this century. This natural result, obtained since rosarians have begun to save seed and sow it, has induced some, and amongst them Mr. Henry Bennett, to have recourse to artificial fecundation, an art yet in its infancy, and often ill practised, but which will certainly lead to the production of marvels, provided attention is paid to judicious selection.

A fact associated with variability which has been often passed unnoticed is dimorphism, commonly called sport or accident. Why a sport? Why an accident? Because the law which has produced it is unknown. Some say that these variations are produced by an unhealthy state of vegetation; others by over-culture. I suspect people who thus reason to be in error, and I tell them, "Seek and they shall find." In the Rose tribe some very remarkable sports have sprung up recently, viz., Mabel Morrison, White Baroness, and Merveille de Lyon, all three with white flowers sprung from Baronne de Rothschild, which has pink ones. Tea-American Banner with striped flowers was detected on Tea Bon Silene, and it is very different in habit from the type. Lately, too, Mr. Peter Henderson, of New York, wrote to me that he has found dimorphism in the case of Tea Rose Perle des Jardins, the sport having the colour of Tea Madame Falcot. It is very likely that until lately very often such sports have occurred without being noticed, and will occur again. I therefore invite rosarians, particularly amateurs, who have leisure to pay attention to the slightest deviation they perceive, and to endeavour to fix it by means of budding or grafting.

JEAN SISLEY.

Monplaisir, Lyons.

PLANTS IN FLOWER.

KENNEDYA MARRYATTIANA, the pretty greenhouse climber to which we drew attention some time since, is now in flower in the Camellia house at the Victoria Nursery, Upper Holloway, trailing beneath one of the rafters of the roof. The bright carmine-red of the large Pea-like flowers at once arrests attention at this dull flower time.

RIBES SPECIOSUM.—A plant of this on the herbaceous ground wall at Kew is now producing a number of blossoms, thus anticipating its usual flowering season by some months. Doubtless the mild winter we have had up to the present has induced this early display, but the blooms do not now stand out so conspicuously as when the plant flowers in its proper season.

BOMAREA CONFERTA.—This plant, the subject of our coloured plate this week, is now beautifully in flower in Sir Trevor Lawrence's garden, at Burford Lodge, Dorking. A fine specimen of it in a huge pot in one of the greenhouses covers a considerable portion of the roof space, and one of the shoots is terminated by a dense drooping umbel numbering between twenty and thirty blossoms, while two other shoots bear umbels of buds almost as numerous. The colour is not so

high as that shown in our plate, but this is no doubt attributable to the season. The summer flowers are quite as rich in colour as that shown in the plate. The value of Bomareas for greenhouse decoration is well seen at Burford Lodge, where we noted a fine, vigorous plant of *B. Carderi*, likewise an extremely handsome plant.

LEUCOPOGON CUNNINGHAMI, an old-fashioned Australian shrub, is not by any means a common plant, and certainly is not so much appreciated as it might be. In winter its twigs, furnished with numbers of tiny white blossoms, are admirable for mixing with other cut flowers. It is a neat-growing shrub of simple culture under ordinary greenhouse treatment. We saw it in bloom the other day in Messrs. Laing's nurseries at Forest Hill.

A SEEDLING **BOUVARDIA** sent to us by Mr. Balchin, Hassock's Gate Nursery, Keymer, is a beautiful variety, with flowers of a delicate rose, very similar to those of the new sort called *Priory Beauty*. Mr. Balchin states that it is "a cross between *Rosalinda* and *Umbellata carnea*. It has a very dwarf, compact habit, very free flowering, and a good, hardy constitution." The brilliant *Bouvardia Dazzler* originated at this nursery a year or so ago.

HIBISCUS LAMBERTI is the name of an extremely fine double-flowered variety which we saw in full beauty at Burford Lodge the other day. The flowers are very double, and as large as Perpetual Roses usually are. The colour ranges from deeper crimson to a lighter and brighter tint, varying apparently with the age of the flower. The plant is bushy in growth, vigorous and floriferous, and particularly welcome in a stove in midwinter. It is no doubt a double variety of *H. rosa sinensis*.

CAPE PONDWEED (*Aponogeton distachyon*).—This aquatic plant possesses the merit of flowering almost continuously, several blossoms being expanded in a tank in the herbaceous ground at Kew, and although, owing to the heavy atmosphere, not quite so pure in colour as when under glass, nor the Hawthorn-like perfume so strong, yet its winter-blooming qualities give it a great advantage over its associates. Being, as it is, a native of the Cape of Good Hope, its hardiness is all the more remarkable.

APHELANDRA PUNCTATA.—This new South American species, pretty both in foliage and flowers, is now in bloom in Mr. Bull's nursery, Chelsea. It has erect stems furnished densely with leaves, beautifully variegated with silvery veins and markings on an emerald green ground. The flower-spike terminating the stems consists of closely arranged, long tubular flowers of a clear chrome yellow, while the bracts which accompany them are of the same colour tipped with green. It is quite out of the ordinary run of ornamental plants, and one particularly valuable in winter. It thrives under the ordinary conditions of stove plants.

A DOUBLE **EUCHARIS AMAZONICA** has been sent to us by Mr. Vicary, Mr. Peacock's gardener at Sudbury House, Hammersmith. It is not double in the ordinary sense of the term, but a fusion of two flowers, one within the other. It is twice the ordinary size, has twelve petals, a corona $1\frac{1}{2}$ inches across, twelve stamens, and two pistils and ovaries fused into one. It is an unusual production, and if a variety bearing such flowers as these could be fixed it would be an acquisition. The *Eucharis* is seemingly grown well at Sudbury House, for Mr. Vicary informs us that he has cut during the last month some 150 blooms.

BEGONIA ROEZLI.—Last year when we saw this plant in Sir Trevor Lawrence's garden at Burford Lodge we spoke of it in high terms, and a sight of it the other day even more deeply impressed us with its extreme elegance of growth and beauty of colour. To those who know it not it may be best described as almost the counterpart of the well-known *B. nitida*, only instead of the flowers being white they are bright cherry rose, a colour which in contrast, or rather harmony, with the ample green foliage produces a most

charming effect. Mr. Bain, Sir Trevor's gardener, evidently knows well the requirements both of *B. Roezli* and *B. nitida*, for he grows them far finer than we have seen them elsewhere; indeed, we have rarely seen such a lovely floral sight—no, not even in the Orchid houses adjoining—as a group of a score or so of large plants of these two *Begonias*. They range from 3 feet to 5 feet in height, and their tall slender stems carry wide-spreading clusters of flowers. The two colours, (white and cherry red) are charming mixed as they are here. The plants are growing in a moderately warm stove, and it would be interesting to know further how Mr. Bain deals with them as regards culture.

THE BOTTLE BRUSH PLANTS are very different in character from most others, their flowers being arranged round the shoots towards their ends in the shape of a dense bottle brush. Under this head are included the *Beaufortias* and *Calothamnus*, besides the *Callistemons*, a fine large bush of *C. rigidum* has been flowering throughout the winter in the temperate house at Kew, and has at the present time six or eight expanded clusters on it, besides a great many more to open. These bright, glowing, crimson masses of flower are produced much earlier than usual, but they are doubly welcome at this dull season.

HARDY FLOWERS IN JANUARY.—Of hardy flowers in season, we have now (January 22) as many as are wanted for the decoration of a sitting-room—a large bowl of Christmas Roses, with dark red foliage of *Berberis Aquifolium*; long and short sprays of *Jasminum nudiflorum*, with *Alexandrian Laurel* and large-leaved, dark green Ivy; a bunch of *Iris stylosa* by itself, with its own narrow, sword-like leaves; *Chimonanthus fragrans*, filling the room with sweetness, and a bright golden bunch of winter *Aconites*; *Czar Violets* in profusion; *Snowdrops*, *Crocuses*, and *Cyclamens* of winter-blooming species; *Anemone coronaria* and *fulgens*, and good bunches of *Primroses* and *Polyanthus* anticipating their true season, but as strong as in spring.—G. J.

SOLANUM JASMINOIDES FLORIBUNDUM.—Such is the name we saw attached to a variety of this old-fashioned greenhouse *Solanum* the other day in the garden at Burford Lodge—a name which the plant well justifies, for while yet in a small state only about a yard high it is bearing a copious crop, consisting of clusters of white flowers. Usually this *Solanum* does not flower until it has grown into a tall plant, but this variety being dwarf can be grown in pots on a stage, and is a useful subject for affording white cut flowers in winter and spring. If not absolutely new, it does not seem to be much known, for we have seldom met with it elsewhere.

SOLOMON'S SEAL.—When forced into bloom under glass the flowers of this are whiter than when they expand naturally in the open ground, and the plants form very pretty objects for conservatory decoration at this season, besides being useful in a cut state, as from the size and graceful appearance of the sprays they can be employed for large stands or vases, which are as a rule difficult to furnish satisfactory at this time of the year. For forcing clumps of them they may be potted just as they are grown, or the strongest eyes may be selected and potted about half-a-dozen in a 6-inch pot, or if larger specimens are needed both the number of the crowns and the size of the pots may be increased. This latter method is in one respect greatly to be preferred, as when potted in clumps just as they are grown, the mass is often of an irregular shape, which necessitates a large pot being used in proportion to the size of the plant, while when the strongest eyes only are taken they do not require so much pot room. Treated about the same as its relative, the *Lily of the Valley*, it will succeed perfectly. The conservatory (No. 4) at Kew now contains some good forced examples of this plant.

NERINE ERUBESCENS.—Mr. T. Cam, Hereford, sends us a plant of a new hybrid *Nerine* bearing this name. He says: "It has been produced by fertilising *N. undulata* with the pollen of *N.*

flexuosa, the result of which has been a winter flowering variety of a uniform blush colour and an increase in size. The petals are crisped, and the deeper coloured midrib, which is present in the other light coloured varieties of this *Amaryllid*, is absent; the foliage is evergreen, and consists of long pointed bright green leaves; the bulb is nearly globular. [It is a delicately pretty plant, and being a winter flowerer is a welcome acquisition.]

CHRYSANTHEMUM WHITE VENUS.—I send you flowers of this variety, which I find to be one of the very best to grow for late bloom. Being fully aware of its excellent qualities, I recommend it to the notice of others who may be in want of a really good late white *Chrysanthemum* that will without fail give satisfaction. I have to-day (Jan. 23) gathered a fine basketful of flowers from plants of it, and have taken promiscuously from the basket the blooms I send you. They are not "giants," but, as you will observe, they are large enough for purposes of general decoration.—JOSIAH JEFFREY, *Derry, Rosscarbery, Co. Cork*. [Lovely flowers of one of the purest white sorts of incurved *Chrysanthemums*.]

SIX-SEPALED HELLEBORE.—I send you a few *Hellebore* flowers gathered from the open, and grown under the name of *H. niger*. I wish to direct attention to the six sepals in several instances, the extra one being a converted bract, though it is so close to the flower as to be barely distinguished from the normal sepals. Then on the single flowered stem may be observed a bract with a development in the opposite direction, viz., a rudimentary floral leaf such as accompanies the flowers of the coloured species. Again, the leaf sent is far from the usual form, being very irregular; some of the segments are obovate, all are jagged, and nearly as sharply toothed and pointed as in *H. argutifolius*. The flowers are mostly in pairs, and I have seen three sometimes. I should like to know if such sports have been observed by others of your readers, and if you think they are caused by some cross or cultural conditions, or what?—J. WOOD, *Woodville, Kirkstall*. [We have not observed the peculiarities here referred to before.]

Preservative for fungi.—Three years ago I invented what I think a very good and cheap liquid for the preservation of fungi, composed of the following ingredients: $4\frac{1}{2}$ ounces of common salt; 5 ounces of pulverised alum; and 1 quart of white wine vinegar. Mix thoroughly, and keep in a wide-mouthed glass jar. Brush off any dirt that clings to the fungus, and drop the freshly gathered plant into the liquid. I have beside me a large jar of plants collected in the summer of 1879. They are now in a perfect state of preservation. They have diminished somewhat in size, but their structure is preserved, and the larvæ are effectually destroyed. The liquid often gets filled with sediment and floating particles, to free it from which I pour it off, strain it through a piece of thin muslin and return it to the plants.—M. E. BANNING, in *Proceedings of the Torrey Club*.

Testing seeds by fire.—In the purchase of seeds one is apt to be deceived. A correspondent of the *Journal d'Agriculture Pratique* recommends a test which he has used for many years with complete success. It is that of fire. Take a number of seeds from the sample, put some live coals on a shovel and deposit each of the seeds successively on it. Blow the coals and watch how the seeds behave. If the combustion is slow, merely giving off some smoke, you may conclude that the seed has a damaged germ; if, on the other hand, the seed leaps and turns about on the coal, producing a dry sound proportional to size, it may be inferred to have good germinative qualities. In this way the proportion of good and bad seeds may be ascertained. As for the larger seeds, such as *Acorns* and *Chestnuts*, it is sufficient to throw them into a fire and keep them in view. If the quality is good, this will be very plainly indicated ere long by the detonation of the seeds.—T. C. W.

TREES AND SHRUBS.

RAISING FALLEN TREES.

THE reinstating of large trees is more simple and easily accomplished than is generally supposed, at least judging from a little experience we had in this way lately. During the memorable gale of October, 1881, when so many fine trees were uprooted all over the country, amongst others in the park here were several large specimens of the *Cornish Elm*, one of which could ill be spared from the surrounding landscape. Resolved, if possible, to reinstate this tree, the attempt at which has been quite a success, I venture to give the mode of operation, which may perhaps prove interesting, if not useful, to others having a similar undertaking, especially as replanting large trees when blown over is rather a novel feature in forestry. Before attempting to raise this tree, which was about 50 feet in height, 15 feet were cut from the top, which not only lessened the weight, but also left less surface exposed to the storm.

Special facilities were afforded for raising this tree, as growing alongside were others to which the blocks and tackle used in lifting were attached. These being affixed, and also ropes from the top of the fallen tree to one on either side as guides; a number of men were put to the rope to which the blocks were attached, and, by steady pulling, succeeded bit by bit in raising the tree to its former perpendicular position, the soil beneath the roots having previously been excavated and a bed prepared for its reception. The large roots were then firmly pegged down and all re-covered with soil, a coating of decayed leaves being placed on this to prevent the too speedy evaporation of moisture. Three double wires were stretched from the top of the tree to the base of others in close environ, one on either side and one directly opposite that on which the tree had fallen, and, being twisted to the tightness required, served not only to keep the tree in proper position, but also to prevent unnecessary strain on the roots when swaying with the wind. The tree thus operated upon, as well as others of less size, have all done well, and during the present season had not the least appearance of having been reinstated from the fallen position they occupied less than twelve months before.—A. WEBSTER.

Variegated Oak tree.—I have under my care a magnificent variegated Oak tree, which is much admired, being when in leaf nearly white, but I am at a loss to know how to propagate it. Cuttings do not succeed; *Acorns* from it have been planted, but when they have grown up the foliage has been green like that of any other Oaks. It is a large tree, the trunk measuring 6 feet 6 inches in circumference. It has been budded or grafted 1 foot above the ground. I am very anxious to get some young trees from it. Suppose I graft it, when is the proper time to select the grafts? and is the grafting performed as in the case of other trees?—E. B.

Fungus on evergreens.—The remarks of "W. G. S." on *Capnodium Footi* are very interesting and quite in accordance with my own observations. Although this fungus is frequently accompanied by scale insects, and undoubtedly grows with greater luxuriance where the excretions of these are present, yet the presence of the one is by no means necessary for the growth of the other; indeed, I have repeatedly found the fungus without the scale and *vice versa*. This fungus appears to spread rapidly, for since my communication about it nearly twelve months ago, when it so badly disfigured the Ivy on the castle here, I have found this fungus abundantly on the following trees and shrubs, with the scale insect as often absent as present, viz., *Sycamore*, *Beech*, *Holly*, *Aucuba japonica*, *Bay*, *Laurel*, and *Ivy*, the two latter being perhaps the worst infested. The rapidity with which it spreads, and the disagreeable sooty appearance of the plants infested by it, lead one to ask if no remedy but destroying the foliage has been found effectual.—A. D. WEBSTER, *Penrhyn Castle, North Wales*.



SPIRÆA FLAGELLIFORMIS.

A GLANCE at the annexed illustration will make our readers better acquainted with the elegant beauty of this *Spiræa* than any written description could possibly do. It is, we consider, one of the most beautiful of all *Spiræas*, and unquestionably the finest of the white flowering kinds. We met with it last summer in Mr. Joseph Stevens' richly stocked garden at Grasmere, Byfleet, and thought at the time that we had rarely seen a shrub possessing such a combination of gracefulness and beauty. From a spray of this bush our drawing was made. It is a slender growing, wiry twigged shrub, ranging from 3 feet to 6 feet in height in favourable soils and localities. During the latter part of May and the beginning of June each of the preceding year's shoots is densely wreathed with small, erect clusters of white flowers as in the spray shown in the illustration. When a good sized bush is thus furnished with blossom its beautiful appearance may be better imagined than described. This *Spiræa* belongs to that section of the shrubby class characterised by their flowers being produced in hemispherical corymbs or loose umbels. The species and varieties belonging to this section are more numerous than in any other, and unfortunately there exists a good deal of confusion with regard to their names, and more especially as respects the particular species around which the plant we illustrate and several other varieties rally. This species is undoubtedly *S. hypericifolia*, so named on account of its foliage resembling that of some of the smaller kinds of St. John's Wort. The general appearance of *S. hypericifolia* is very similar to our plant, but it is much less floriferous, and it differs from it in several other particulars. *S. flagelliformis* is no doubt a garden name for a distinct and handsome variety of this species, but even with regard to this name some confusion exists, as Mr. Stevens has the plant under the name of *S. platyformis*, probably a corruption of *S. flagelliformis*, the latter a recognised name on the Continent, where we imagine the variety must have originated. It is in the collection in the Kew arboretum in company with the allies, or possibly synonyms of *S. hypericifolia*, but the variety we figure may be singled out easily from all the rest. The most noteworthy of these allied kinds are *S. crenata*, *pikoviensis*, *acutifolia*, *confusa*, and *nuttans*, all of which are tolerably common. The names under which *S. flagelliformis* might possibly be found in gardens and nurseries are *S. adiantifolia*, *vaccinifolia*, *rhombifolia*, and *foliosa*. There seems to be some misapprehension, too, respecting the native country of *S. hypericifolia*; some hold that it is a Canadian, or, at least, a North American plant; others, again, assert that it is European.

Be this as it may, the plant here illustrated is one that everybody should endeavour to secure, and the best way in order to this end would be to see it when in flower, or a spurious imitation may be sent instead. Mr. Stevens, we believe, got his plant from either a French or Belgian nursery.

As to its culture, nothing need be said scarcely; it is not at all fastidious as to soil, and is hardy enough to brave even the worst of our winters. However, it is grateful for liberal treatment as to soil, and at planting it is advisable to put it in a good mixture of turfy loam, made still richer by the addition of a little good decayed leaf mould, or, better still, a little rotten manure. In material of this description the young plant will grow apace and make long, vigorous shoots, and in a year or two it will have exhausted the goodness of the soil considerably, and then it will begin to yield a yearly crop of wreaths of snowy blossoms. It should not be placed in a shrubbery, but should occupy a prominent position where it can get plenty of light and air and be seen to advantage.

EVERGREEN WALL SHRUBS.

Cratægus Pyracantha.—Few hardy evergreen plants excel the *Pyracantha*. It is so thoroughly hardy that it will thrive in any position, and it is not very particular as to soil, but the better and deeper the latter is the more satisfactory does the plant grow, and its dark glossy foliage is always an agreeable sight, while its bright red berries when ripe make it one of the most effective of wall plants during the winter season. It may be raised either from seed or layers, but it is so inexpensive to purchase, that it is hardly necessary to wait for home-raised plants. It is grown in pots in most nurseries, and may, therefore, be planted at any time, but perhaps April and September are the best months in the whole year to select for planting it. If received in pots it is necessary to thoroughly disentangle the roots before planting, and to spread them out over a bed of fine soil, covering them with the same material after planting. Be patient for a year or two; the plants do not make much headway the first year and not over much until the third, but after that they ought to make vigorous

shoots, and in a few years cover a moderately large space. I have known a strong plant to reach a height of 12 feet on a north wall, and I think that is about the height it can be reckoned to grow. Many do not succeed with the *Pyracantha* so well as they might do, because it is pruned with a total disregard of its requirements. The best time to prune it is in February, when the berries begin to fade; those branches which have produced fruit should be cut quite out or shortened back as the shape of the tree will best admit. Much of the old wood that has borne fruit should be removed to make room for young growth. If it be borne in mind that the plant flowers, and as a result bears fruit on the preceding year's growth, we have the key to the proper system of pruning required. It is a common oc-

currence to see all the branches at the top of the tree well laden with bright red berries and none at the bottom, but this need not be so to such an extent as it commonly is, if some of the lower branches were cut away or rather shortened back well to induce young growth, which will in due time both flower and fruit, and as a consequence the tree will have a better appearance. To preserve the fruit from birds which frequently attack it in a most determined manner, as early as November we have to spread over the trees a piece of 1-inch fish net, which we do not find detracts much from the appearance of the fruit.

Cotoneaster microphylla.—For covering low walls from 4 feet to 6 feet high in any aspect with a dense mass of dark green growth there is no hardy plant equal to this, and it is sometimes very bright in appearance, as, for instance, when it is in flower in the spring and early in winter, when gaily clothed with cheerful red berries. With the aid of a little training it adheres close to the wall and really gives but very little trouble, and if a little extra attention is paid to it, it may be so trained as to form any desired figure on the wall. I remember once seeing the name of a village very clearly shown on the wall of a cottage garden by means of this plant, the branches forming the letters, and those who know anything of its accommodating character will not consider that any difficult feat was accomplished, as it bears clipping and pruning with impunity.

C. Simonsi.—Although this makes a good climber for a wall of moderate height, I do not consider it equal to the preceding. It grows more rapidly, but does not show such an even, close growth. I find that it fruits freely when grown as a bush in the open, but it does better on a wall, and its berries are acceptable, and have a cheerful appearance in the autumn months.

Ceanothus azureus.—In the west of England and also in many parts of the south this fine plant passes through a severe winter unharmed, and when it does so we have few things to compare with it, for it flowers freely and the leafage is ample. A warm south or west wall should be chosen for it. In a good deep soil it will reach a height of from 12 feet to 14 feet. It requires rather careful pruning to induce it to flower regularly all over the plant. It is best not to prune it until March, and then to nail in a fair proportion of the last year's wood, and to cut out some of the old, as it is the young wood of the previous year that principally produces the flowering shoots. It is a plant of quick growth, and requires rather a large space in which to develop its branches in a proper manner.

Escallonia macrantha.—This well-known evergreen admits of being grown either in bush form or as a wall plant. It is fairly hardy in most parts of England, and is not very particular as to soil; if not wholly composed of a stiff cold clay it does not want any special preparation made for it. On walls from 6 feet to 7 feet high its flowers look cheerful in summer and its leaves have always a bright green appearance. What pruning it needs should be done early in April. Thin out some of the old exhausted shoots to make room for young growth, and shorten back some of the growth that is always freely produced near the main stem and largest branches.

Berberis stenophylla.—In a position well drained and where the soil is rich and deep this Barberry makes a capital climber. It is perfectly hardy and flowers with great freedom for several weeks together during summer, when it is an admirable subject to cut from, as its lovely flowers strudded thickly on arching lateral branches are capable of being turned to good account in the decoration of vases, &c. In the proper sense of the term it is not at all a creeper, nor do I recommend it for walls that are more than 8 feet high, but with moderate care it can be trained so as to make a beautiful object, as its growth is not so formal as the general run of creepers. As soon as it goes out of flower is the proper time to prune it, and then some of the old growth must be removed to make room for the young.

Magnolia grandiflora.—This makes an imposing wall plant. In a rich deep soil and in warm localities it frequently reaches a height of from 16 feet to 20 feet. It requires time to produce a good sized plant, as at first it is of slow growth. In all doubtful cases the soil should be specially prepared for it; a hole 3 feet deep and 6 feet wide should be dug for it, and if there is any choice of soil select the top spit of an old pasture field, regulating the depth according to its composition; then let it be stacked in a heap for six months before using it, and as regards the future progress of the plant, it does not object to a bit of well-rotted manure. About every second year we fork in over the roots one or two barrowloads, and the way in which our plants grow shows that they like it, but our plants are large, covering many square yards of wall, and reaching a height of 14 feet. In dealing with this *Magnolia* we find the greatest difficulty in keeping it against the wall. For several years past we have used large nails 5 inches long and strong tar cord; this secures the branches firmly. Young plants should not be pruned at all, and old plants do not require much done to them in that way. It is advisable sometimes to cut out a branch where too thick, but not otherwise. Plants of this description do not like much disturbance at the roots; therefore they should be only planted where they are likely to remain for some years, and in a general way it is better to plant young and vigorous plants than to renovate old ones. They are best planted in April, and they should receive some protection during severe weather the first year after being planted.

Broad-leaved Myrtle.—All along the south coast, as well as in the western counties, this Myrtle will withstand a severe winter on warm south walls if protected by frigi-domo during severe frost, and few wall plants are more appreciated, as old plants flower freely and their foliage is always in good condition. It requires a good deep soil and should be kept trained close to the wall. Here in the west we rarely protect it at all, and it thrives without it. Further south I have known it to reach a height of 10 feet in warm aspects with no other protection than that which has been mentioned, but it was put on about the end of November, and allowed to remain over the plants until the beginning of March. Very little care in pruning will keep this Myrtle clothed with foliage from top to bottom.

Benthamia fragifera.—This plant is much hardier than it is supposed to be. We have it here on a wall with an east aspect, reaching a height of 12 feet. It passed through the severe winters of 1880 and 1881 unharmed without any covering, and I think a plant that will endure 26° of frost with only the points of the leaves injured is not likely to suffer much if the thermometer should go down to zero. Even this winter we have experienced 16° of frost, and still our plant looks as fresh as a common Laurel which stands only a few yards distant. This *Benthamia* is altogether distinct from any other evergreen. Its growth is rather stiff, and there is a greyish appearance about the leaves quite different from that of any other plant. With us it grows in a very luxuriant manner, and although it flowers in very warm summers, it has not yet matured any fruit. It is not at all particular as to soil, but no doubt it would do better on a south wall than in any other aspect. I should say it is just the plant for those who have glass-covered verandahs or balconies, and who may want to cover the walls with evergreens. On the Devonshire coast the *Benthamia* may be seen occupying positions in shrubby borders, and in warm situations it fruits freely, and is then very effective.

Euonymus latifolius.—On warm walls and in districts somewhat favoured as to climate I believe this *Euonymus* will prove a very acceptable plant for walls ranging from 4 feet to 7 feet in height. It is, in my opinion, the brightest of all the Spindle trees. With us as a bush in the open border it has grown to a height of 5 feet, and I have no hesitation in saying that in a climate equal to that in the neighbourhood of

Taunton it will, in a good soil, reach a height of 12 feet. To make room for other plants, I quite recently had to remove from a south wall a plant of it that had grown to the height of 8 feet. During the winter months this plant was the brightest of all our occupants of walls, and I miss it immensely for cutting from, as during the winter it was bright and cheerful, its well defined and silvery variegation affording a capital contrast to that of the golden *Elæagnus* when placed side by side. *E. radicans variegatus* makes a much better wall plant than its first appearance indicated. With us, against a warm south wall, it has grown to a height of 10 feet, but in order to induce it to grow upwards it required to be planted thickly, and the soil must be rather light and of a good depth. On our soft sandstone walls it supports itself almost as well as the Ivy. J. C. C.

FLOWER GARDEN.

GLADIOLUS FAILURE.

"DELTA" has striven long and manfully against the inevitable, but it seems that his own collection as well as that of Mr. Banks, of Deal, is in much the same condition as mine at Loxford. For my own part I have long arrived at the conclusion that money spent on *Gladiolus* bulbs is little better than wasted. I came to this conclusion some years before "Delta" did, and for saying so in the pages of *THE GARDEN* and elsewhere incurred a considerable amount of criticism. It is pleasant to look back to the time when "Delta" and myself were the principal private exhibitors of *Gladioli* at metropolitan exhibitions, and I do not think it probable that I could have competed successfully with "Delta" but for the large number of seedlings which I raised annually. We are not likely to have such exhibitions in future, but what has been done once may be done again. Before finally giving up the culture of the hybrid varieties of *Gladiolus gandavensis*—for it is of those only that I and "Delta" write—I tried many different ways to attain success. I believe Mons. Souchet does not grow his bulbs two years in succession on the same ground, and, in fact, finds that it answers best to allow his *Gladiolus* ground to remain fallow for a year. We were always most successful with them when we trenched the ground in September, even if a crop of something had been grown on the land the previous summer. I always put in two layers of manure, one at the depth of 18 inches, and the other 9 inches below the surface; the best manure is that from the cowhouse and stable mixed together in equal proportions.

Seedlings are easily raised, and good varieties can be obtained if some judgment is used in crossing them. It is almost certain that if we are to have beautiful varieties of the *Gladiolus* in our gardens in future, seedling raising must be carried out on new lines. Hitherto there has been but little done in the way of crossing distinct species, or introducing new blood into the varieties of *G. gandavensis*. The late Mr. John Standish made an attempt to do this by introducing the blood of *G. cruentus* and some other distinct species into the best forms of *G. gandavensis*. As was naturally to be expected, the first produce of this cross was not up to the standard of the best named varieties, the flowers were much smaller and not so well nor so thickly placed on the spikes, and from the standpoint of the florist they were considered a failure. Later Mons. Lemoine has given us the result of crossing *G. purpureo-auratus* with the *gandavensis* section, and several beautiful varieties have resulted therefrom. What we want if we can get it is

A more hardy section that will not only endure our winters in the open borders, but will also thrive, if left undisturbed, for years in the same place. Plants are doubly interesting if they can be established in the garden; one gets at last to welcome them as old friends as they push through the ground in due season. I have known

some of the species to remain in the same place in rather a sheltered corner for nearly twenty years. At Loxford a plant or rather clump of *G. Colvillei*, or a form of that species, has flowered annually for that time in a sheltered corner. I have also known certain species grown as border flowers in Scotland. Probably it would not answer as a commercial speculation to undertake the crossing of different species of the *Gladiolus*; the only result possibly would be the pleasure to be derived from such work, and to most amateurs this would be quite sufficient. The only one who treated the

Gladiolus as a hardy plant, and practised hybridisation from that point of view, was Dean Herbert, and his success ought to encourage others to labour in the same direction. He found them succeed well in the ordinary yellow loam of his garden, and also in artificial borders of peat and sand, but in the latter they required more water in dry summers than in the loam. His crosses of *G. cardinalis*, *blandus*, *carneus*, *inflatus*, *angustus*, *tristis*, &c., gave him flowers of every shade of colour, such as white, scarlet, rose, purple, copper colour, and the crosses of *tristis* afforded beautifully speckled flowers. The above were planted out and allowed to remain for years in the same place, giving, as he says in his work on "The Amaryllidaceæ," a "profusion of blossom and contributing quite as much to the embellishment of his garden as the Rose." His treatment of seedlings was the same as that which I have previously recommended in THE GARDEN. With the hardy sorts, he says: "Sow the seeds in pots and give them shelter until the seedlings are pretty strong; then turn out the ball unbroken into the border, where they will produce a crowded nosegay of flowers of various shades of colour." The Dean's seedlings also flowered the first autumn. Evidently both climate and soil were in their favour. It is nearly half a century since "The Amaryllidaceæ" was published, and probably the result of Dean Herbert's work is now lost; but it is evident that we have better material to work with now than was available then. There are greater numbers of distinct species, and the varieties of *G. gandavensis* are of almost every shade of colour combined with beauty of form. J. DOUGLAS.

MULCHING HERBACEOUS BORDERS.

In the majority of cases these are dug up in winter—a mistaken practice, unless done for the purpose of dividing and rearranging the plants, as the digging, especially when done with a spade, breaks or cuts the greater portion of the roots, and thus does serious damage. Hardy as most outdoor herbaceous subjects are, they are all the better for being protected, and the easiest and most natural way of doing this is to top-dress the ground among them, and the most suitable material for doing this is leaf mould, of which all plants are exceedingly fond. Besides being highly congenial to them on account of the rich vegetable matter which it contains, it is one of the best non-conductors that can be had; from 1 inch to 3 inches in depth of it will keep out the severest frost, which gives it a double value. The only thing that equals it as a protector is

Cocoa-nut fibre, a good substitute for leaf soil, but when used to shelter plants care should always be taken that it does not become mixed up in the ground, as when thus buried there is always danger of its generating fungi. With leaf mould there is little or no risk, as its decomposition being so much more rapid, fungi have no time to form; whereas Cocoa-nut fibre lies for years in the soil. For all this, it is exceedingly useful for placing round the collars and up the stems of such plants as *Pentstemons* or *Antirrhinums*, or for surfacing beds of *Alstroemerias*, *Belladonna*, *Lilies*, *Tritonias*, *Ixias*, or other bulbs of doubtful hardiness, as in the spring it can easily be raked or cleared off and laid by or discarded. Where leaf soil is scarce the most economical way of applying it is to heap it over the crowns of the plants, and in order to prevent birds

from disturbing it it is a good plan to stick a twig or two of Gorse or other evergreen close around it, which will not only keep the leaf soil in its place, but hides its rather unsightly appearance.

Re-arranging the plants.—If the plants are crowded or irregular as regards height and size, and require re-arranging, the best plan is to take the whole up and then trench the border, laying them in and covering them while the work is going on, so as to prevent any drying of the roots or damage to them by exposure to frost. In trenching a good dressing of rotten manure should be worked in, but in doing this it is always advisable to keep it well down, as then the roots go down to it, and the plants are thus enabled to endure dry weather better than they otherwise would do during the summer. Phloxes and similar subjects will be much improved by division of the clumps, which may be effected by cutting them through with the edge of a sharp spade or large knife, selecting the strongest and best parts for planting, when any to spare may advantageously be made use of to adorn shrubby borders or woodland walk borders, where strong-growing kinds hold their own and look well. S. D.

LIST OF PRIMULAS.

It may be interesting to know how many of this beautiful genus of plants are known in a wild state up to the present time, both genuine species and hybrid kinds; also the synonyms and other kinds in culture. Those marked with an asterisk (*) are only known to me by description; the others are cultivated here.

A.—GENUINE SPECIES OF EUROPEAN ALPS.

<i>acaulis</i> (Jacq.)	<i>intricata</i> (G. G.)
<i>Allionii</i> (Lois.)	<i>longiflora</i> (All.)
<i>Auricula</i> (L.)	<i>marginata</i> (Curt.)
<i>Balbisi</i> (Lehm.)	<i>minima</i> (L.)
<i>bellunensis</i> (Venz.)	<i>oenensis</i> (Thom.)
<i>calycina</i> (Düb.)	<i>officinalis</i> (L.)
<i>carniolica</i> (Jacq.)	<i>Palinuri</i> (Petr.)
<i>carpathica</i> (Fuss.)	<i>pedemontana</i> (Thom.)
<i>Clusiana</i> (Tsch.)	<i>scotica</i> (Hook.)
<i>commutata</i> (Schtt.)	<i>sibirica</i> (Jacq.)
<i>confinis</i> (Schtt.)	<i>spectabilis</i> (Tratt.)
<i>elatior</i> (L.)	<i>stricta</i> (Horn.)
<i>farinosa</i> (L.)	<i>Silthorpi</i> (Rchb.)
<i>frondosa</i> (Janka)	<i>suaveolens</i> (Bert.)
<i>glutinosa</i> (Wlf.)	<i>tirolensis</i> (Schtt.)
<i>hirsuta</i> (All.)	<i>villosa</i> (Jacq.)
<i>inflata</i> (Lehm.)	<i>viscosa</i> (All.)
<i>integrifolia</i> (L.)	<i>Wulfeniana</i> (Schtt.)

B.—HYBRID KINDS.

<i>alpina</i> (Schl.) = <i>Auricula</i> × <i>viscosa</i>	
<i>Arctotis</i> (A. Kern) = <i>hirsuta</i> × <i>Auricula</i>	
<i>Bernina</i> (Christ.) = <i>hirsuta</i> × <i>viscosa</i>	
<i>biflora</i> (Huter) = <i>minima</i> × <i>Floerkiana</i>	
<i>brevistyla</i> (D. C.) = <i>officinalis</i> × <i>acaulis</i>	
<i>cradensis</i> (G.) = <i>tirolensis</i> × <i>Wulfeniana</i>	
<i>digena</i> (A. Kern) = <i>acaulis</i> × <i>elatior</i>	
<i>discolor</i> (Leyb.) = <i>Balbisi</i> × <i>oenensis</i>	
<i>Dumoulini</i> (St.) = <i>spectabilis</i> × <i>minima</i>	
<i>Dinyana</i> (Lagg.) = <i>integrifolia</i> × <i>hirsuta</i>	
* <i>Escheri</i> (Brugg.) = <i>integrifolia</i> × <i>Auricula</i>	
<i>Facchini</i> (Schtt.) = <i>minima</i> × <i>spectabilis</i>	
<i>flagellicalis</i> (A. Kern) = <i>acaulis</i> × <i>officinalis</i>	
<i>Floerkiana</i> (Schrad.) = <i>minima</i> × <i>glutinosa</i>	
<i>Forsteri</i> (St.) = <i>minima</i> × <i>hirsuta</i>	
<i>fratensis</i> (G.) = <i>oenensis</i> × <i>minima</i>	
<i>Goeblii</i> (A. Kern) = <i>Auricula</i> × <i>villosa</i>	
* <i>Heerii</i> (Brugg.) = <i>hirsuta</i> × <i>integrifolia</i>	
* <i>Huguenii</i> (Brugg.) = <i>integrifolia</i> × <i>glutinosa</i>	
<i>Huteri</i> (A. Kern) = <i>salisburgensis</i> × <i>minima</i>	
<i>intermedia</i> (Fischl.) = <i>minima</i> × <i>Clusiana</i>	
<i>Krattkyi</i> (Brugg.) = <i>longiflora</i> × <i>farinosa</i>	
<i>Kernerii</i> (St. & Goebl.) = <i>villosa</i> × <i>Auricula</i>	
<i>Leblana</i> (G.) = <i>Wulfeniana</i> × <i>Auricula</i>	
<i>multiceps</i> (Freyer.) = <i>carniolica</i> × <i>Auricula</i>	
<i>media</i> (Peters.) = <i>elatior</i> × <i>officinalis</i>	
<i>Murettiana</i> (Mor.) = <i>viscosa</i> × <i>integrifolia</i>	
<i>nova hybrida</i> (H.) = <i>Clusiana</i> × <i>Auricula</i>	
<i>Obristi</i> (St.) = <i>Balbisi</i> × <i>Auricula</i>	
<i>obovata</i> (Huter) = <i>tirolensis</i> × <i>Wulfeniana</i>	
<i>Peyritschyi</i> (St.) = <i>viscosa</i> × <i>Auricula</i>	
<i>Plantæ</i> (Brugg.) = <i>hirsuta</i> × <i>oenensis</i>	
<i>Portæ</i> (Huter) = <i>oenensis</i> × <i>Balbisi</i>	
<i>pubescens</i> (Jacq.) = <i>Auricula</i> × <i>hirsuta</i>	
<i>pumila</i> (A. Kern) = <i>minima</i> × <i>oenensis</i>	
<i>Salisii</i> (Brugg.) = <i>viscosa</i> × <i>hirsuta</i>	
<i>serratifolia</i> (G.) = <i>minima</i> × <i>tirolensis</i>	
<i>salisburgensis</i> (Fl.) = <i>minima</i> × <i>glutinosa</i>	
<i>Steinii</i> (Obr.) = <i>hirsuta</i> × <i>minima</i>	
<i>Sturii</i> (Schtt.) = <i>villosa</i> × <i>minima</i>	
<i>tergloensis</i> (G.) = <i>minima</i> × <i>Wulfeniana</i>	
<i>ternoviana</i> (A. Kern) = <i>acaulis</i> × <i>elatior</i>	
<i>truncata</i> (Lehm.) = <i>minima</i> × <i>villosa</i>	
<i>vohinensis</i> (G.) = <i>Wulfeniana</i> × <i>minima</i>	
<i>venusta</i> (Host.) = <i>Auricula</i> × <i>carniolica</i>	
<i>Veuzoi</i> (Hut.) = <i>Wulfeniana</i> × <i>tirolensis</i>	
<i>vratisensis</i> (G.) = <i>farinosa</i> × <i>longiflora</i>	
<i>Weldeniana</i> (Rchb.) = <i>Auricula</i> × <i>spectabilis</i>	
<i>Warei</i> (St.) = <i>scotica</i> × <i>farinosa</i>	

C.—SOME SYNONYMS.

<i>Allioni</i> (Koch) = <i>tirolensis</i>	<i>Hornemanni</i> (Linn.) = <i>stricta</i>
<i>alpina</i> (Lois) = <i>viscosa</i> , <i>hirsuta</i> , <i>villosa</i> , &c.	<i>intermedia</i> (Nert.) = <i>alpina</i>
<i>ciliata</i> (Schk.) = <i>marginata</i>	<i>Palliniana</i> (Morr) = <i>spectabilis</i>
<i>Columnæ</i> (Tor.) = <i>suaveolens</i>	<i>latifolia</i> (Lap.) = <i>viscosa</i>
<i>decora</i> (Sims.) = <i>hirsuta</i>	<i>veris</i> (L.) = <i>acaulis</i>
<i>daenensis</i> (Leyb.) = <i>oenensis</i>	<i>vulgaris</i> (Huds.) = <i>acaulis</i>
<i>glaucescens</i> (Mor.) = <i>villosa</i>	<i>Candolleana</i> = <i>integrifolia</i>
<i>grandiflora</i> (Lam.) = <i>elatior</i>	<i>graveolens</i> = <i>viscosa</i>

D.—OTHER KINDS FROM ASIA, AMERICA.

<i>algida</i> (Adams)	<i>magellanica</i> (Lehm.)
<i>angustifolia</i> (Torr)	<i>mikstassinis</i> (Mchx.)
<i>amena</i> (M. B.)	<i>mollis</i> (Nutt.)
<i>auriculata</i> (Lam.)	<i>nivalis</i> (Pall.)
* <i>borealis</i> (Düb.)	<i>Pallasii</i> (Lehm.)
<i>Boreana</i> (Desne)	<i>Parryi</i> (A. Gr.)
<i>capitata</i> (Royle)	<i>penduliflora</i> (A. Kern)
<i>cashmeriana</i> (Royle)	<i>purpurea</i> (Royle)
<i>cortusoides</i> (L.)	* <i>pycnorrhiza</i> (Ledeb.)
<i>denticulata</i> (Sm.)	* <i>pyramidalis</i> (Sieb.)
* <i>erosa</i> (Wallr.)	<i>rosea</i> (Royle)
<i>Fortunei</i> (Vatke.)	<i>Ruisbyi</i> (W.)
<i>grandis</i> (Ttrto.)	<i>saxifragifolia</i> (Lehm.)
<i>gracilis</i> (St.)	<i>sikkimensis</i> (Hook.)
<i>involuta</i> (Wallr.)	<i>sinensis</i> (Ldl.)
* <i>Kaufmanniana</i> (Rgl.)	<i>Sieboldi</i> (Morr.)
<i>japonica</i> (Gr.)	<i>Stuarti</i> (Wallr.)
<i>longiscapa</i> (Ledeb.)	<i>speciosa</i> (Don.)
<i>luteola</i> (Rpr.)	<i>verticillata</i> (Forsk.)

I am unable to give here all the names of varieties cultivated in gardens and of species insufficiently known. H. GUSMUS.

Villach Botanic Garden.

SELECT HARDY PERENNIALS.

ONE of the chief reasons why gardening has so large a number of devoted followers is doubtless its great variety of work, or, if one may so express it, many-sidedness, not to mention the changes anent the varying phases and fashions that in a greater or lesser degree take place every year. At present *Orchids* and *Chrysanthemums* are all the rage; last year it was *Sunflowers*, single *Dahlias*, and *Marguerites*; previous to that it was carpet bedding; and prior to that succulents, sub-tropicals, and *Pelargonium*, *Calceolaria*, and *Verbena* bedding, all the various branches having numbers of devoted admirers; and this is as it should be so long as space for the expansion of gardening ability remains (as it always will) an unlimited quantity. Certainly as regards the branch of gardening that forms the subject of this paper we seem to be going at express speed, for on every hand one hears enquiries for hardy flowers, and more particularly for single flowers, such as the Japanese *Anemones*, *Rudbeckias*, *Geums*, *Poppies*, *Hellebores*, *Iris*es, and *Lilies*. This single flower mania is but a passing nod to fashion, for every species that helps to make a garden cheerful for the longest period will be equally highly prized a year or two hence, and all who do not wish to be left in the rear in this matter would do well to set about making a selection (not collection) forthwith. Taking into account length of flowering season and showiness or effectiveness, the following are

The best of the kinds grown by us, viz., *Acanthus latifolius*, *Anemone alpina*, *A. japonica* and its white variety, *Aquilegia chrysantha*, *A. cœrulea*, *Aubrietia purpurea*, *A. purpurea variegata*, *Bocconia cordata*, *Caltha palustris fl.-pl.*, *Campanula glomerata alba*, *C. rotundifolia pallida*, *C. turbinata floribunda*, *Cypripedium spectabile*, *Delphinium nudicaule*, *Dodecatheon Media*, *Funkia marginata*, *F. Sieboldiana*, *F. grandiflora*, *F. argentea vittata*, *Gentiana acaulis*, *G. verna*, *Geum coccineum fl.-pl.*, *Geum pyrenaicum*, *Helianthemum*, several kinds; *Iberis corifolia*, and other kinds; *Linum leuteum*, and other sorts; *Lithospermum prostratum*, *Lychnis chalcedonica fl.-pl.*, *Melanthus major*, *Eriogonum macrocarpa*, *E. Youngi*, *Pæonia anemoneflora*, several kinds; *Papaver* (Poppy), scarlet, yellow, and white kinds; *Pentstemons*, several sorts; *Phlox Nelsoni*, *P. ovata*, *Polygonatum multiflorum*, *P. verticillatum*, *Potentillas*, several kinds; *Primula cortusoides amena* and its white variety, *P. denticulata*, *P. farinosa*, *P. japonica*, *P. sikkimensis*, *Pyrethrum uliginosum*, *Salvia azurea*, *Saponaria ocymoides*, *Schizostylis coccinea*, *Silene acaulis*, *Silene alpestris*, *Spiræa Aruncus*, *S. japonica*

variegata, *S. Filipendula fl.-pl.*, *S. palmata*, *Thalictrum anemonoides*, *Tritoma Uvaria*, *Veronica prostrata*, *V. pulchella*, and *V. rupestris*. This list is longer than I intended it should be, but there being so many good species and varieties, it is difficult to know where to stop or to draw the line.

As to cultivation, all the kinds which I have enumerated are by no means fastidious, but they will fully appreciate moderately deep loam and a liberal allowance of well-decayed manure, which may be the more readily afforded when it is said that if well done at first planting, but little further in the way of cultivation will be needed for at least a couple and perhaps three years. With regard to arrangement in beds and borders, this, to some extent, must be determined by space at command and the taste of the planter, for whilst some prefer the plants in groups or masses, others incline to the single plant and straight line form of arrangement, and for a long border having formal surroundings, such as statuary, vases, clipped shrubs, and the like, this latter plan would be strictly in character, and perhaps the best, but even under such circumstances I should think twice before adopting the plan once. For my own part I certainly prefer

The grouping arrangement, and in numbers proportionate to the growth and spread of the plants; and though I would not adhere too severely to the rule of grouping them in lines as regards height—that is, to begin at front with the lowest, and gradually rise to the back of the border—I would take care that there was no undue prominence in the front lines by excluding all that attain a greater height than $2\frac{1}{2}$ feet or 3 feet, whilst, on the other hand, in the back lines with the tall growers, I would have groups of all except the very lowest. Another thing to be studied should be an even or regular display of flowers at the same season throughout the entire border; groups in duplicate are, therefore, a necessity, but the repetition should be at as rare intervals as possible. With a view to a cheerful winter aspect, the same rule that applies to the regular distribution of flowers over the entire border should be put in practice as regards the distribution of evergreen kinds; indeed, there is no reason why a few choice evergreen shrubs should not be used with special reference to winter effect, and this would be very much enhanced by the further addition of plots of the mossy Sedums and Saxifrages planted over Lily and other bulbous clumps.

W. W. H.

WHITE HOOP PETTICOAT DAFFODIL. (NARCISSUS MONOPHYLLUS.)

IN THE GARDEN of November 25 (p. 457) there was a note on this bulb by Mr. Redhead. He suggests that it is a desideratum in most English gardens, though common in Algeria, and recommends gardeners to plant it in turf that the flowers may show to advantage amongst the short Grass. The bulb, however, is no novelty in England, having been known to Parkinson, who described it as a garden plant 250 years ago, and it is still offered at a reasonable price in many bulb catalogues. Within a fortnight I observed several lots of a hundred each offered in one of Stevens's auctions. The great desideratum with respect to this plant is directions for its successful cultivation in the open ground in England. There is no doubt much successful gardening of which we have not the good fortune to hear through the gardening journals, but I have not heard of *N. monophyllus* being established as a garden plant anywhere in England, though two or three of my acquaintances have flowered it in a frame, or in very favourable soil and situation under a hand-light. One cause of the difficulty is that it flowers in the middle of winter, but besides this atmospheric conditions difficult to determine or to imitate are required for its welfare; and there is no doubt that the cause of failure with this and many other natives of South Europe and North Africa is in the air rather than in the soil

or situation, and depends upon other things than temperature. The common Hoop Petticoat Daffodil (*N. Bulbocodium*) is difficult enough to establish permanently in the open air in England, though a friend told me it flourished well with him in Northumberland. I have often obtained it both from dealers and from a relation at Bayonne, where it is common wild, and where *N. monophyllus* is also found, but nothing I can give it in the way of warm soil or drainage will make it (*N. Bulbocodium*) flower more than once. The same remarks apply to many other plants which do not die of cold, especially the pretty Algerian terrestrial Orchises of the insectiferous class, which are equally easy to obtain, but still more difficult to cultivate.

Edge Hall, Malpas.

C. WOLLEY DOB.

SOWING ANNUALS.

TENDER annuals if sown too soon get checked and stunted in their growth. The end of April or beginning of May is quite soon enough for such things as Zinnias, Asters, and Salpiglossis. They should then be sown in pans or boxes of finely sifted leaf soil, as in this they make a quantity of fibrous roots, and may be lifted and pricked off without feeling the change. To get the seed to germinate freely, it is necessary for it to have heat, which may be afforded by placing the pans or boxes in a Cucumber frame or pit for a few days, when the warmth will soon bring the plants up. As soon as they show themselves, the boxes or pans should be raised so as to bring them up near the glass where the plants can have plenty of air and light to keep them from drawing. In order to nurse them on and get them strong, it is advisable to make up a slight hotbed for them on which they can be pricked out at about 2 inches or 3 inches apart—a much better plan than potting and coddling them up. The soil most suitable for pricking them out is leaf mould, and as soon as they get well hold of this, they should have plenty of air to keep them sturdy and harden them off, so as to fit them for turning out by the first week in June. The way in which

Zinnias and Asters look best is in large beds, the earth in which should be trenched or broken up deeply and made rich by a good dressing of rotten manure. If this be done now the manure will become incorporated with the soil in such a manner as to suit the plants better than if they get it fresher later on. In planting, 1 foot to 15 inches is quite far enough apart for Asters, but Zinnias, being robust and branching, require a little more room. If planted in borders I like to see them in patches of three; and when placed triangularly within 6 inches or 9 inches of each other, they make compact groups that look well from any point from which they may be viewed. Although tender annuals should not be sown till late,

The hardy section cannot well be sown too soon, and many of these make the strongest and best plants if got up in the autumn. Sweet Peas and Godetias, for instance, are always very fine after standing the winter; but these and any others now in the borders should be thinned betimes, as nothing injures them so much as crowding, for when they stand thickly they quickly draw up and starve each other, and no wonder that they then present a poor and weedy appearance. Any who have not Sweet Peas in or up will find this a good time for sowing, and if many blossoms are wanted for cutting it is a good plan to sow in rows in any odd piece of ground where they can be staked with twiggly sticks, which they soon climb up and cover. In borders, patches here and there towards the back look best, where they can be supported in the same way. As the soil is yet wet and cold, it will be quite as well to wait another month before doing much with the others, but those having frames, and who do not mind the trouble, may at once get a quantity up in pots. This is always advisable where slugs are troublesome, as then the plants can be kept out of their way till the season becomes advanced and growth is more rapid, when they can be turned out and

protected by being dusted over with soot. As the plants do not stand long, 4-inch pots are quite large enough to sow in, and if these are filled with light, rich soil, the seed can be scattered thinly and evenly over the surface, when it should be slightly covered and the pots kept close under glass. Plants raised and managed in this way soon get good hold of the border. Before planting these or sowing in patches out of doors, the ground in the positions they are to occupy should be dug up and have some well rotted manure worked in, on which the plants will feed and flower with the greatest of freedom. S. D.

GARDEN FLORA.

PLATE CCCLXXIII. BOMAREAS.

(With a coloured figure of *B. conferta*.)

DURING the past year our gardens have been enriched by the introduction of several handsome species of Bomarea, the flowering of which has already been noted in the pages of THE GARDEN. The coloured plate given along with the present issue represents one of the most beautiful of these plants, for the introduction of which we are indebted to Messrs. Shuttleworth and Carder, who have succeeded in importing and flowering this and other handsome species of the genus. *B. conferta* is distinguished by the brightness and distinctness of its colour, which is soft carmine crimson, and also by its large compact umbellate inflorescence. Both in the Royal Gardens at Kew and in the nursery of the above-mentioned firm fine flowers have already been produced, and it is expected that this year much finer blooms than hitherto will be borne by established and now vigorous plants. In THE GARDEN (Vol. XXII., p. 192) I drew attention to some of the best of the not yet introduced kinds in the hope that collectors might look out for them. The cultural requirements of the genus have also been touched on at various times in these pages. It will therefore be unnecessary to occupy space with a reiteration of what has been said on these points. A short description of the kinds now in cultivation may, however, be acceptable to readers of THE GARDEN.

B. Carderi is the largest flowered of the introduced kinds. It is one of the most useful greenhouse or conservatory climbers we have, growing freely under ordinary treatment, and yielding every year immense bunches of rose and brown Lapageria-shaped flowers. There are at least two varieties of it in cultivation, the poorer of which is most likely *B. Jacquesiana*, a name once borne by the true *Carderi*. Umbels of flowers have been produced by this plant which measured almost 3 feet in diameter. The flowers are very useful for cut-flower purposes, as indeed are those of all the Bomareas, lasting for at least a week when kept in water.

B. conferta has already been described. It grows very rapidly, some of the shoots on the Kew plant measuring from 15 feet to 20 feet. The foliage is dark green, closely set along the stems, and retaining its fresh colour for the whole year, which renders it of excellent

* Our plate was drawn from a plant in Messrs. Shuttleworth and Carder's nursery, Park Road, Clapham, in June last.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



service for covering pillars or columns. The flowers are borne at the ends of the stronger shoots, and when well grown there are from fifty to sixty flowers in each umbel. These characters, together with the exquisite colour of the flowers, render further comment needless.

B. frondea is another new introduction which flowered for the first time last year both at Kew and Messrs. Shuttleworth's. It is a slender growing species, well adapted for places where room cannot be afforded for the larger kinds. At Kew the plant which flowered was weak, and not more than 3 feet high, yet the inflorescence was quite 5 inches through and very brightly coloured. When well grown the flowers measure about 2 inches in length, are funnel-shaped, the inner segments being longer and broader than the outer, and a clear canary-yellow colour with numerous brown spots, whilst the outer segments are bright yellow with a darker shade towards the margins. These flowers are borne in close umbels measuring about 8 inches across. This species promises to be a good subject for pot culture.

B. oligantha is an older species, having been first introduced by the late Mr. Wilson Saunders, in whose collection it flowered, and was named by Mr. Baker. It is a very free flowering kind, and forms one of the most attractive among the species grown in the succulent house at Kew. The flowers are yellow with dark brown spots. The bright coral-red berries of this species are rather ornamental, the capsule opening and curling back so as to display about twenty berries or seeds in each, which hang on the plant for some weeks.

B. caldasiana, **B. multiflora**, and **B. edulis** are other better-known kinds which, although botanically distinct from each other, may be described as not unlike the last-mentioned species.

B. Shuttleworthi is a new species not yet flowered in this country, but described as bearing large loose umbels of flowers 2 inches long, with inner segments of a bright canary-yellow colour, the outer segments being orange-red, spotted with purple. It is very distinct in the foliage, resembling in shape and texture that of *Lapageria alba*.

B. vitellina is yet another recently introduced kind, said to have flowers 2 inches long, orange-yellow in colour, and borne in large, pendulous umbels. It has not yet flowered in cultivation.

B. Williamsi is the last described of Mr. Shuttleworth's introductions, and is said to be a very handsome species. It has large compound umbels of rose-coloured flowers, and is said to come near the finest of all the *Bomareas*, **B. formosissima**, which is not known to be in cultivation. The flowering of this plant, which is looked forward to with high expectations, is likely to be soon accomplished by Mr. Shuttleworth, who holds the stock of it, and hopes to be able to distribute it shortly.

A small hardy species (*B. Salsilla*) was recently noted in these pages as having flowered and proved itself a handsome plant for the outdoor border. *Bomareas* are closely allied to *Alstroemerias*, with which they have been included by some botanists. They are, however, easily distinguished from each other, *Bomareas* being true twiners and bearing their flowers in pendulous umbels, whilst *Alstroemerias* are erect growing, and bear their flowers in erect umbels.

Culture.—*Bomareas* are not new to cultivation, for although until recently almost unknown, yet they were once strongly represented

in British gardens, Dean Herbert, in his book on "*Amarylloidaceæ*," enumerating a considerable number of cultivated species. I have also been told that Messrs. Veitch introduced a number of species of *Bomarea* into their Exeter Nursery some years ago, but owing to their failing to sell or attract notice, they were stuck into some out-of-the-way place out-of-doors, were neglected, and so lost. There are instances on record of some of the *Bomareas* having withstood our winters. Dean Herbert, I believe, grew several of them in the open air, and recently we heard that in Devon *B. multiflora* had stood the winter for three years and flowered freely every year. Careful experiment and a gradual reduction of temperature may yet reveal the hardiness of at least some of these newer kinds. All the *Bomareas* are found at a very high elevation on the Peruvian Andes in exposed and cold situations. The most likely cause of failure will be the wetness of our winters, yet this may to some extent be prevented by sheltering with a handlight or planting on a high well-drained position. B.

PLANT NAMES.*

What's in a name? That which we call a Rose,
By any other name would smell as sweet.

THE truth of this well-known dictum seems undeniable. And yet the fair Capulet whose thought it embodies was nevertheless anxious to get the name of her ideal altered, or even (in which I believe she would not in the present day be singular) to change her own. This may be merely a characteristic bit of feminine inconsistency, but I think it at once casts a doubt on the literal acceptance of the apparent truism put by the bard into the lips of Juliet. If we look into the matter we shall find that the principle is true in itself, but that its truthful application is rarely if ever met with. For when is a name merely a name? Perhaps it is to such a country bumpkin as Wordsworth has described, whose

Primrose by the river's brim
A yellow Primrose was to him,
And it was nothing more.

But almost invariably a name has meaning and associations; it calls up in the mind a picture, awakens memories, and affords food for thought and reflection. Now I want in this paper to try and paint a few pictures with plant names as subjects, touching up old ones and presenting perhaps for criticism a few that may be new to you. Botany used to be contemptuously spoken of as a science of hard names; but that was before organic chemistry existed—organic chemistry with its many-syllabled names, which are the astonishment of the vulgar, and at which even pharmaceutical students will sometimes open their mouths, yet which are generally what names should be—pictures of the things named, albeit often sadly wanting in arrangement (which is form) and clearness (which is colour).

Of plant names, as given by botanists, the chief fault is that there are too many of them, portentous lists of synonyms being prefixed to the descriptions of very many even of our well-defined British species. This arises mainly from the imperfect knowledge of the structure and affinities of the plants which have been by fabricators of floras distributed into genera and species. Thus the original discoverer of a plant may, after a cursory examination of it, assign it to a particular genus, or create a new one specially for it; while another observer by more patient and detailed investigation obtains a more accurate knowledge of it, and may change the generic and specific names accordingly. Then comes perchance another ardent student who discovers our plant in some other locality, and if, as will probably be the case, it is unknown to him, whether he

be Smith or Jones, promptly is *Smithia viridissima* or *Jonesia unica* installed in the new flora, where its affinities may from time more or less prolonged give rise to interesting discussions, until on comparison of authentic specimens in old and new floras the duplex designation becomes apparent. Or of two observers describing the same specimen, one may assign greater diagnostic importance to some one characteristic, and the second to some other characteristic, and the plant may go to this or that group accordingly. This difference of opinion is due to the laxity of the definitions of many genera and species, a laxity which must always exist to a greater or lesser extent, but which may be removed in great part in many cases by careful investigation and reasoning, and also by the study of new species in relation with older ones. As an example of the benefit of this last suggestion may be given the following extract concerning the genus *Parnassia*: "It has been most generally placed among Thalamifloræ with *Droseraceæ*, next to *Violaceæ* and *Polgalaceæ*, but its close affinity with *Saxifraga* and *Chrysosplenium* has now been fully proved, especially by the recent publication of several curious Himalayan species" (Bentham). At the same time it must be noted that the continual normal variation of species will often render a particular individual difficultly referable to its proper species, and that many species are so nearly allied that they provide links between one genus and another, rendering sharpness of definition impossible. In connection with this subject it may be mentioned that many of the plants alluded to in classical writings are now difficult of identification; first on account of vague description, and secondly on account of change of name rendered needful by modern knowledge. Thus the Greek *Jasione* is our *Convolvulus sepium*, while we give the name *Jasione* (the healer) to the Sheep-bit. Again, *Hibiskos* is the Marsh Mallow (*Althæa officinalis*), and not the shrub now termed *Hibiscus*. And in Virgil's beautiful lines, Ruskin translates the "*pallentes violas*" which the white nymph Nais was to gather for Alexis, as "pale flags," not Violets, which we now associate with *Viola*. The multiplication of synonyms appears then in the present state of our science to be to a great degree unavoidable; and having pointed out the reasons for this, I will pass to the consideration of the names of the plants as most commonly accepted. In the first place,

Have names been given to plants according to any known plan?—I may answer, Distinctly not. Linnæus was, as students of Bentley will remember, the first who definitely laid down the system of binomial nomenclature, that is, the giving of both a generic and a specific name to each kind of plant, and numbers of his names are still the accepted ones. Jussieu and De Candolle defined most of the natural orders. In analysing the British orders, genera, and species we shall find examples, so far as I am aware, of all the origins of plant names. I shall, therefore, refer almost entirely to them. First, then, of the natural orders: 1. The names are taken from some typical genus of the order. To this heading place all the British orders, as *Rosaceæ* from *Rosa*, *Ranunculaceæ* from *Ranunculus*, &c., with the exception of those to be next mentioned. 2. The names are taken from some peculiarity of flower, leaf, &c., running through the order. Such are: *Cruciferae*, *Aquifoliaceæ*, *Umbelliferae*, *Caprifoliaceæ*, *Compositæ*, *Labiatae*, *Amentaceæ* (*Cupuliferæ*), *Gramineæ*, *Coniferae*. Next: Genera. These are—1. Either named after themselves by discoverers, or after discoverers by subsequent describers; or again by discoverers or by subsequent describers are dedicated in the name and to the memory and glory of more or less distinguished botanists whatsoever. The practice has some merits, but it leads in many instances, as I shall show later, to the most barbarous cacophony and word-coining. 2. Names are given at the sweet or malicious will of the name-maker, and with or without reason (generally the latter, so far as my imagination will let me discover), commemorative of some

* Read at a meeting of the Chemists' Assistants' Association, December 20, 1882, by C. E. Stuart, B.Sc.

celebrated personage or place; and these are of two classes, historical and mythical. Of this practice, the obvious criticism is, where there is rhyme and reason for the doing, where the name fits the plant and violates no probability nor stretches the imagination too sharply, and specially if the name is good Latin or Greek, then let us applaud it; if not, then be it condemned. And 3. Some peculiarity of a plant or plants of a genus, peculiarity either real or imaginary connected with size, shape, properties, and so on, has earned it its name. This is by far the most general origin of the generic name, and, to my mind, is about the most legitimate method of name formation. For as

The natural system of plant classification has in its broad basis the advantage over the Linnean system, in that it brings together plants of similar structure and habits which by the latter were arbitrarily separated and grouped by mere numbers of certain parts, a method erroneous in principle, for throughout Nature number is consequent on structure, and not structure on number; so in the details of the natural system an arbitrary plan of distributing generic names is to be deprecated and abandoned in favour in this case also of a natural system of name giving, a system carried out on such excellent lines as shadowed forth in the names *Aconitum*, *Convolvulus*, *Stellaria*, and shall I say *Myosotis*? the last a name at which I have heard some sentimentalists rail, but which in its meaning of mouse-ear as applied to the shape and texture of the leaves of the genus has always seemed to me far more appropriate than the English *Forget-me-not*, while its Greek softness is equally pleasing to the ear. For examination of the various reasons governing the adoption of specific names I can do no better than refer you to Gray, as quoted by Bentley, in his "Manual," who takes as an illustration the genus *Viola*. You will remark that nearly all the specific names indicate qualities or peculiarities of the several plants, but that frequently a botanist's or other name is dragged in as a substantive or as an adjective, and also that as many old species have been transferred to other genera, their former generic name has been retained as a specific name, as is the case with *Lythrum Salicaria*, *Dianthus Armeria*, &c. Turning back now to develop the peculiarities of

The generic names.—Of the first, the discoverer's or celebrated botanist's class, I will remark that the cases are very rare in which it is not a positive insult to a plant to connect it with the name of a man. So delicate is the charm, so quite and unobtrusive is the growth of our wayside flowers, so elevating are the thoughts which they naturally suggest, that any connection of them with human affairs seems utterly out of place. True, types may be found in plant life of many, I think not of all, of the varied habits and instincts, faults and virtues, littlenesses and greatnesses of human nature; but that is no reason for connecting any plant with that specific unit of humanity known as a botanist. To the great, however, to the illustrious pioneers of the science, it may be permitted that their names should be enshrined in and so adorn the catalogue of plant names. Thus I exemplify the name *Linnæa*, and a modest little alpine herb has an undying interest thrown around it by its sweet-sounding and honouring name of *Linnæa borealis*. But apart from the above somewhat sentimental objection to proper names as generic terms, there is the real one of untranslatability. How many common English, German, or French names will translate themselves into Latin with euphony and without outraging the ear of the scholar? Glance down the list of genera and say what you think of such terms as *Clarkia*, *Bougainvillea*, *Eschscholtzia*, *Rodriguezia*, *Cattleya*, *Ludwigia*, *Saussurea*, *Scheuzeria*, *Sibthorpia*, *Teesdalia*, *Wolffia*, *Zannichellia*. These are names proper enough and significant enough in their native garb; but when, like Bottom the Weaver, they are "translated," behold they, as applied to plants, are as much out of place, as ugly and as earthy as was that otherwise worthy Athenian citizen among the fairy denizens of the

woodland shades. Ruskin says, in his odd, but suggestive botanical work, "Proserpina," that "a day will come when men of science will think their names disgraced, instead of honoured, by being used to barbarise nomenclature," and I hope such may come speedily. I will, however, note that there are some names which seem made to Latinise; as that of the great Swede Linné already mentioned; Asa Gray, which as *Asagrea* looks a thoroughly Græco-Latin designation; and Lobel, for which, until I read a sentence in Professor Attfeld's address to the School of Pharmacy Students' Association, I should have been fully prepared to turn in my Latin dictionary and find as *Lobelia* its hidden kernel of meaning. Lobel is perhaps unknown to many of you; as adding, therefore, henceforth a new interest to the medicinal plant, I may state that Lobel was a native of Flanders, born in 1538, died 1616, and was botanist and physician to our James I. Next, of

Proper names arbitrary and imaginative.—These are in many instances not sharply defined from the next or peculiarity class, some peculiarity of habit or structure often dictating the imaginative proper name. In this class much of the poetry of plant names is found. We are told by one of Virgil's shepherds that the anger of *Amaryllis* is to be feared as the wolf to the fold, showers to the ripened corn, or storms to the stout trees; and truly the beauty of many of the *Amaryllids* is so superb that one can imagine any slight to it being rebuked with a proud and glowing scorn. *Andromeda* is to be found by the adventurous vasculum-bearing *Persens* in trembling watery peat bogs, growing blushing erect in the domains of the amphibian monsters, the frogs and newts. *Atropa* suggests the Fate, *Atropis* the Inflexible, whose shears cut short the thread of human life; hence most appropriately given to the Deadly Nightshade. The specific name *Belladonna* comes oddly in opposition with *Atropa*, for the Fates were not usually represented as beautiful, but rather as grey old women. *Adonis vernalis* with its crimson petals tells of the fatal wound inflicted on the Thracian hunter by the fierce wild boar; but are there not many other things which might with no further exercise of ingenuity be thought to shadow forth? *Iris*, the messenger of the gods; *Hercules*, as *Heracleum*, *Actæon* as *Actæa*, are other mythological names, the suitability of which my imagination is not sufficiently active to discover. On the historical side *Valerian* is called after *Valerius*, who first used it in medicine and who has therefore a rightful claim to memory; but what claim has *Gentius*, King of Macedon, to immortality in connection with the beautiful tribe of *Gentians*? Ruskin hints him rather undeserving, and suggests *Lucia* as a generic name; *Lucy* of *Teesdale* then being the Spring *Gentian*, whose blue eyes thrilled a friend and myself with delight as we saw her in April for the first time on her native heaths around the high Force of the Tees. Now comes an instance of naming which is at first sight puzzling. How comes it that the genus *Euphorbia*, so acrid and poisonous, bears the Greek name for "good nourishment," which it most distinctly is not? The mystery becomes clear only when we find that this is a historical name. *Euphorbus*, the first to use the plants of the genus for medicine, was physician to King Juba of Mauritania, and possibly this name of his, with its meaning given above, was but a nickname given to him by his patients signifying that as court physician he lived on the fat of the land. Thirdly, as to

Intrinsic generic names.—It is in this class of name that we find most of the quaint conceits, old delusions and superstitions, and imagined resemblances of and concerning plants, as well as happily caught characteristics and vestiges of simple craft still more or less credited. They may be best divided into names more and names less imaginative. I will give you one or two examples of each, taking the latter first. Such is *Acanthus*, from the Greek *akantha*, a Thorn, *akanthis* being a Thistle, probably like our Scotch Thistle, and *akanthos*, that *Acanthus* whose spine-tipped leaves adorn the capitals of Corinthian pillars. *Cratæus* is a name a step removed from the evident correct-

ness of epithet of the above example; *kirasos*, its root, meaning strength, and this, as applied to the wood of the wild Service-tree, the original *krataigos*, is not so fitting a bestowal as that of the thorn bound up with the thistly *Acanthus*. *Fumaria*, the smoky, applied to the *Fumitories*, is apt, as all will concede who know the grey misty foliage of the genus; but it is more imaginative than the two former instances. The *Geraniums* of our summer woods recall with their long beak-like fruits the crane whose Greek name, *geranos*, they bear. The Robert of *G. Robertianum* is, as some suppose, a Benedictine abbot to whom is dedicated the 29th of April, about which time the herb comes into flower. But it appears to me that it cannot count for nothing that names Robert and Robin are given to red creatures, as to this same Herb-Robert, to

That little weed of ragged red,

Which bids the robin pipe;

and to robin redbreast; the inference being that savage and almost inarticulate primæval man, struck with the stimulating brightness of the rays of slow vibration in the solar spectrum, signified the effects of them by the purring pleasure of the rolling R, which is more fully developed in *Rhodon*, *Rosa*, *Rose*, *Rheas*, *Rhoia* (*Pomegranate*), applied to red plants, and in *Robin*, *Robert*, *Rupert*, applied to red men. *Rubus*, again, has the same root of redness; and the genus, whether in its pink-hued flowers, its purple fruits or fruit juice, or its crimson autumnal leaf-tints, is fully worthy of its name. *Lysimachia* and *Lythrum* are both Englished as *Loosestrife*; this should etymologically be only of the former; and as I am unable to find that it does loose strife, I think we must fall back for explanation on the theory that the name commemorates *Lysimachus*, a friend and general of Alexander the Great, and hence this belongs properly to the second class of names. A splendid example of the purely imaginative name is *Chelidonium*, meaning Swallow-wort, so called because it flowers at the time when the swallows return in the spring. *Lamium* offers us an open choice of derivation. It may either be from *Lama*, a ditch from its place of growth; or from *Lamia*, a snaky monster given to preying on unwary youth (Keats has a fascinating study of one); or else from *laimos*, the throat, the root whence *Lamia* is derived. This latter, seeing the gaping throat of the flower, seems the most fitting starting point. *Scrophularia* and *Pedicularis* are instances of plants named from diseases for which they were once supposed efficacious. Now I have run through a few illustrative instances of the various methods of plant naming which I have enumerated. It remains for me to say a few words on hard names. It is a habit with the unreflecting to stigmatise names which they find lengthy and unfamiliar as pedantic, harsh, and unnecessary. But they do not perceive, what a little thought would tell them, that in the language to which they belong they may be as fitting and as fraught with pertinent meaning as any familiar English name. Thus, *Pardalanchis* is a hard, uncouth-looking word, but it is simply our English *Leopard's-bane*, and as a Greek word it is by no means unmusical. And so with *Anisopetalum*, *Cryptarrhena*, *Eulophia*, *Ornithidium*, *Pleurothallus*, *Stenorhynchus*, *Xylobium*, at which Ruskin grimly sneers. And this reminds me of

A new system of plant naming and classification proposed and partially carried out by this distinguished art-critic. Its leading principles are somewhat as follows: Starting with no scientific botanic knowledge, many of the prejudices of the past may be thrown aside. Begin, therefore, by relying on your own poetic judgment for the division, so that (for instance) *Oxalis* and *Anemone* both come into the same order, since both are delicate flowers delighting in the woods. That they do delight in the woods is a historic fact, and as historic facts (it is well known), equally with "relative conditions of character and climate," are so unchangeable, if plant classification and naming is founded on them rather than on distinctive differences of form which are so many, so subtle, so liable to continual re-

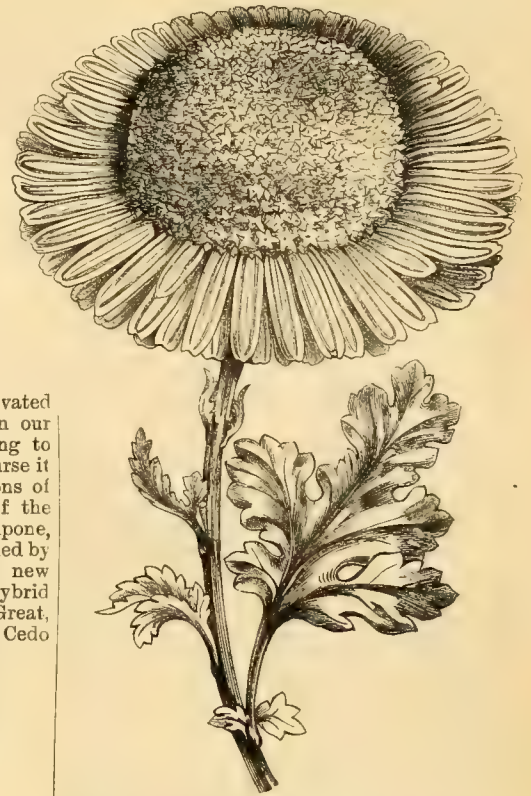
interpretation, then we shall have unalterable groups which may be added to, but not disturbed or reconstructed. That is, in this world of change and imperfections we shall have at least a perfect and immutable system of both terminology and nomenclature. Note, that the reasons given for this change are, first, that many names are barbarous distortions of Greek and Latin words; second, that many names carry with them coarse and degrading suggestions. Both these propositions may be acquiesced in, but do they furnish sufficient reason for the upsetting and total remodelling of all plant arrangements as well as all plant naming? The third reason is, that the botany of Ruskin, being intended to be useful to the vulgar rather than to the scientific, should give to plants names characterising them individually, and not founded on their connection with other plants at the Antipodes. Thus, Herb-Robert might be called shortly "Rob Roy, and have done with it," rather than, dwelling on its connections, christen it "Macgregoraceous." This reason, which is no reason but a dogma, strikes at the root of natural classification, and at once places the system outside serious consideration. It sets out the dream of a poet, imaginative, beautiful, but unpractical. However, there is much to be learnt from the eloquent imaginings of its gifted author, one great lesson being not to look upon plants simply as material for dissection or for preservation in musty folios. Text-books must and text-books do take chiefly this

view, but it is a healthy change from the consideration of plants as "subjects" (as the medical student would put it) to regard them as "objects" full of life, beauty, and character, with ways, wills, and instincts of their own. Dryad-haunted tree, starry flower, fertile grass of the field, to these are we indebted for the filling up of a great portion of the wants and pleasures of our existence, and the fuller knowledge of them in all their varied forms, habits, and necessities cannot but have a favourable effect in human joys both actual and ideal. —*Pharmaceutical Journal*.

THE CHRYSANTHEMUM AND ITS CULTURE.

Races or Sections.

In order to give a clear idea of the cultivated races of the Chrysanthemum now popular in our gardens, we have tabulated them according to their distinguishing characteristics. Of course it must be understood that these distinctions of race are of an arbitrary character. Some of the races, especially the Incurved, Reflexed, Pomponé, and Japanese, have become more or less blended by the efforts of the cultivator and raiser of new seedlings; thus we have sub-races in the hybrid Japanese kinds, of which Elaine, Peter the Great, and Ethel are examples. The varieties of Cedo



Anemone flowered Chrysanthemum Madame Montels (disc florets yellow, ray florets peach-rose).



Japanese Chrysanthemum James Salter (florets strap-shaped and wavy, colour lilac).

Nulli unite the Pomponé with the small-flowered Anemone race, and there are hybrid Pompones with reflexed florets and large flowers, such as Trevenna, Aurore Boreale, and Sœur Melanie. Such also are some sorts among the early blooming Pompones. A variety called Garnet seems to be a forerunner of a sub-race of Japanese Anemone-flowered Chrysanthemums. Progne (Reflexed) and Japanese Violet (Japanese) also are welcome as varieties having a distinct and really appreciable fragrance or Violet-like perfume; thus another charm is now added to this already popular flower. For all practical purposes, however, the following arrangement of races may stand as it is written:—

Race I.—*Incurved or Ranunculus flowered*, generally known as show or exhibition kinds.—The florets are strap-shaped, curving inwards, so that in the most full and perfect blooms the backs of the florets only are seen. Examples: Mrs. Rundle, Alfred Salter, General Bainbridge, King of Denmark, Lady Slade, Queen of England, &c. (see illustration p. 88).

Race II.—*Recurved or Reflexed flowered*.—Plants mostly of excellent habit of growth, and so good for specimens. Florets strap-shaped, but curving outwards from the centre, so that the inner surface of the florets only is exposed. Examples: Annie Salter, Progne, Golden Christine, Dr. Sharpe, &c. The inner face of the florets being fully exposed in all reflexed flowers, it naturally follows that the varieties of this group are most remarkable for deep and vivid colouring.

Race III.—*Anemone or Quilled Aster flowered*.—The varieties of this race have an outer circle of strap-shaped florets, only the disc or centre of the flower being raised cushion-like and made up of closely arranged tubular florets. Examples: *Large-flowered Anemones*—Fleur de Marie, Glück, King of Anemones, &c. *Small-flowered or Anemone Pompones*—Marie Stuart, Madame Montels, Calliope.

Race IV.—*Pomponé small reflexed or Chrysanthemum daisy-flowered*.—The plants of this race have an

excellent twiggy or bushy habit of growth, and produce numerous small button-like flowers for the most part having reflexed florets. Examples: Bob, Snowdrop, Mlle. Marthé, General Canrobert, &c. Some varieties of this class have florets fringed or toothed at their tips. Examples: Marabout, Innocence, fimbriatum, Princess Metelia, &c. These are often known as fringed or fimbriated Pompones, and the larger flowered kinds are sometimes called hybrid Pompones, being intermediate in size and character between the typical Chusan Daisy or Pomponé proper and Race II. or large-flowered Reflexed kinds. Example: Trevenna and its varieties.

Race V.—Quilled or Pin-feathered Japanese.—This race is characterised by plants naturally rather tall and straggling in habit. Flowers very large, 6 inches to 9 inches in diameter, when the main shoots only are strongly grown. All the florets are involute and tubular or quill-like for four-fifths of their entire length, their tips being dentate or toothed. Example: Meg Merrilies, Sultan.

Race VI.—Japanese or Tassel-flowered.—Plants of tall and robust habit, requiring exceptional good culture in order to obtain large blooms. Flowers rather loose, composed of long, flat, or narrow strap-shaped florets. Modern examples: Elaine, Ethel, Fair Maid of Guernsey, Oracle, Peter the Great, James Salter, all with strap-shaped petals, tolerably flat or uncontorted. Tokio, Gold Thread, Bronze Dragon, Dr. Masters, and others have florets revolute, twisted, and thread-like, but not really quilled or tubular, although apparently so at first sight. Some Japanese varieties have tubular florets—Rob Roy, for example—and serve as the connecting link between the Races V. and VI.

When in Japan, the late Mr. Fortune sent to this country seven remarkable Chrysanthemums, which proved exceedingly distinct in size, form, and colour from the ordinary kinds grown here. From the types then introduced have been raised the following, which are still more remarkable for their diversity, possessing as they do either enormous size, peculiarity of form, or novelty of colour. Although of a distinct type from the Chrysanthemums in general cultivation, no difference in treatment or soil is necessary to secure a succession of flowers from November until January or February. Many of them remain longer in bloom, and bloom later than the Chinese kinds, so that we may have our greenhouses gay with them all through the dull winter months when flowers are scarce. The effect produced in the conservatory by their fantastic forms and brilliant colours is most novel and pleasing, many of their immense blooms having more the appearance of tassels formed of the gay plumage of tropical birds than of flowers. These original varieties were Japonicum, Bronze Dragon, Roseum Punctatum, Striatum, Laciniatum Grandiflorum, and Yellow Dragon. Concerning these Mr. Fortune gave us some interesting information. He collected several kinds from Japanese gardeners, which he brought over to Shanghai, where he left them in the charge of a Chinese gardener while he went northward to Peking. On his return he found that many of the roots he had collected were dead, and that only a few remained, some of which were imported safely into England. Of these two or three kinds only fell into the hands of Mr. Salter, of Hammersmith; but, from seeds of these two or three, seedlings were produced which yielded flowers not only differing from those of the parent plant, but identical with those which Mr. Fortune had collected in Japan, and which were lost in China. This could be no case of hybridisation, for no flowers of the kind had been previously seen in Europe. It was a case of pure seminal variation.

It has been proposed to class Japanese Chrysanthemums into three divisions as follows: Ribbon varieties, Twisted varieties, and Thread varieties. The first or Ribbon varieties would comprise those of which the florets are reflexed and droop below the calyx—namely, Meg Merrilies, Baronne de Prailly, Fulgore, Gloire de Toulouse, Triomphe du Nord, Fulton, Elaine, Madame C. Audiguier, Arlequin, Rosa Bonheur, Triomphe du Châtelet,

and others. The second or Twisted varieties would include Yellow Dragon, Grandiflorum, Hero of Magdala, James Salter, Chang, &c. Thirdly, the Thread varieties would be such as Cossack, Gold Thread, and Madame Godelet. Then we have many of our best varieties with their florets erect or partly so—namely, Sarnia, Ethel, Fair Maid of Guernsey, Peter the Great, Daimio,

A new classification is certainly desirable for the now numerous and handsome Japanese varieties, but it is necessary that such classification should rest, if it be possible, on sound structural ground and not upon mere external appearances. The three sections just proposed scarcely allow of scope for future improvement, nor does it comprehend all the structural differences as displayed by



Incurved Chrysanthemum Queen of England (blush white).

Madame Lemoine, Jane Salter, Soleil Levant, erectum superbum, Oracle, Diamond, M. Maney, La Nuit, Bouquet Nationale, and others. The beauty of the Japanese consists in their great diversity of colour and form. There are two varieties of Japanese, or rather now classed as such, which might with advantage be added to the large Anemone-flowered sorts—namely, Duchess of Edinburgh and a variety named Minnie Chate. The former has pure white guard florets with a pretty mauve centre; the latter has lilac guard florets with lilac centre.

the kinds as already distributed. A noted raiser sent me some very fine seedling blooms this season, and much as I had known and expected of the Japanese Chrysanthemums, I never even dreamed that such changes could so quickly and surely be wrought in this beautiful class. Anemone-flowered Japanese as large as tea-saucers, and of all colours from white to crimson-scarlet and purple through all the shades of sulphur, primrose, buff, yellow, and red, are surely enough to make a grower's "mouth water." Several of my friends are taking Mr. Forsyth's advice, given as long ago as 1872,

and are saving seed from good varieties of large-flowered and Japanese varieties. Both Mr. W. Thompson, of Ipswich, and Mr. Benary, of Erfurt, offer *Chrysanthemum* seed of the various sections for sale. Florists are a little too apt to have set ideas, and quite right they are in adhering to them (from their own standpoint), but what I and many other lovers of the *Chrysanthemum* desire are some of the lovely single-flowered seedlings which the florist persistently throws away should they appear among his seedling plants. Now that single Dahlias and Pyrethrums of the *P. roseum* section are so popular for their brilliant colours, is it not desirable that some of us should have single-flowered *Chrysanthemums* of Daisy-like form and good distinct colours as brilliant as it may be possible for us to obtain? I submit the following as an example of the classification required in the Japanese section:—

SECTION 1.—Florets strap-shaped for more than half their entire length; (a) florets erect, displaying almost as much of the colouring of the back part as of the front. Ethel, Erectum superbum, Oracle, Peter the Great, &c.; (b) florets reflexed, showing front colouring most. Elaine, Beauté du Nord, &c.; (c) florets twisted, curled or variously contrasted, showing both back and front colouring of the florets in a more or less irregular manner. Cossack, Gold Thread, Tokio.

SECTION 2.—Florets quilled or tubular for more than half their entire length; (a) florets curving upwards or erect. Soleil Levant, Red Dragon, Meg Merrilies; (b) florets reflexed.

SECTION 3.—Florets of the disc tubular, densely packed in a raised cushion-like mass. Florets of the ray flat, slightly recurved. Popularly known as Japanese Anemone-flowered. Garnet and one or two others afford good examples of flowers in this section.

Speaking of the Japanese varieties in 1881, Mr. Henry Cannell, of Swanley, writes as follows concerning their distinctness and beauty:—

"These are very novel and striking in appearance, and perfectly distinct from the ordinary kinds of *Chrysanthemums*; most of the varieties do not fully develop their flowers until Christmas, and are therefore valuable on that account. They are useless for small specimen plants, as their habit is long, and they require to be treated similar to the incurved varieties, that is to say, to let the plant grow upright. They must have good cultivation, and as soon as the flower buds appear they must be reduced to one on each shoot and grown very strongly, otherwise they will possess no beauty. If damp is kept from them they will continue in bloom a long time."

Race VII.—Early-flowering Pompones and hybrid Pompones.—A valuable modern race of Continental origin consisting of plants of bushy habit, bearing a profusion of reflexed and Pompon-like flowers. When well established on open-air borders and on warm soils they commence flowering in August, and continue in bloom until the severe frosts of November or December. They form valuable early autumnal decorative plants when grown in pots. Examples: St. Mary,* Fred. Pelé, Illustration, Précocité, Gold Button, &c. It is by many erroneously supposed that the early-flowering or summer *Chrysanthemums* are of recent origin. The following extract is from the "Gardeners' Magazine of Botany" for 1850, and shows that even thirty years ago a start was actually made, and hopes entertained which are realised only as it were to-day: "M. Pelé, a distinguished horticulturist of Paris, has also obtained many varieties, the most interesting of which is called Madame Pépin, and which flowers constantly about a month before the others. It is probable that this new type will furnish other varieties as early, which will impart a novel and important quality to *Chrysanthemums*."

Race VIII.—Single-flowered Pompones or Indian. Example: New Departure (Cannell).

Race IX.—Single-flowered Chinese or large flowered. The large-flowered Anemone varieties

are semi-single forms of *C. sinensis*, just as the small-flowered forms of Anemone kinds are semi-single Pompones.

Race X.—Single-flowered Japanese. Example: John Rae (Burbidge). A single Daisy-like flower, with slender bronzy ray florets, raised in 1882 in the College Gardens, Dublin. F. W. B.

SEASONABLE WORK.

FLORAL DECORATIONS.

THE pendulous blossoms of *Thrysacanthus rutilans* look bright and attractive just now suspended around the edges of trumpet vases. They could be advantageously used in conjunction with *Calanthe vestita* around the edges of any tall vase or epergne as a central arrangement to a dinner table, filling up the centre of the same with spikes of *Calanthe Veitchi*, a few blooms of *Lælia anceps*, and the same of *Eucharis amazonica* around



Chrysanthemum sinense (spray of flowers, reduced).

the last named *Calanthe*. This would give an effective centre-piece that no lover of choice exotics would despise. Another change as a centre-piece for a moderate sized table or for the drawing-room may be made by choosing a well variegated example of *Pandanus Veitchi* as good as it can be had in a 4-inch pot; from this it may be removed and placed in the centre of a soup plate for want of a better receptacle. Fill with a little sand to keep the plant steady, and finish off either with good Moss or some fresh *Selaginella* into which may be inserted a few bulbs of Tulips in flower, say, for instance, Duc Van Thol, scarlet and white, allowing the former colour to slightly predominate. With these the *Pandanus* will show itself to good advantage. As a finish a few plants of a durable kind of Fern (*Davallia*, for instance) would greatly improve it. This would prove a lasting arrangement and be well adapted for a room kept at a maximum temperature. Of hardy subjects the pendulous blossoms of *Garrya elliptica* are now most attractive. A few sprays of these would associate well with the bronzy-coloured points of *Berberis Aquifolium* and *Jasminum nudiflorum*. *Rhodocendron Nobleanum* in the open air has developed several trusses of flowers; these look well arranged by themselves

with their own foliage. The smaller flowered kinds of Azaleas, as *amœna*, *obtusata*, and the various hybrids raised therefrom, are useful in a cut state, lasting longer than many of the large flowered varieties. They all answer well for specimen glasses, and can oftentimes be better arranged therein than in larger receptacles, owing to the necessity of allowing only a short stem, especially in the case of small plants. For button-holes the various kinds of *Epacris* are very useful. *Erica melanthera* also looks well used with the former, and both possess greater durability than many forced plants.

FLOWER GARDEN.

Spring flowers.—The weather still continuing mild, these are springing up in every direction, and being so forward, a severe frost would be likely to do much injury. It would be impracticable to protect all, but the most valued should have that attention. Hyacinths and Tulips are most liable to injury, and the neatest of all protections for them is Cocoa-nut fibre refuse. Where, however, the bulbs are planted in a ground-work of Sedum or Saxifrage, this protection cannot be employed; therefore, under such circumstances, a covering of Yew or Laurel boughs must be used. The ground being so wet, the slightest frost will be sufficient to raise or rather to loosen autumnal planted spring flowers; therefore their well-doing will be best assured by well firming the soil about them after each recurrence of frost. Over our reserve stock of such plants and dwarf hardy summer bedders planted on warm borders in the kitchen garden we run a light roller as soon as the state of the ground after the frost will permit, an operation that seems to be doubly beneficial, as it firms the plants and apparently conduces to their more rapid lateral extension. Certainly this is the case with such plants as *Herniaria glabra*, *Mentha Pulegium*, *Cerastium avense*, *Sedum lydium*, Thyme, dwarf Veronicas, and various Stonecrops.

Herbaceous plants.—Many kinds of these are also too far advanced in growth for the time of year, but that should serve as an incentive to get all removals and rearrangements completed as soon as possible, for, though they may with safety be transplanted at almost any season, it is but reasonable to suppose that they will do better if moved before growth has become too active, not to mention the importance of their roots getting well established in the fresh soil before dry weather checks root action. The reaction in favour of this class of plants still continues, and, being combined with the present prevalence of æsthetic ideas with which many of these plants are associated, there is some danger that the cultivation of many kinds little better than weeds may be resuscitated. Intending planters should therefore only select kinds of real merit. As to the best mode of arrangement, tastes vary, some preferring to plant single plants in straight lines, the tallest at the back of the bed or border, and the dwarfier in front, and for a formal border this plan has some merit; we, however, prefer planting them in groups or clumps of moderate size, say three plants in a group of *Pyrethrum uliginosum*, double Sunflower, and similar growers, five or seven plants of *Spiræa Aruncus* and *Anemone japonica*, and in still larger numbers of the dwarfier growing kinds. I would then advise the filling in of every vacant space possible with surface-rooting plants, and particularly round those varieties that are least furnished with foliage. The carpet thus formed adds greatly to the general effect of the arrangement.

INDOOR PLANTS.

Ferns.—These are best potted a short time before they commence growing, for if their roots are subjected to the disturbance unavoidable in repotting after growth has commenced, the first fronds produced afterwards are sure to be deformed. In the case of Ferns, the habit of the species has much to do with the pot room required. Tree kinds of a strong vigorous character have

* St. Mary (Cannell) is the same as Souvenir d'un Ami (Wate).

often much more root room given them than they need or should have, the result being that the fronds grow to such a size as to become too large for the houses in which they are located, and when overgrown they never look well, and often injure smaller sorts that usually have to be accommodated under them. There are no plants that can be kept so long in a healthy state with limited root space as Tree Ferns. They will continue to thrive and look well, even when their roots have so filled the pots or tubs that there literally seems scarcely any soil remaining. Under such conditions they should, however, be regularly supplied with manure water during their season of growth. Those that are of a spreading habit, like the *Gleichenias* and *Davallias*, must have sufficient space for their creeping rhizomes to extend, or they are sure to get injured, their surface stems being forced to break back, which they usually do weakly. Ferns possessing this habit of growth should not be divided into too small pieces, or they suffer considerably. This is especially the case with *Gleichenias*, the creeping stems of which appear to be incapable of forming fresh roots when they have assumed a hard woody state. Species of a close tufted habit, such as the *Adiantums*, will bear dividing into much smaller pieces if required. Where

Ferns are in beds and on imitation rock-work it is equally important that they should not have more root room than is sufficient to support them in a healthy state. If care is taken in preparing the places where each is to be planted it is an easy matter to confine the root space for them proportionate to the requirements of the individual plants. Ferns are not so particular as to soil as many plants; most of them succeed in either peat or loam. As a rule, however, they make the best growth in peat, but those intended to be grown for cutting, such as *Adiantums* of the cuneatum section, and the different kinds of *Pteris* that are adapted for this work, are best in loam, as in that the fronds usually stand better in a cut state. Whichever is used the soil must be kept open by a sufficient addition of broken crocks or coal cinders, the latter being quite as good as the former. In all cases Ferns ought to have a thorough cleaning from insects, such as scale or mealy bug, before being potted, as the mature growth will bear a stronger dressing with insecticide than could be used later on when the young fronds have made their appearance. Where thrips have been numerous it is a good plan to dip the fronds in strong tobacco water or to syringe them with it, as even if none of the living insects are present, there are almost sure to be eggs that will come to life when there is an increase of heat.

Palms.—Such of these as require a warm house to grow in are rarely quite at rest even in the winter season, unless the temperature is kept so low as to check all growth, and the most dormant time should be chosen to pot those that want it; but Palms, like Ferns, do not need so much root room as is often given them. When too much root space is allowed the strongest growers in particular over-shade everything near them, and unless the house in which they are grown is of unusual height, when the roots are not kept within limits the leaves grow to such a size that they seem to be always struggling to get through the glass. Palms will succeed in almost any kind of soil, but heavy loam, almost approaching the consistency of clay, is the material which they like best. For all purposes where plants with green foliage are required there are none superior to Palms, inasmuch as, with the elegance of Ferns, their leaves possess a stout texture which enables them to bear without injury the wear and tear of frequent removal when used for grouping with flowering and other plants in halls, corridors, or rooms. A still further recommendation which Palms possess is that a good many species which come from warm countries may be kept for a considerable time in a much lower temperature than that in which they are indigenous. Even such elegant kinds as *Leopoldina pulcher* (*Cocos Weddelliana*) will bear keeping through the winter in a temperature from 48° to 50° without showing any ill effects therefrom, the only difference being that so treated

their growth is comparatively slow, but that will generally be looked upon more as an advantage than otherwise. *Chamaedorea gracilis*, *C. graminifolia*, *C. glaucophylla*, and *Areca lutescens* are beautiful habited species that will bear a lower temperature than the countries from which they come would lead one to suppose. If at all affected with insects an effort should be made to get them clean whilst in a small state, as the work involved is much lighter than when the plants get large.

ORCHIDS.

East India house.—Whatever may be said against the unseasonable state of the weather as regards outdoor vegetation, it is certainly very suitable for Orchids under glass. Get the potting of all the occupants of this house done that require it. The largest proportion of Orchids require as potting material either Sphagnum alone or mixed with turfy peat. In either case a liberal proportion of broken bits of charcoal and clean potsherds should be added. Many, too, do not pot firm enough—especially if Sphagnum only is used. The best grown *Vandas* and *Aerides* ever seen perhaps were in pots quite three parts filled with drainage, with the Sphagnum pressed very firmly on the top. The Moss should be well washed before it is used, and all extraneous matter should be picked out of it. After washing we lay it out to dry for a few days, but it must not be dried so much as to kill it. In potting with peat added to the Sphagnum, this is also pressed together rather firmly. It ought also to be noticed that some plants have the roots clinging so firmly to the pots that they cannot be turned out without either causing great injury to the plants, by breaking or lacerating them, or breaking the pot. The latter course we take rather than injure the roots. Now that repotting and surfacing are finished, and most of the plants are pushing fresh roots, a rather moist atmosphere and also a higher temperature are desirable. With the fresh Moss, small snails may have been introduced, and it will be necessary to watch for them every night with a good lamp, as though small, they soon eat the ends off the young rootlets, and they also get at those immediately under the surface where they are not readily observed. This is a good time to repot *Cypripediums* requiring a warm house. *C. Dominionum* seems to require a good shift every year; considering what the parentage of this is, one would not expect that it would succeed best in the warmest house, but that is the case. We have also repotted *C. niveum*, using a liberal proportion of turfy loam in the compost. *C. Lowi*, *C. lævigatum*, and *C. Stonei* we also grow in the warmest house, and as a rule it is best to turn them out of their pots and repot them annually.

Cattleya house.—Cattleyas that require repotting should now receive attention; where plants of these are doing well, a large proportion of the roots will be growing over the sides of the pots, the insides of which will also be well furnished with roots. In a case of that kind it is quite necessary to break the pots in order to preserve the roots. In potting such plants as may have made a quantity of roots outside we would not cover them with compost; on the contrary, we would have at least the greater portion of them outside the compost. We have noticed sometimes that when such plants have had all their roots potted in peat and Sphagnum they have not done so well as previously. *Miltonias* in some cases are now started into growth, and they are also making young roots; therefore, such as require repotting should be seen to at once. *M. candida* requires much the same treatment as Cattleyas. It should be repotted in peat and Sphagnum, removing the old rotten compost; we keep the roots moist all the year round. The section of which *M. Moreliana* and *M. spectabilis* is the type does not require so much depth of compost, and should be potted in pans, or if pots are used, they ought to be filled to within 3 inches of the surface with drainage, and it may be necessary to secure them to the compost with pegs. The

peculiar yellow tint of the foliage of these *Miltonias* lead many to believe that they are not in good health, but this sickly hue is common to most of the species, and is most apparent when the plants are in a light position near the glass. Newly imported Cattleyas should be potted in clean crocks without any Sphagnum or peat. The crocks should just be kept moist with tepid water, taking care not to wet any part of the plant above the drainage. When fresh roots issue from the base of the last formed pseudo-bulbs a portion of the crocks should be removed, and some of the usual potting material substituted. If Cattleyas arrive in pretty good condition, and have not been caught by the frost, they soon become established. *Lælia purpurata* and Cattleyas of the *elegans* and *guttata* type are included amongst those requiring the treatment just recorded. There ought now to be a good many *Dendrobiums* in flower, and a succession of them should be kept up from now until midsummer. Those still out in cool houses must be kept dry at the roots, and it is best to gradually inure them to a higher temperature, as if transferred from a low to a high temperature suddenly some of the species will lose their flowers prematurely.

Cool houses.—Repotting ought also to be proceeded with in this department while the weather continues favourable. We have potted all our *Masdevallias* that were not potted last summer. These very speedily make large specimens, but when grown on for seven or eight years without being divided the amount of flowers produced is not in proportion to the foliage. We have plants of that age that have now been divided into eight or ten parts, and each of them has been potted in 4-inch or 5-inch pots. *M. Harryana* is the most vigorous grower, and, taking it altogether, certainly the best of them. They also vary very much in colour and form of flowers. *M. Veitchiana* when well grown is also a very fine species. It does best divided and potted like the other. The leaves ought to be carefully sponged over with soapy water to clear them from dust and to prevent the attacks of thrips. We find in repotting the *Odontoglossums* that nearly all of them are just starting to make fresh roots, therefore all requiring repotting have received attention in that way. We would rather repot when the young growths have started a little, but where there is a large collection it is not possible always to repot or to in any way attend to plants on the very day when they require it. In instances in which any of the plants had flower-spikes in course of development it was thought best not to repot them until they had passed the flowering period. *O. cirrhosum* is either in the state in which the growths are completed, or nearly so; the flower-spikes are in course of development, and therefore only a few could be repotted. The flower-spikes of *Oncidium macranthum*, which luxuriates in the coolest house, are also in course of development; a few of this species were potted, but the others will not be done until the flowering period is over, probably in August. Slugs are very fond both of the flower-stems and the succulent roots of this *Oncidium*, and therefore must be carefully watched, and when found destroyed. This species succeeds well in pots with rather more drainage than is required for *Odontoglossums*. It will also thrive on a block of wood, but in that case more care is necessary as regards watering.

PROPAGATING.

THIS is a good time to make the principal sowing of Fern spores; when sown now they have the whole of the growing season before them, whereas if sown in summer they frequently fall a prey to damp during the ensuing winter. The most critical time with seedling Ferns is when they require pricking off for the first time, which will be as a rule in about a couple of months from the time of sowing. Old plants of *Chrysanthemums* intended for spring propagation must be protected from frost, but should have all the air possible, or a weak growth and consequently puny cuttings

will be the result. Chrysanthemum cuttings put in a month ago will need attention in the way of removing decayed leaves; if the foliage is much inclined to damp, give air for a little time each day till the damping is arrested. Where it is desired to increase the stock of Bamboos, such as Fortunei, Metake, Simoni, and Maximowicz, the Eulalias, and similar plants, they may now be divided and placed in a frame, where out of the way of frost and heavy rains they will start into growth in spring without a check. If not already done no time must be lost in securing pieces of the roots of any plants that are propagated in that way, such as nearly the whole of the hardy Primulas, especially the varieties of Sieboldi. Senecio pulcher increases readily in this way, all that is necessary being to cut the roots up into pieces about 1 inch in length and dibble them in well drained pots in a perpendicular position with the upper part just below the surface of the soil. Placed in a gentle heat, they will break freely and grow satisfactorily. Stock plants of any subjects that it is desired to propagate largely in view of the coming summer should be introduced into heat to push them into growth, and thus get an early supply of cuttings. Cuttings of most things required for summer decorations strike without much difficulty, and where there is not a propagating house for the purpose a close case can easily be fixed in any house which is kept at a sufficient temperature in which such as Fuchsias, Bouvardias, Heliotropes, Lobelias, Alternantheras, Verbenas, Coleus, and the like root readily. For such bottom heat is not necessary, provided the temperature of the house is kept up to a sufficient height. For spring propagation I employ the following method with great success: In a stove there is a stage about 4 feet wide in a good light position near the glass; on it is placed a good layer of ashes or Cocoa-nut fibre, over which the propagating cases are set. They are made the width of the stage, and resemble miniature three-light pits, so common everywhere; the sloping lights obviate drip, and a width of 4 feet is very convenient for closely examining the cuttings. The cases may be made very light for the convenience of shifting them about when required. Pelargonium cuttings are much better on a shelf than where moisture condenses on them.

FRUIT.

Pruning and manuring orchards.—

The pruning of all fruit trees should be completed before the sap is in motion if we except Nuts, which are usually left until the tiny little female blossoms can be discerned; then all useless spray is cut, and a Kentish Filbert or Cob Nut bush looks almost as bare as a Vine when pruned, yet the crops gathered testify to the soundness of the practice. In counties in which Filberts are allowed to grow on the extension system the fruit is neither so numerous nor so fine. All young Apple, Pear, Plum, or Damson trees are now having their strong leaders cut back; although we hear of cases where shoots left at full length have set fruit like ropes of Onions, extension is not found to answer in practice; the trees require strength of branch to carry a crop as well as willingness to do so, and the only way this can be secured in the case of young trees is to stop the erect shoots at least one-third of their length. We have ample proof of what the result is when this is neglected. The trees rush upwards instead of filling out laterally; the first crop bears them down so much that the limbs have to be supported, or they inevitably get broken off, and nothing is gained as regards quantity or quality of fruit. If the rampant erect shoots are checked in their upward career, the weakly undergrowth comes into bearing far more quickly, and the fruits are finer. Market gardeners look to quality as much as quantity, and if pruning did not pay they would not do it. One sieve of good high-priced fruit is worth two or three of seconds, and the expenses of transit and commission are the same in each case. Ma-

nuring is also on a liberal scale; where are the orchards attached to private gardens that are supplied with manure at the rate at which they are by market growers? We have, however, lately had some sensible remarks on the folly of keeping a garden half starved. That is bad enough, but a starved orchard is worse; it can yield nothing. There are more reasons than ungenial seasons for barren fruit trees; and if we would but take that old advice, viz., "I will dig about it and manure it, and look for fruit another year," we might yet find that the seasons were improving, at least as regards fruitfulness. Some growers have had plenty of fruit, even in bad seasons, some none; moderate pruning and more than moderate manuring is the secret in the case of those who are successful.

Cherries.—When the trees in the early house show signs of opening their flowers fumigate with Tobacco paper on a calm day; repeat the following morning if necessary, and syringe well to free the buds from insects. Examine the borders, and give sufficient tepid water to keep them in a satisfactory condition until the fruit is set. Discontinue syringing during the time the trees are in flower, and let external conditions regulate the damping of walls and other surfaces, as Cherries, like Peaches, set best in a well ventilated house free from stagnant moisture, but at the same time not so dry as to shorten the flowering period by causing the petals to drop prematurely. With the thermometer now standing at 50° in the open garden the most gentle circulation through the pipes with liberal ventilation will suffice, but in the event of a change to colder weather 40° at night to 50° by day will be quite high enough. The succession house started early in this month may be brought on by warming the pipes for an hour or two every morning, by syringing with tepid water when the temperature begins to rise, and by closing from three to five o'clock every afternoon. If late kinds in pots and tubs are still out-of-doors get them housed, and place nets over the open ventilators. Young trees may still be taken up and potted in strong virgin loam. Let the pots be clean and well drained, ram the soil firmly, and plunge in a warm, airy situation out-of-doors where they are to remain during the season, unless house room is plentiful and not better occupied.

Plums.—In many places these are grown with the Cherries, and they do very well through the early stages, but the time comes when the latter require more air and less moisture than would be good for the Plums, and on this account it is best to keep them separated by means of a glass division placed across the house, and to have the ventilating gear made to work separately in each compartment. If kept clean and brought forward in a low temperature with plenty of air, the Plum is one of the most prolific and interesting fruit trees that can be selected for growing under glass, but anything like hard forcing at any time will prove fatal to the crop. When grown in pots the trees soon become very fruitful, and unless timely thinning of the flowers is attended to the uninitiated may find the favourite at the outset the least profitable at the end of the race. Where glass is plentiful, the cost of fuel being trifling, a whole section should be devoted to that king of dessert Plums—the old Golden Drop. In cold districts or bad seasons it does not always lay on its fine amber colour, without which it never attains its proper flavour, but with a glass roof over it every fruit becomes a sweetmeat, and may be kept hanging for weeks and months after it is ripe.

Figs.—With the weather all in favour of rapid progress, the fruit on early pot Figs is now swelling fast, and the young tender leaves are beginning to expand under the genial warmth which mild sunny days enable us to secure without having recourse to sharp firing. Old trees which have filled the space allotted to them will soon require stopping and thinning in order to insure an even spread of foliage without crowding, as it is more than useless having more leaves than can be exposed to the action of sun-heat and light. Younger

trees having space to fill may be allowed to extend in every direction, when the firm, short-jointed growths so made will produce a succession of fine fruit after the earliest crop is gathered. The temperature of this house may now range from 58° on mild nights to 70° by day, when air must be admitted and taken off in time to run up a few degrees higher on fine afternoons. Pay particular attention to watering, and while guarding against clogging the fresh compost before it gets filled with new roots, see that the trees do not receive a check through becoming too dry. Syringe backwards and forwards twice a day when fine, and damp the floors only on dark, dull afternoons when there is danger of the foliage remaining wet after nightfall.

Succession houses started at the commencement of this month may be kept at a temperature of 50° to 55° at night, with a corresponding rise by day. Syringe well and see that the inside borders are brought into proper growing condition before the terminal buds burst into growth. Economise fire heat by the use of fermenting material placed on the borders, and set ammonia at liberty by turning it at short intervals. Give an abundance of air to the latest houses and wall cases. Prune, or rather thin out, the shoots and wash well with soapy water, but defer tying and nailing in for the present. Put in eyes or cuttings and treat as Vine eyes. If cuttings are preferred, the buds should be removed from the base, otherwise they will give much trouble by throwing up suckers after the trees get established. Also pot on young stock, using rich calcareous turf with a liberal admixture of old lime rubble and bone dust, and place the plants in an intermediate house for fruiting through the late summer months.

Strawberries.—The early forcing of Strawberries, like Cherries and Plums, requires great patience and unremitting attention to details. Where forcing is commenced in November, many good plants are sacrificed for the sake of a few Strawberries, which neither give credit to the grower nor pleasure to the consumer; while by deferring this work until the end of the year, a better supply of finer fruit would be secured until Strawberries are ripe in the open air. For the use of town-going families, April and May are the months in which a good supply of the finest kinds, including the old British Queen, should be in force, and in order to secure this supply, plants of two or three sorts should be selected from the cold plunging pits, every ten days properly prepared by washing the pots and top-dressing with rich loam and manure preparatory to placing them in the pits or houses in which they are to be brought forward. In this dark, variable climate it is difficult to give the exact temperature at which the forcing pit should be kept. At the present moment plants in the open air are in a state of excitement; last year at this time we had 30° of frost, two facts which show that the successful forcing of all kinds of fruit must be conducted upon the give-and-take principle, by running up to 55° or 60° on mild afternoons, and allowing the temperature to descend to 40° on cold nights. When the first batches of Héricart de Thury begin to throw up their flower-stems, a little extra warmth may be given to them through the day by shutting up early with solar heat and moisture from the syringe, but air must be again admitted at night, otherwise the foliage will become drawn and incapable of performing its proper functions when the fruit begins to swell. When in flower, remove the plants to the lightest and most airy part of the structure, and discontinue syringing, but keep them regularly supplied with tepid water, choosing the early part of the day for the operation. Remove weak side blossoms and fertilise with a small brush when the day temperature has reached the maximum.

Hardy fruit.—A continuance of unusually mild weather is beginning to tell unfavourably upon all kinds of fruit trees, particularly the easily excited Peach and Cherry against walls, Currants and Gooseberries upon open quarters,

and although the latter are regarded as of less value than the former, it is questionable if the loss of the crop of bush fruit would not be quite as severely felt as that of the Peach and Cherry. Under these circumstances steps should be taken to keep everything as backward as possible, as well as to have protecting material of various kinds ready for use when the proper time arrives. Peaches and Nectarines are, of course, unnailed, pruned, and securely supported by means of stakes and ties some distance away from the walls, and in this position they must remain until we have a change in the weather, or the rapid swelling of the buds press on the annual tying or nailing in. In the absence of frost a little extra care in washing the walls and trees of all kinds to free them from the larvæ of insects will be well repaid, the more so as birds of many kinds, friends as well as foes, have not recovered from the decimation of the past winter. For stone fruit trees after they are nailed in, a barrel of soap-suds from the laundry, with two or three pounds of sulphur and a like quantity of soft soap added, will make an inexpensive wash, which may be applied freely without fear of injury to the most tender buds.

If **Gooseberries** have not been pruned, the sooner they are done the better, as the crowded state of the trees induces early growth, and pruning checks it. An idea prevails that birds are not so likely to spoil an unpruned tree, but it matters little whether the tree is pruned or unpruned if a pair of bullfinches find their way into it. The safest and best way is to prune and dress with a mixture of soot and lime reduced to the consistency of cream, and passed through a fine sieve to admit of its being taken up and discharged by an old syringe. If time admits, trees in orchards should be thinned out and divested of Moss which may have gathered on the stems and branches by scraping with a piece of hoop iron. When this has been done, wash with the composition recommended for Gooseberries, and top-dress the roots with fresh soil, road scrapings, or rotten manure. Select clean ripe shoots from healthy trees for grafts, and lay them in under a north wall to be ready for use in March or April. For large standards which have been headed back, two-year-old shoots are generally used by experts in this country, and it rarely happens that a graft fails.

KITCHEN GARDEN.

It is neither desirable nor practicable for gardeners to save their own seeds, as they can buy them both cheaper and better than they can grow them, taking all kinds of seeds into the question. Nevertheless, a few special things should always be grown for seed. Among them, and what is most useful, is white or Seakale Beet. Select a couple of the best and pot them, placing them in a cold house where they ripen their seed properly between October and Christmas. This Beet is used as Seakale. The midrib is as white as snow, and makes a beautiful-looking vegetable. Of Onions, a small quantity should always be seeded merely to have a few specially large bulbs. There is no more beautiful sight in the kitchen garden than a border of Onions when kept trim and free from weeds. Celery, again, particularly the white variety, can always be got true from home-grown seeds. In the forcing department keep up good successional crops of French Beans, bearing in mind that good French Beans at this season cannot be too plentiful. Cucumbers are already feeling the good effects of the warm genial weather. Shut up early and give air early if at the expense of a little fire heat. It keeps the house sweet and the atmosphere moving and healthy; 65° is quite enough for the evening temperature. Plant Potatoes in frames if not already done, and keep up good supplies of Tarragon and small salads.

Composition of the Ice plant.—This plant, remarkable for the transparent vesicles filled with water, and resembling frozen dewdrops that cover its fleshy stem and large, thick leaves, is also a striking instance of the elective power

of roots, whereby plants can take up from a complex soil the materials proper to them. M. Mangon has cultivated it for seven or eight years, in La Manche, on the same ground with Cabbage, Celery, &c., and while these latter had their normal composition, the Ice plant, dried and burnt, furnished an ash with so much of chlorine and alkalis that at first he was inclined to think that some mistake had been made in weighing. Upon analysis the plant was found to be formed of a weak solution of alkaline salts, held by a vegetable tissue whose weight reaches less than 2 per cent. of the total mass. The ashes formed of salts of soda and potash form nearly half (43 per cent.) of the dried plant. This composition recalls that of Seaweed. M. Mangon asks whether the cultivation of the Ice plant as a potash plant might not be lucrative under certain conditions; in any case, it would probably be useful, he thinks, in removing from the salt ground on the Mediterranean coasts (its place of origin) the excess of alkaline salts which render it unproductive.

NOTES AND READINGS.

QUICK RETURNS.—A remarkable example of Grape growing is that recorded in THE GARDEN last week by "T. B." and very encouraging to growers for market. It would seem almost as if we were yet only learning some things in relation to fruit culture. Vines planted "two years ago last spring" produced, in 1882, from canes two years old, between 30 lbs. and 40 lbs. of Grapes each. There are two rods to each Vine, and each rod bore an average of 8 bunches ranging from 2 lb. to 3 lb. apiece. Something like extension this, and the Vines, it appears, were not cropped their whole length, but are to be this year. The narrator forgets to state the length of the young canes, but we hear they are both long and strong. It will be remembered that about the very time these Vines were being planted, "T. B." predicted that the plan of having long canes and cropping them proportionately would fail and had failed. Peaches by scores of dozens, from a few trees the first and second year after planting, as has been recorded, and Grapes by the hundredweight from permanent Vines eclipse everything that was imagined but a few years ago.

ORANGE CULTURE.—It is said that in order to taste an Orange at its best it must be eaten just off the tree, and judging by the difference between the flavour of fruit produced at home in our hothouses and that of the shop Oranges, there must be a good deal of truth in the saying. Oranges are a most acceptable dessert fruit, and they are very wholesome as well; but before February or March they do set one's teeth on edge, and they are sparingly eaten except by children, and even the youngsters fight shy of them at first. The Brazilian Oranges imported lately in small quantities are sweeter and better flavoured, but are too seedy and too fleshy to be esteemed, and St. Michael's are becoming a precarious crop, it is stated. As a rule, imported Oranges are not in season till months after their arrival in this country. In private gardens, then, where they are esteemed, why not substitute Oranges for Pine-apples? Some of the home-grown crops we have seen and heard of in orchard houses have been of the most encouraging description possible. Crops in perfection before and after Christmas, and fruit delightful in flavour—"a thing to be run for." The culture is easy and crops certain, a few good bushes yielding a large quantity of fruit. Whether Orange culture would pay is another question; but we imagine a good many west-end people would buy them faster than either Grapes or Pines if they once tasted the home-grown fruit.

FRAMES v. HOUSES.—Which are the best, most convenient, and most economical? Houses, both gardeners and nurserymen probably will say; at least for hardy and half-hardy subjects, or such as need hardening off. Frames with sliding sashes

are convenient for salads, bedding plants, and the like, but for mostly all other purposes—Cucumbers, Melons, Tomatoes, plants, and propagating purposes, houses or low pits with fixed roofs are best. The tear and wear of frames with moveable sashes, breakage, &c., is a hundred per cent. greater than in houses with fixed roofs, and work can also be done far better and more economically in the latter. It is only a question of shape of house and ventilation. For lofty plants lofty houses, and small houses for small plants, with few paths and the most plant space providable. The work of airing and shifting of lights in frames is very great, and the painting and cleaning needed to keep them in order is costly in the extreme.

FRUIT STORING.—A writer in the *Field* refers to the subject of keeping Apples in barrels as a plan worthy of general adoption. It appears Apples and Pears keep better and longer stored in barrels from the time they are gathered than in the most scientifically constructed fruit room, managed in the most approved fashion. All the gardener needs to do is to pack his fruit in barrels as he gathers it, head it up, and set it away in a cool, dry place, out of the reach of frost, till he wants it. As fruit rooms are chiefly needed for the storage of Apples and Pears, it would appear from this that they need not be such very special and costly structures as has been commonly supposed. All the American Apples are barrelled when gathered in autumn, and keep in perfectly sound condition for five or six months afterwards.

APPLE AND PEAR SHOWS.—Another writer asks in the interests of fruit culture in this country why we should not have Apple and Pear exhibitions as well as Potato exhibitions, &c., where the fruit could be shown in quantity at the right season or at various seasons, and so extend our knowledge of those varieties most suitable for home culture and other matters pertaining thereto. There certainly would not be the same objections to special shows of this kind as has been urged with some force against special Picotee, Pansy, and Auricula, and other frivolous societies in which so much energy and money have been wasted in times past. It cannot but occur to the most superficial observer that horticultural societies have in numerous instances pursued a rather aimless direction in the way of paltry objects, and neglected broad interests. One cannot read of the transactions of Continental and American horticultural societies, especially the last, without thinking that our neighbours have lifted such subjects on to a distinctly higher level than we have done in England, and regard them with far greater earnestness and purpose than we do. The subject in these countries seems to be taken up too more generally, and by men of greater standing and influence than with us. Their transactions are invested with far greater importance generally than ours, and the results are apparent in that rapid successful extension of fruit and vegetable culture which has aroused our wonder in this country and injured home trade so much. If, as many writers maintain, it is the fault of our land laws and aimless system of culture pursued, that the Americans have monopolised the fruit trade to such an extent, why have we had to learn the fact from abroad? and whose fault is it that while pomologists in this country have been aimlessly multiplying varieties of fruit to an innumerable extent, the Americans have been selecting severely from the old as well as the newer varieties, planting few sorts, and cutting the ground from under our feet in the matter of trade? How have the Frenchmen and Americans discovered that it pays best to plant their orchards exclusively with so few varieties, while we are still debating furiously about the best sorts of Apples and Pears to grow and not one authority amongst us could certainly tell us what half-dozen of either fruit was the most suitable under any given set of circumstances or situation? The idea of special hardy fruit shows is a good one if properly carried out.

As a rule the system of exhibiting half-a-dozen Apples or Pears on a plate in the early autumn to be judged, as likely as not, by men who do not know the name of one of the kinds before them, or anything about their qualities is a farce, but a sensible prize for the best barrel of English fruit between Christmas and May and at other seasons would bring us some tangible knowledge of the business, interest everybody, and confer a real benefit on fruit growers, who need nothing so much at the present moment as special knowledge concerning the varieties most suitable for culture, and their adaptation to circumstances of climate and soil, and no subject could more worthily engage the attention of horticultural societies.

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FRIGHTENED SCRIBES.—A small coterie of "mutual admirationists" connected with the gardening press, on whom the breath of criticism seems to act like a shot in a covey of partridges, complain, in pathetic language, that the world is deprived of their wisdom because they cannot "record their experiences and opinions without being pounced upon" by vultures in the shape of critics, who, it appears, are ever on the alert to gobble up such innocents, and who haunt their imaginations, like Poe's "raven above the chamber door." These complaints have been rather frequent for some time back, and readers begin to enquire what magnificent genius has been smothered in this way, more especially as not one familiar face, or rather pen, is missed from the pages of the press, while new ones continue to be added. The pages of the horticultural papers continue to be filled as usual with interesting matter, and the editor's basket overflows. It is shrewdly suspected that the complaint of these craven-hearted ones is a want of confidence in themselves, and more particularly the want of courage of their opinions.

PEREGRINE.

ORCHIDS.

ORCHIDS IN THE MIDLANDS.

JUST as we find exotics dwindle in luxuriance the further we travel from the equator, so the cultivation of Orchids becomes less general as we leave the metropolis and pass northwards. There are oases, however, which keep appearing in both cases, and although not exactly "green spots in memory's waste," they are nooks and crannies in very unlikely places where these delightful forms of vegetation find "a foothold and a resting place" under specially advantageous circumstances. Such an one is the oasis at the Bridge of Allan, where that chief amongst Orchid growers, Dr. Paterson, holds sway. Indeed, it is as we travel to the north that the doctrine of the survival of the fittest can be best seen, so far at least as regards Orchids—that one particular branch of horticulture which is without doubt the most costly, and in which failures are so numerous as to make successful culture the more highly prized. Successful management of this kind in the midlands is exhibited in the collections of Mr. Salt, of Ferniehurst, and Mr. C. Stead, The Knoll, Baildon. Such also is Mr. J. Grimshaw's range of houses at Armley, near Leeds, of which I propose to give a few notes. Mr. Grimshaw is an amateur in the strict sense of the word, preferring to grow his Orchids by attending to them with his own hands whenever this is practicable. Is it not a treat, for example, to pay a visit to Burford Lodge and notice Sir Trevor Lawrence lovingly giving so much personal attention to his plants, although having so much cultural skill at his command? Or, shifting to another point of the orchid triangle, find at the Bridge of Allan just alluded to some of the best examples of successful culture this country has yet seen, entirely the result of the individual care of Dr. Paterson and his sons. There are five houses set apart by Mr. Grimshaw for the especial culture of Orchids, each of which was constructed to suit the class of plants intended for its future occupation, and whatever improvement suggested itself in current horticultural literature, so long as it appeared

rational and a move in the right direction, was adopted—cautiously and tentatively at first, of course. I was sorry to notice a deep railway-cutting within 200 yards of the houses, and to counteract the drawback of the consequent smoke requires no small amount of ingenuity. Ventilation through tiffany I will suggest as one way by which smoke may be arrested before it reaches and suffocates the plants by giving them carbon in a form they cannot assimilate. This tiffany may be nailed on the inside of the woodwork where the ventilators open outwardly, and *vice versa*. There are several customs here which commend themselves, and as they may be of service to others, I will recapitulate them. It is an axiom that to keep the roots of potted Orchids healthy there must be perfect drainage. Now, as Sphagnum which is not alive when used for potting soon decomposes and becomes sour, matted, and almost impervious to the requisite supply of water, it follows that the best means of keeping it alive and in a flourishing condition is the best for the Orchids. To this end sheep droppings are baked or dried so as to destroy all living organisms, and subsequently pulverised, the dust being carefully sprinkled amongst the Sphagnum during potting and repotting. Not only does this material feed the Sphagnum, but it acts in a powerful manner by assisting the growth of the plants. In those houses where

Making growth is proceeding I observe a freer use of moisture than is general, and if we take it for granted that the leaf is the most highly organised part of the plant, I can understand stimulants and strength being supplied in quantity in the best medium for absorption, viz., water, and a plentiful supply of this at a proper temperature, be it in a vaporised or liquid form. To disperse this moisture in a steady perpetual manner is the next question, and this is done by having long, low tins filled with water and placed under the hot pipes; a sheet of wet scrim is then spread over the pipes, one edge in the water, the other hanging a short distance over the pipes. The heat of the pipes causes the water to evaporate from the cloth, and by capillary attraction perhaps, or a sort of syphon action produced from the overhanging edge, the water must rise from the tanks, thus giving a constant supply of what Orchids must have when making growth—humidity. For houses containing much bloom, I need scarcely say that to adopt this plan would be to certainly spoil the flowers, and the incipient buds of *Dendrobiums* would in all probability be diverted into growth at their nodes instead of flowering. There is also another method of producing moisture in a fine dew-like shower at damping-down time by using a syringe furnished with Cooper's patent. This gives an almost impalpable mist very similar to what I imagine falls on vegetation in the Tropics just after sundown. In the house devoted to

Vandas, Angræcums, &c., a tank has been excavated below the ground level, about 15 feet long, 5 feet wide, and 3 feet deep, where aquatic plants may be grown with advantage. This is in the centre of the house, and over it a stage has been erected, through the bars of which the plants send their aerial roots, and show by their robust vigour that they are at home. Below the water-line is laid a series of hot-water pipes, which by their heat bring the water to a very suitable temperature for watering with, besides giving off a slight but constant supply of atmospheric moisture. This tank is also at a handy distance for allowing water to be taken up by syringe, and also for dipping blocks and baskets in, for if the presence of woodlice, &c., be suspected, they are soon brought to the surface of the pot or basket if the same be very slowly immersed in the water. Down the side of one house, on the usual staging, a long shallow dish of galvanised iron is placed the length and width of the stage, turned up at the edges about 4 inches. This dish is half filled with broken crocks and filled up with growing Sphagnum. On this the pots are placed, so we see that a continuous supply of moisture is always at hand when needed, and this may be dispersed in a natural

manner without having resort to so much drenching of the floors, &c., as is frequently done. Should it, however, be found that there is a superabundance, the tank in the floor may be emptied in a short time by tap and pipe connected with an outside drain, and allowed to remain empty for as long a dry season as required. So, too, in the house set apart for cool *Odontoglossums* provision is made for a steady, silent supply of imperceptible vapour by means of stone slabs edged by a strip of Portland cement, say an inch deep; on these slabs water is allowed to stand. In the water are tripods of strong copper or galvanised wire, bent to a circle at the top, and in this circle the pots are dropped, being slightly pressed in to give firmness. This excellent plan has the double advantage of giving perfect drainage to the pots and also preventing the passage from pot to pot of all manner of creeping nuisances—woodlice, ants, &c. If these vermin do happen to increase, it is on an island so small that their whereabouts soon becomes known, and they get crushed out of existence in a very literal sense. Along the side of another house, about the level of the waist, a sort of drain is built of brick the length of the house, about 2 feet wide by 1 foot deep, open at the top, and filled with clean, bright red burnt shale. Pots rest on the top of this, and it is surprising how the roots seem to revel in it if allowed, burrowing in it rapidly, and when brought to light, they seem stained with the colour of the shale. I say *seem* stained advisedly, for upon examination they will be found to have appropriated unto themselves small particles of the substance which they are in the act of dissolving by the peculiar exudation of roots, and afterwards assimilating through the ordinary channel in solution.

Flat tables are likewise used, edged with strips of wood projecting upwards about 2 inches, and on these are placed fine washed black cinders such as are used at smithy fires (they are known as "breeze"); on these again are placed the pots. These cinders are easily procured of any blacksmith, and when well washed do not look at all unsightly; they are about the size and uniformity of beans, and as moisture stores cannot be surpassed, this being the principal reason for using them. They give perfect drainage, besides providing such an agonising highway for creeping things as to be quite a barrier. Mr. Grimshaw's success as an Orchid grower is shown by the gradual increase noticeable in the size of the pseudo-bulbs year by year. Orchids are different from most plants in that they give us a yearly record plainly written of successful treatment or otherwise. Where one sees the imported pseudo-bulbs gradually dwindle in size, we can form a pretty sure guess that the end is not far off unless there be a radical alteration. On the contrary, if, instead of signs of dissolution, an annual development is evident, we may be sure they are thriving, so far as growth is concerned. The blooming of Orchids is quite another matter, being produced by a change of treatment at the correct season for different species in almost inverse ratio to the production of growth. They give us, by the way, another record of flowering as of growing, by the remains of the old stalks which supported the bloom, and here there is no lack of such persistent stems. By careful experiments in each house, the dew point has been found, the point at which vapour condenses, and at these points such Orchids are placed as would be found in a natural state luxuriating at the daily dew point. I observe also that

Choice Ferns, most of the spores of which have come attached to the imported plants, are allowed a liberal latitude amongst the Sphagnum and on the blocks. It is argued that as they only require a reasonable amount of moisture for their sustenance, and of this there is ample store, the harm they do, if indeed any, is more than compensated for by keeping the Sphagnum porous and sweet. They also contribute to the luxuriant beauty of tropical vegetation by their elegant fronds hanging in all manner of graceful lines and hiding the truly hideous pseudo-bulbs of many Orchids. It

may be worthy of remark here that wherever Nature has bestowed upon plants beautiful flowers, so as to allure certain insects to them for purposes of cross fertilisation, she almost always withholds attractions from the foliage; the opposite is also the case when the leaves bear enticing colours. This may hold good too with regard to form, for of all foliage which lacks grace and beauty of outline or colour Orchids are paramount. I speak generally, and do not of course include the *Anacochilus*. Consequently, if we can render this ugliness less obvious without much sacrifice we should do so. Anyway, to see a vista of blocks and baskets bearing rare Ferns above and below strikes one as being worth a little sacrifice of moisture. By watching current literature and applying in the houses such conditions as are found amongst Orchids at home, and by carefully experimenting on rational suggestions, such results are obtained at Armley as quite go to establish a reputation for the satisfactory culture of these delicate plants, even though the collection may not be so extensive as its owner might desire. But whoever had a large enough collection of Orchids? Who has had as many choice varieties of alpinas as he wished, or Roses, or, for the matter of that, anything beautiful? The love of flowers "makes the food it feeds on" until it becomes almost a passion, for do we not hear of an intense liking for any speciality being designated a mania? So be it; but it is such a delicious frenzy that we cannot wonder at the wealthy sacrificing their time and even small fortunes in its pursuit, and botanists sometimes life itself.

R. A.

Horsforth, near Leeds.

CATTLEYA LABIATA PERCIVALIANA.

THERE is an old proverb, "Let those laugh who win." In this case the losers need not cry if they possess a fair stock of this *Cattleya*, and hardly are losers, for they have a beautiful flowering plant. By yesterday's post came a bloom of this plant from Mr. R. P. Percival, who may now well be proud of his protégé. There now can remain no doubt that it is a very grand *Cattleya*. I will describe it as accurately as possible and without any "varnish." I have in front of me two flowers of the dark variety of the old *C. labiata* to see the truth of a quotation that I hereafter refer to and find correct, but that *C. Percivaliana* has even a larger blotch. It is as follows: Sepals (all three), $2\frac{1}{2}$ by $1\frac{1}{2}$ inches; petals, $2\frac{1}{2}$ by $1\frac{1}{2}$ (slightly quilled towards points), all uniformly dark rosy purple; lip, $2\frac{1}{4}$ (much arched) by $1\frac{1}{8}$ in the expanded portion. Dark rosy purple runs all along the upper edges for $\frac{3}{4}$ deep. Inside it is a dark brown orange (which is so dense as to show through to the outside, thereby eliminating the rosy purple) with deep crimson-brown lines traversing the whole way from the base to the somewhat indistinct brown-orange mark that backs up the solid deep crimson-lake blotch which is margined by a little paler shade than the petals. Mr. Percival tells me he has a plant developing eight such blooms, and when these plants attain their full strength we shall be able to say we have as handsome a flower as that of the old *labiata*, though, of course, its value must be less, for there are in cultivation as many scores of *Percivaliana* as there are units of old *labiata*. It seemed as if a well-known writer on Orchids in the late periodical *The Gardener*, who signed "F. W. B.," fancied I was of opinion that these two plants were one and the same. I was not, nor am I now, but I always considered *C. Percivaliana* to be a beautiful variety of the *labiata* section; now I am more than that yet. Of course, inferior varieties may bloom with the good ones, but there is no doubt now that many fine ones have bloomed. Then I may refer to "F. W. B.'s" remarks in *The Gardener* of September, 1882, when he says: "It is just a little disappointing to be told in THE GARDEN that it resembles *C. Mossiæ* more than it does *C. labiata*." Perhaps this was said of the plants (few, I think) that bloomed last summer; there may have been *Mossiæ*, true, and bloomed in proper season;

there might have been a few amongst the rest. Further on in the same journal he quotes from Reichenbach's "Walper's annales," where the professor says: "In *C. labiata* the lip is stained with a deep uniform tint of crimson." His disappointment, then only a little, will now, I hope, vanish entirely if the above description, especially that of the blotch, chances to come under his notice, which undoubtedly corresponds very much with the one he quotes, and I think "F. W. B." will now agree with me that Professor Reichenbach was warranted in calling it *Cattleya labiata Percivaliana*.

D. B. CRAWSHAY.

ORCHIDS IN BLOOM.

THE Orchid houses at the Victoria Nurseries, Upper Holloway, are particularly gay with bloom for January, and had not the fogs so decimated the incipient flower-spikes the display would have been finer. The evil effects of the fog are especially noticeable in the *Vanda* house; no fewer than two dozen spikes were cut off, but for all that there are a score or so of fine spikes of such species as *V. suavis* and *tricolor* which alone fill the house with delightful perfume. The *Cattleyas*, in which Mr. Williams' collection is so rich, already make a fine show, chiefly effected by *C. Trianae* and its numerous varieties. For many years Mr. Williams' aim has been to collect from every available source the finest and most distinct varieties of this species—which is one of his favourite *Cattleyas*—that could be got, the result being a particularly fine series, many of which are at present in bloom. Those of which we took special note were *C. Trianae rosea*, remarkable for the uniform delicate rose tint pervading the sepals and petals as well as the labellum with no other tint whatever; *nivea*, so named on account of the pure whiteness of the flowers, which have only a dash of yellow on the lip to mar their purity; *Corningi*, with fine, large, and broad-petalled flowers, which are white with the lip suffused with a soft rose hue; *Rougieri*, also with white petals and sepals, but the labellum has the greater part of the terminal lobe of the richest carmine-magenta imaginable; *Hilli* is similar, but the lip, though somewhat larger, is not so deep in colour; another called *Thomsoni*, a charming variety, likewise resembles *Hilli*, but is nevertheless distinct as regards the peculiar shades of colour. Two splendid forms unnamed, but distinguished as Cox's variety and Brooke's variety, are of special merit; both have gorgeously coloured lips, particularly the latter, the labellum of which bears a great resemblance to that of *C. labiata* in its broadness, exquisite fringing, and resplendent hues. Among other flowers in the *Cattleya* house are *C. Percivaliana* (a good form of it), *C. Warszewiczii* delicata, *C. chocoensis* and its variety *formosa*, which, by the way, is much superior to the type, inasmuch as the blossoms expand more fully, and the colour is very delicate and beautiful, while it retains the delicious aromatic perfume. Among flowering *Lælias* is the rarely seen *L. Lindleyana*, which reminds one of *L. Perrini*, but the flowers are smaller and inferior; the petals and sepals are narrow, and together with the lip are washy in colour, and the plant is altogether unworthy to perpetuate the name of the great orchidist after whom it was named. A greater beauty is *L. harpophylla*, one of the choicest Orchids grown, as the colour is so uncommon. It is in the way of *L. cinnabarina*, but the flowers are larger and the colour is a bright orange inclined to vermilion, a colour rarely seen in any other flower.

The *Odontoglossum* house is bright with a host of flowering plants, chiefly of *O. crispum* (*Alexandrae*), which include some superb varieties, such as *Horsmanni* and *Chestertoni*. Both are remarkable for the large and handsomely shaped white blossoms, heavily blotched with cinnamon-brown, the latter being the darkest tinted. *O. Horsmanni* has a gracefully arching spike of about a dozen flowers. One of the finest forms we have yet seen of the variable *O. triumphans* is in perfection. Compared with the ordi-

nary form, the flowers of this are a third larger, and the colours are brighter and the markings more pronounced. Another exceptional variety is *O. Halli leucoglossum*, so named on account of the labellum being white instead of brownish. It is one of the handsomest of this section of the genus. Among other kinds in bloom were *O. cristatum*, *sceptrum*, *hebraicum*, and the dainty little *O. Krameri*, from Costa Rica, a small growing species allied to the summer-flowering *O. citrosimum*. Like it, the bulbs are flattish, and from the base of them spring the pendulous spikes, the flowers on which are over an inch across and have mauve petals and sepals and a beautifully violet-tinted labellum. It is a little gem for growing in a suspended pot or pan, and thrives admirably in an intermediate house. *O. cariniferum*, with enormous bulbs, has produced a spike nearly a yard high, widely branched, and bearing a profusion of buds which in a few weeks will be expanded. The modest little *O. Cæstedi*, still comparatively rare, was beautifully in bloom in the *Masdevallia* house. It is very dwarf and bears numerous waxy white blossoms about an inch across from the base of the bulbs.

Among the *Masdevallias* were *M. ignea* and its lovely violet-tinted variety *Massangeana*, *M. amabilis*, a small, but pretty flowered species; *M. tovarensis*, *triangularis*, *Shuttleworthi*, a beautiful form with large highly coloured blooms; *Harryana lilacina*, with large flowers of a bright bluish purple with white tube; and *M. Veitchi grandiflora*, the finest coloured and largest flowered variety of this the undisputed queen of the genus.

W. G.

Odontoglossum gloriosum.—A spike of this species, over 2 feet long and bearing 14 blossoms, comes from Sir William Marriott. Such a fine wreath of bloom as this it not a common occurrence, and shows well how admirably cool Orchids are cultivated at The Down House Blandford.

Cattleya Trianae.—A lovely variety of this superb Orchid reaches us from Mr. Fowler, Ashgrove, Pontypool. It is remarkable for the great breadth of the petals, which are of a delicate lilac-rose, and the richness of the labellum, which has a bright golden yellow throat, while the rim and lower half is of the richest amethyst tint. The plant Mr. Fowler possesses of this variety bore this year three spikes with two blossoms each.

Phalænopsis buds not opening.—Can any of your readers inform me why the buds of my *Phalænopsis* fail to open? They seem to grow up to a certain point and then instead of opening turn yellow and go off. This has happened with four plants of *P. amabilis* and one of *P. leucorrhoda*. They are in the house in which they have always grown, which is kept at a minimum of 60° by night. Some few buds of *Dendrobium Wardianum* have gone off precisely in the same way without my being able to account for the fact.—IGNORAMUS.

A variety of Odontoglossum crispum, with flaked and spotted flowers, has been sent to us by Sir William Marriott, Down House, Blandford, who rightly thinks that he possesses a treasure. The flowers are over 3 inches across, the sepals and petals being very broad, so as to overlap each other, the latter beautifully crisped at the margins. Both petals and sepals are pure white, flaked and spotted on both sides with bright violet-purple, giving the flower a beautiful appearance, which the white and golden crested labellum considerably enhances. This is another instance of the variability of this *Odontoglossum*, but we have never seen a variety so singularly beautiful as this one.

Orchids and frost.—Under this heading (p. 50) I see the experience of a writer who found Orchids to stand frost better than other plants. I, who can vouch for the accuracy of the following, can corroborate it, and also show that they will stand even more than "frost having obtained a footing in the houses." My plants, purchased at Hookey House, Coulsdon, Surrey, were packed in

hay and newspapers in a van with a tilt over it, and travelled the night of January 15, 1881, to Sevenoaks in 20° frost, and roads a foot deep in snow. These were as follows: *Vanda tricolor*, *Angraecum eburneum*, carrying eighteen flowers, *Saccolabium retusum*, *Maxillaria punctata*, *Aerides Lindleyanum*, *Cattleya Trianae alba*, *Dendrobium Findleyanum*, *Parishi*, and noble, and *Aerides Warneri*. With the exception of Nos. 3 and 5, they are, nor were, the least the worse, and are all now in perfect health and vigour, with one exception, as to quantity of bloom, as *A. eburneum* then carried eighteen flowers, in 1882 nineteen, and now but ten, otherwise all the plants have progressed; the *Cattleya* has made an extra lead since its freezing. I publish this to ease the minds of many who perhaps may fear their plants have been chilled. Of course the great secret was they were dry at the time; otherwise death was certain.—D. B. C.

KITCHEN GARDEN.

PITS AND FRAMES FOR VEGETABLES.

ACCORDING to my experience the majority of proprietors of moderate sized gardens scarcely realise the value of pits and frames, more especially for forwarding the supply of a few kinds of popular vegetables. In large gardens, as a rule, we find an imposing array of them devoted, in the first instance, to early vegetable culture, and later on, according as cleared, to hardening off bedding plants, the summer culture of Cucumbers, Melons, Capsicums, and Tomatoes, and the preparation of various kinds of flowering plants for the beautification of the houses during the winter. Now, if these pits and frames are found indispensable in large gardens, it is evident a proportionate number would be equally serviceable in smaller establishments. Some years ago I was in this predicament. Pits and frames we had in abundance after a fashion, but they were literally all to pieces, the lights being shaky and nearly clear of glass; much of the brickwork was falling, and the stout woodwork was rotten. We commenced our rough repairs by glazing some of the soundest of the lights at the expense of the remainder, as we preferred to have a few good ones, more especially for the earliest crops, rather than a greater number of bad ones. The skeleton lights were covered with strips of felting, and more of this was employed on frames destined to cover some large rough pits, which we constructed with boards of various descriptions obtained as best we could. In addition to these coverings we found it advisable in case of extra cold weather to have a heap of rough dry litter from the stable yard in readiness to throw over the top and sides of the frames. Yet in these cobbled-up makeshifts we, during two seasons, grew a capital lot of early vegetables, some of which frequently figured prominently at horticultural exhibitions, and certainly have not been excelled by any we have since grown in the orthodox fashion. Moreover, the rough pits were of great service in rearing early plants for the kitchen garden, and we still prefer them for this purpose. Now my present object is to induce others to attempt early vegetable culture even with apparently unsuitable appliances, or, better still, with good pits and frames. It is true they must be prepared for a considerable amount of work, but they will be amply compensated. It may also, as in my case, eventually result in old pits being repaired and new pits and frames added. Employers are not blind to their own interests, and my advice to newly-engaged gardeners is to first merit and then ask for encouragement in the shape of improvements. At the commencement

Heating material, and this in considerable quantities, will be found indispensable, nothing, in my opinion, being better than a mixture in equal portions of fresh stable manure and leaves. The former alone is apt to become violently hot even after careful preparation, and this, besides injuring the occupants of the frame, leaves the manure in a mouldy state. Leaves alone cannot

always be depended upon for retaining heat for any length of time. This will be especially the case this season, as by no means could they be collected sufficiently dry to prevent rapid decomposition. Stable manure requires to be well shaken up into a heap, to stand for a week or ten days according to the weather, when it should be turned and again allowed to heat for the same period. In this manner much of the poisonous rank heat will be thrown off, and the manure and leaves may then be well shaken up together, and in most instances may be used at once—vegetables, as a rule, not needing deep hotbeds. We usually require three large heaps of heating material during the season, the first being now prepared, and the remainder according as the manure is forthcoming.

Suitable soils are not always easily obtained, especially during the first season, in sufficient quantities for a large number of frames. The following season much of the old material is available if freshened up with loam, leaf-soil, &c., as the case may be. Our compost is made up with old potting soil, old Cucumber and Melon soil, leaf-soil, and road trimmings, not mixed promiscuously, but regularly and carefully stored away in heaps, and employed according to the requirements of the various crops. It is almost impossible to preserve a tidy appearance where this kind of forcing is carried out, and for this reason no garden should be without a frame-ground, or Melon-yard, as it used to be termed. This, if possible, should be outside the garden proper, being then more accessible to carts. It ought to be well drained, and if sheltered from cold winds, much heat will be preserved in the beds that otherwise would be quickly blown out.

Carrots and Radishes, we find, are always most acceptable in a young tender state. For this reason a sowing is made as early in January as circumstances permit, followed by another sowing about six weeks later. A shallow hotbed is formed about 3 feet high at the back and sloping well to the front. A shallow two or three-light frame is placed on it, and filled to within 9 inches of the lights with the shortest of the manure, and on this is disposed about 6 inches of sifted soil, nothing being better for this purpose than old potting soil. If the manure has been well prepared, there is little danger of its overheating, but should this be anticipated, the soil, in this and all other cases, should not be put on till it declines to 75°. When the soil is warmed through, drills are formed with an angular strip of wood, and about 4 inches apart, every alternate row being sown with Carrots and the remainder with Radishes, the soil being levelled over them. It is a great mistake to sow the seed at all thickly, as every good seed is certain to germinate, and crowding spoils the seedlings, besides necessitating much thinning out. The frame may be kept close and dark till the Radishes, which germinate much the quickest, are pushing through, after which air must be given on all favourable occasions. Both the Carrots and Radishes will be benefited by having the lights thrown off during the warmest part of sunny days, and should be protected during the nights. When closing the frame early in the afternoon it is advisable to lightly damp the surface of the bed. By the time the earliest Carrots are fit for drawing, the lights may be dispensed with, any light, protecting material being substituted in case of frost. The best Carrot for all purposes is the Nantes Horn, and if some of the sturdiest of the seedlings are reserved and kept watered as required, these will give handsome roots, invaluable for exhibition purposes during May, June, and July. Of Radishes, Wood's Early Frame is still the most profitable early variety, while the French Breakfast and the new Extra Early Forcing Red and White Turnip varieties are quick-growing and good in quality. Very little bottom heat is necessary for Carrots and Radishes sown later than February.

Potatoes are now being fast planted in pits and frames, and where Radishes are in great demand these are sown thinly either between the rows or over the whole bed. I do not recommend sowing Ra-

dishes with Potatoes, however, if sufficient can be grown elsewhere. All our earliest seed kidney Potatoes are stored on their ends in shallow boxes, and all side shoots either rubbed off or picked out with the point of a knife, as we prefer to depend entirely upon the strong central sprout. Those intended for the earliest plantings are plunged thinly in boxes of leaf-soil and placed in a gentle heat to sprout. They root strongly into the leaf-soil and can easily be moved and planted into the warm soil of the pits and frames without experiencing the slightest check. Glazed unheated pits are prepared for them by first securing a depth of about 3 feet of well-turned heating material; on this is placed a layer of short manure, finishing off with a depth of 10 inches of compost. Any light soil is suitable, but our favourite compost consists of old Melon and Cucumber soil and finely sifted old potting soil in equal proportions. Out of such a mixture we have turned some of the cleanest and best Potatoes we have yet seen, and fit for any purpose. The frames we use for early Potatoes are about 27 inches deep at the back and 18 inches deep in front, and for these the beds are made about 4 feet high at the back and a foot less in front. As it is necessary to have the growth as near the glass as possible, we sink the frames into the bed to about half their depth, and otherwise prepare them similar to pits. The frames can be raised whenever the haulm gets dangerously near the glass. Potatoes should not be planted till the trial stick, which ought always to be plunged into the centre of the beds, can be borne comfortably in the hand. The drills are drawn with the hand—three to each light, or about 18 inches apart—from the front to the back and 8 inches deep. The tubers are disposed 8 inches apart and only slightly moulded over, preferring to level the bulk of the soil drawn out about them as they advance into growth. But little air is given in the first instance unless the heat is very moist. In this case a little air should be constantly given. Later on air must freely be given whenever the state of the weather permits, always guarding against cold winds, the aim being to secure a sturdy growth. The soil should be kept in a moist state till ripening commences. The frames may be closed early in the afternoons, but it is not advisable to damp the foliage, as this may be the means of inviting the Potato disease. The earliest crops should be covered up every evening, and the later ones whenever frost is imminent. We fill as many pits and frames as we can possibly spare with Potatoes, and according as the manure is prepared. Two large rough unglazed pits are not filled till March. We have tried several varieties of Potatoes, but for frames we now rely entirely upon Veitch's Improved Ashleaf. Those who prefer a round variety should grow either Sutton's First and Best or Early Border. We tried a few of the latter last season, and have formed a high opinion of its merits.

Peas are not extensively grown in frames, not so much in fact as they deserve to be. At one time we grew Laxton's Unique in unglazed pits, and by these means secured remunerative crops fourteen days in advance of the earliest outside pickings. We next grew Laxton's Minimum in addition in a glazed pit and gained another fortnight. Now the same results are obtained by growing American Wonder under glass, to be followed by the same variety grown at the base of the warmest garden walls. The latter variety is particularly well adapted for this purpose, but it has one fault, if I may so term it: it spoils the palate for the earliest round-seeded varieties. The shallow pits in which they are grown being now filled with Strawberries in pots, we sow the seed at the present time in boxes of leaf-soil and transplant. These boxes are placed on the border near the glass of an early Peach house, and before the plants become drawn are transferred to a cooler house. In the meantime a depth of about 18 inches of the shortest of the prepared heating material is well trodden into the pits, and over this is disposed about 9 inches of good loamy soil. When warmed through deep drills about 18 inches apart are drawn out with a spade, much as we would for a Box hedge; the Peas are shaken out of the soil, dis-

persed in a single row about 2 inches asunder, and the roots carefully covered. This simple plan we find to answer better than several others we have tried, as the strong roots with their clusters of rootlets are easily preserved, and, when carefully planted, take quickly to the fresh soil, no appreciable check being given to the growth of the plants. Between the rows we are able to get a line of early Paris Market Lettuces, these being previously sown in a box at the same time as the Peas, and are fit to dibble out when the latter are. Planted 6 inches asunder, they soon fill up their allotted space, and, owing to their extreme earliness and excellent quality, more than compensate for the labour bestowed upon the two crops. A few Radishes may also be obtained from these pits. Peas require little or no bottom heat, and no protection other than the lights of glazed pits or frames or mats where grown in unglazed structures. When well established, and not till then, they should receive air freely on all favourable occasions, and never be allowed to get very dry at the roots. They may be grown with or without stakes, but we prefer to keep them upright with the aid of Birch twigs. Years ago we saw what should have been a good pit of early Peas spoilt owing to being planted in shallow soil over dry mouldy manure which no watering would change. It was a good lesson, and I have never failed to provide early Peas with a bed of short, moist manure for them to root into.

Cauliflowers we grow in a rough pit, prepared in a manner similar to that described for Peas. We now have glazed lights for the earliest, and prefer them to hand-lights. The plants are wintered in boxes, and early in February are planted out, about 15 inches apart each way, and treated similarly to the Peas. If large heads are required, say for exhibition purposes, when these are commencing to form it is advisable to water frequently with strong liquid manure. The Extra Early Forcing varieties are very early, and to succeed these we grow the Dwarf Erfurt Mammoth. W. I. M.

Turnip-tops.—We find these extremely useful at this time of the year. When sufficiently blanched they become remarkably crisp and serviceable for kitchen purposes. Planted under any suitable stove central stage amongst sand, leaf-mould, or soil, or in boxes placed above the boiler in stoke-holes, shading the sets or plants from the influences of light, they will be ready for cutting in the course of eight or nine days afterwards. By planting fortnightly sets and keeping them damp at the root they may be had at any time throughout the winter months, when other vegetables are scarce.—G. D.

Potato culture.—The plan of culture which I have adopted has been very successful. I select good Potatoes for sets, and keep them through the winter from sprouting. If left uncared for they get so much exhausted by growing out before they are put into the ground, that it is impossible to have a good crop. Very often I see Potatoes planted with long sprouts, and in that case they are up before they have made roots. I also see them planted so much too close that neither sun nor air can get through them. I plant all my Potatoes about the second week in March without any sprouts, i.e., if the land is in a fit state to receive them; then both roots and sprouts start together, and when just coming up if you examine one you will find a large mass of roots attached to it. In that case if touched by spring frost they have something under the ground wherewith to withstand the check. I plant early and late kinds all at one time. Some plant late ones first and early ones a month later, and expect the early ones to be fit for table a month before the late kinds. But I say put them all in at one time if you want a good crop, then the early sorts will be fit for use some time before the late kinds. I plant the early ones 2 feet apart, and the late 3 feet apart from row to row. Any person who follows my practice will never fail to have a good crop. I have adopted this plan for

six years without a failure. The crops are, however, heavier some years than others.—E. B.

NOTES OF THE WEEK.

DUKE OF BUCCLEUCH GRAPE PRIZE.—We are requested to direct the attention of Grape growers to the prize offered for this Grape, advertised in this week's GARDEN, and which will, we understand, not appear again.

GOD'S ACRE BEAUTIFUL.—In the second edition of this, just published, there are a series of fine plates of the choicest urns in the collections at Rome, and also an account of the recent cremations in Dorset and of the circumstances which gave rise to them.

THE IMPERIAL HORTICULTURAL SOCIETY OF RUSSIA will hold an international exhibition and congress at St. Petersburg on the 5th of May, and it will continue open for twelve days. Invitations to attend have been issued to the leading European horticulturists and botanists, and a highly satisfactory show is expected.

NATIONAL HORTICULTURAL SOCIETY OF FRANCE.—The first exhibition of this society for the present year will be held in the Champs Elysées, Paris, from March 28—April 1. Foreign exhibitors are invited to compete. The schedule, which comprises sixty-one classes, includes Crocuses in twenty-five varieties, Anemones, Ranunculuses, and other spring-flowering plants, besides new plants and Orchids.

THE PELARGONIUM SOCIETY'S schedule for the forthcoming season is an expansion of that of last year, the classes for new varieties being arranged to admit three, two, or one, at the discretion of exhibitors. The prizes offered last year for hybrids of *Geranium pratense* and *Pelargonium oblongatum* are repeated, and the Council of the Royal Horticultural Society have added a silver Banksian medal for the best specimen plant in the show to be held in June next.

IS THE NEWTOWN PIPPIN DISAPPEARING?—I bought some Apples under this name the other day at a very high price. They had some resemblance to the Newtown and were about the same texture, but not the same spotting, shape, and very far from the Newtown flavour! Such is the popularity of the Newtown in England, that even such second class fruit as I describe find buyers at 4d. and 6d. each. If the true Newtown is no longer to be grown with success in America, it may be worth while noting that some people are clever enough to send us a fruit something like it, and bearing falsely the name Newtown Pippin.—V.

SPECIAL PRIZES.—Messrs. Sutton, Reading, ask us to state that they intend to offer the following prizes for flowers, vegetables, fruit, and Potatoes at the Royal Horticultural Society's shows, South Kensington, and at the International Potato Exhibition, Crystal Palace, during the ensuing season.—*March 29.* For 9 seedling Cinerarias (single): 1st prize, £3 3s.; 2nd, £2 2s.; 3rd, £1 1s. *May 22, 23. Great Summer Show.*—For 9 herbaceous Calceolarias: 1st prize, £3 3s.; 2nd, £2 2s.; 3rd, £1 1s. For the best brace of Cucumbers, any variety: 1st prize, £2 2s.; 2nd, £1 1s.; 3rd, 10s. 6d. No variety for which a special prize is offered in the Society's schedule may compete for these prizes. *June 26. Pelargonium Society's Show.*—For 9 Tuberous-rooted Begonias: 1st prize, £3 3s.; 2nd, £2 2s.; 3rd, £1 1s. For 12 Gloxinias: 1st prize, £2 2s.; 2nd, £1 1s. For 4 dishes of Peas, distinct varieties, 50 pods to a dish: 1st prize, £3 3s.; 2nd, £2 2s.; 3rd, £1 1s. No variety for which a special prize is offered in the Society's schedule may compete for these prizes. For six varieties of Lettuce, three specimens of each: 1st prize, £2 2s.; 2nd, £1 1s.; 3rd, 10s. 6d. For three distinct varieties of Endive, three specimens of each: 1st prize, £1 1s.; 2nd, 10s. 6d. *July 3. Great Rose Show.*—For collection of vegetables, 10 distinct kinds, as follows, no restriction as to sorts—12 Onions, 50 pods Peas, 12 Carrots, 12

Turnips, 50 pods French Beans, runners or dwarfs, 4 Cos Lettuce, 4 Cabbage Lettuce, 3 Cauliflowers, 1 brace Cucumbers, 9 Potatoes: 1st prize, £4 4s.; 2nd, £3 3s.; 3rd, £2 2s.; 4th, £1 1s. For a single Melon: 1st prize, £3 3s.; 2nd, £2 2s.; 3d, £1 1s. No variety for which a special prize is offered in the Society's schedule may compete for these prizes. *July 24. Carnation and Picotee Show.*—For three heads of spring-sown Cabbage: 1st prize, £2 2s.; 2nd, £1 1s.; 3rd, 10s. 6d. No variety for which a special prize is offered in the Society's schedule may compete for these prizes. For the best dish of any round Potato: Prize, £1 1s. No variety for which a special prize is offered in the Society's schedule may compete for this prize. For the best dish of any kidney Potato: Prize, £1 1s. No variety for which a special prize is offered in the Society's schedule may compete for this prize. *International Potato Exhibition, 1883.*—Class B. For eighteen distinct varieties of Potatoes, 9 tubers each: 1st prize, £7 7s.; 2nd, £5 5s.; 3rd, £3 3s.; 4th, £2 2s.; 5th, £1 1s. Class K. For eighteen tubers of each of the following Potatoes: Sutton's Magnum Bonum, Sutton's Early Regent, Sutton's Early Border, Sutton's Reading Russet, Sutton's Reading Hero, Sutton's First and Best, Sutton's Fillbasket, Sutton's Prizetaker: 1st prize, £5 5s.; 2nd, £4 4s.; 3rd, £2 2s.; 4th, £1 1s. Class L. For a dish of a coloured round Potato of English origin, eighteen tubers: 1st prize, £1 1s.; 2nd, 15s.; 3rd, 7s. 6d. Class M. For a dish of a white round Potato of English origin, eighteen tubers: 1st prize, £1 1s.; 2nd, 15s.; 3rd, 7s. 6d. Class N. For a dish of a coloured kidney Potato of English origin, eighteen tubers: 1st prize, £1 1s.; 2nd, 15s.; 3rd, 7s. 6d. Class O. For a dish of a white kidney Potato of English origin, eighteen tubers: 1st prize, £1 1s.; 2nd, 15s.; 3rd, 7s. 6d. Classes B and K are open to noblemen's and gentlemen's gardeners only, and the awards to be made by three gardeners, who will not be competitors. Classes L, M, N, O are "open," and are for varieties of English origin, whether already in commerce or not in commerce prior to season 1883.

TREES IN STREETS.—An interesting controversy on the utility or otherwise of trees in streets and open spaces has been lately going on in the columns of the Geneva press. The controversy arose out of a discussion in the International Hygienic Congress, which was held in Geneva in August, and Dr. Piachaud, a member of the Congress, has since contended, in a letter addressed to the *Journal de Genève*, that trees in streets do more harm than good, that they impede the circulation of air, and that, as for the shade they afford, people who do not like sunshine, have only to keep on the shady side of the street. Instead of planting more trees in towns, as some propose, he would rather, in the interests of hygiene, remove all existing trees. To him replies Professor Goret, of the University, who treats the matter from an exclusively common-sense point of view. As for people who want shade keeping always to the shady side of a street, he points out that, as streets have generally shops and houses on either side, Dr. Piachaud's advice in this regard, however ingenious, can hardly be regarded as practical. But the functions of trees in streets are not limited to acting as screens for sunshunning wayfarers; they temper the heat and serve as a protection against dust. The evaporation from their leaves tends to keep the surrounding air cool and moist. One of the best means of refreshing the air of a sick chamber is to place in it plants and branches and sprinkle them with water. A like effect is produced by trees. Sunlight is necessary to health; but trees, if not too thickly planted, do not intercept sunlight; the perpetual vibration of their leaves and swaying of their branches admit the light every instant, and in sufficient measure, and serve, moreover, to protect the eyes from the noonday glare. So far from trees impeding the circulation of air, they help to purify

the air; the evaporation from their leaves determines a current from above, and the fresh air thus brought down helps to drive away the heated and dust-impregnated gases of the streets. Another useful property of foliage is that, while in hot, dry weather it moistens the surrounding atmosphere, thereby rendering it fitter to breathe, this effect, which is due to evaporation, ceases in wet weather. Trees, moreover, act as purifying agents by absorbing carbonic acid and giving out oxygen. But the action of trees on the air is far less important than their action on the soil. Their roots draw up stagnant waters and absorb the organic matters contained in the filth from which the streets of a town are never free, and which, after infiltrating the ground, are a frequent cause of fevers and infection. Trees, in fact, have the same effect on the subsoil of towns as fields have on the contents of their sewers—they act as disinfectants. Taking these facts into consideration, Professor Goret ventures to differ from the conclusions of the Hygienic Congress, and strongly recommends the planting of trees in streets and squares. But they must be planted with judgment. They should be placed at proper distances apart, and the branches should not be allowed to come in contact with the buildings near which they grow. The sorts best adapted for street planting are those which grow to a considerable height and spread out their branches. The fashion that prevails in some Continental cities of cutting trees down to a uniform size is highly objectionable. The branches of trees so treated become so compacted together as to be impervious to light, and the shade they give, although deep, is too circumscribed to be of much use.

VARIETIES OF POLYPODIUM VULGARE.—As it will interest hardy Fern cultivators to know the difference that exists between the Irish *Polypodium vulgare* var. *trichomanoides* and that of the Cornwall one named *cornubiense*, I forward for comparison fronds of the latter taken from two plants which vary sufficiently to cause the impression that they represent seedlings from cultivated plants; the single frond is a constant variety; the others, though usually finely cut, vary considerably.—A. CLAPHAM. [The fronds sent represent a very beautiful variety; they are much divided and are of thick texture; therefore do not possess such a delicacy of tint as the fronds of the variety *trichomanoides*, which are almost transparent, at least they are so in the plant from Messrs. Backhouse, of York. Both are indispensable hardy Ferns.]

A NEW AGAVE (*Allibertia intermedia*).—This is a most curious plant from a botanical point of view, and may be briefly described as occupying a place somewhere intermediate between the *Amaryllis* or *Hippeastrum* family and the true *Agaves* generally so called, being, in fact, a deciduous, bulbous-rooted *Agave*, as its general appearance when in full growth much more resembles the *Aloes*, and when at rest the bulbs of *Amaryllis* or *Hippeastrum*. This strange plant is described by the well-known hybridist, Mons. J. B. A. Deleuil, of Marseilles, in the *Revue Horticole des Bouches-du-Rhône* for last September, and its origin is stated to be as follows: In 1877 the writer received from Messrs. Haage and Schmidt, of Erfurt, among the seeds of a number of other varieties of *Aloe* one bearing the name of *A. virginica*, of which only three came to maturity, and turned out to be the singular plant above described. For the name attached to the packet of seeds the senders could in nowise account, save by the very unsatisfactory reason that their collector who sent them the seeds invariably gave them some name or other, as nameless seeds were found to be unsaleable. The three plants resulting from the five seeds sown by M. Deleuil in 1877 flowered in 1881 and again last summer, and have been botanically compared and described by Professor Marion, who, when he found them to be new and distinct from any known species, named them after one of the founders of the Marseilles Society, Mons. Allibert de Berthier. Autographic reproduction of a drawing by M. Penot of the entire plant in flower, reduced considerably in

size, a single flower-pip of the natural size, a seed capsule natural size, and the bulb when at rest reduced to one-third of natural size, is published with the description of this new and singular plant.—W. E. G.

AMERICAN NOTES.

Small Lilies.—*Lilium pulchellum* and *L. tenuifolium* are more easily raised from seeds than any other species of the genus. From seed *tenuifolium* will yield some flowers when two years old, and both species when three years old will give a fair crop of blossoms. Sow the seeds in pots or shallow boxes in the house, or in a shaded cold frame; they should germinate in nine or ten days. After they come up leave them alone for some days; then, if they are in pots, you may transplant them thickly into boxes; if in boxes or a frame, and they do not seem overcrowded, do not disturb them till they are of goodly size. Indeed, I usually transfer the potful of seedlings, without disturbing them in the least beyond removing the pot, into the earth in a cold frame, and let them stay there till the seedlings are a year old, when I lift and transplant them into rows. Both are early-blooming, bright lovely Lilies, and very hardy.—*Rural New Yorker*.

White Tigridia.—Everybody knows the pretty summer flowering *Tigridia* or Tiger flower. We have the red *T. Pavonia* and the yellow *conchiflora*. The white, according to *Revue Horticole*, was raised and recently sent out by M. Hennequin, of Angers, France. In habit and general aspect it is said to be similar to the older variety *T. conchiflora*, from which it seems to have sprung. Its flowers are large, of a dead or pearly-white colour, marked at the base of each division with large spots of a reddish brown or chestnut colour on a yellowish ground, forming a fine contrast with the white of the petals. The style column is bright yellow, of the form of a long hollow sheath, terminated by three mottled plates enclosing the style within them. This should be quite an acquisition to our summer borders and a good companion for the already known and admired varieties of this showy family.

Cost of steam heating.—Steam heating will, I think, give more satisfaction uniformly than hot water or any other form of heating. At least, I am well satisfied with mine. I have two boilers in use now. The price for steam heating is about one-third less than hot water, and gives just as good or better satisfaction. Those who intend to put in steam should see or write to a steam-fitter, tell him how many and how large are the houses you wish to heat. Better to show him the houses before making a contract; then he can give an exact estimate of cost to fit them with steam. The boiler should be ordered by the steam-fitter, who knows just what is needed. Two boilers heat six large houses. All complete in heating order, pipes, boilers, &c., cost me for the six houses about 1500 dols. The houses are 64 feet by 24 feet each.—A. D. MYLIUS.

Juglans præparturiens, or early fruiting Walnut.—The California papers have been intelligently discussing this variety of Walnut. It has been thought to be a dwarf—probably because small or young trees are full of fruit. Mr. F. Gillett sums up in the *Rural Press* all that has been said of its dwarf character in these words: "In my opinion, the *Juglans præparturiens* of France and the English Dwarf Prolific of America are the same thing, though it is not clear in my mind why the *J. præparturiens* or fertile Walnut has gone in America under the name of Dwarf Prolific. As to who gave it that name it seems that nobody knows. The name is far from being appropriate, and serves only to bring confusion in names, and gives a false impression as to the tree's habits of growth. As regards the value of the variety in California, Mr. Rusk remarks: "We will soon see the day when no other sorts will be planted than grafted Chestnuts and *præparturiens* Walnuts. To wait from twelve to twenty years

for Walnuts from common sorts will not do when you can have them in bearing in three or four years."

Feast's Scuffle Cultivator.—This vigorous contrivance first cuts up the weeds, and then, by a roller fork behind, shakes out all the earth from the uprooted weeds, by which they are laid out so as to soon dry up.

Mahogany in San Domingo.—In consequence of the demand for mahogany of late, it has been feared lest the supplies should fall short; we are assured, however, in a report of the Vice-Consul at Puerto Plato, San Domingo, that the diminution in the exports of mahogany is by no means to be attributed to a scarcity of the wood, for the forests are apparently inexhaustible; but it is to be accounted for through the absence of suitable tonnage for charter in the neighbouring colony of St. Thomas throughout the year.

Foretelling the weather by the white Pine.—The *Illustrirte Garten-Zeitung*, of Vienna, Austria, says it is the easiest thing in the world to foretell the weather by observing the common American white Pine (*Pinus Strobus*). If we are to expect rain or snow within a reasonably short space of time, the branches of the last two season's growth will be pendulous. If such weather be a long way off, the branches will be raised rather than drooping.

Progress of plant knowledge.—Hippocrates described 234 species; Theophrastus followed with 500. Pliny knew, as well as can be made out now, 800. Tournefort, at the beginning of the last century, described 10,146. Many of these had to be united as not distinct enough for modern science, till at the death of Linnæus 7294 had been described. De Candolle, in the "Theory of Elementary Botany," made 30,000 named species. Lindley, in 1853, gave the number as 92,920. Now nearly 150,000 species are known, with possibly an equal number not yet known. Thus records the *Revue de l'Horticulture Belge*.

Caladium esculentum as a vegetable.—On my arrival in Charleston more than forty years ago Tanyas (*Caladium esculentum*) were commonly sold in the Charleston market as vegetables; and among other things sent by a friend as gifts to us as strangers on our first beginning housekeeping was a bag of Tanyas. What was I to do with them? My Irish cook declared them to be nothing better than rotten Potatoes; she "knew the nasty things well." So they laid on the floor of the piazza till my husband came in; he said they were very nice—"Boil them a long while as you would Potatoes, and eat them with plenty of butter; make them into soup with a good piece of beef." All was done as he ordered. A great dish of greyish white mealy balls appeared on the dinner-table—enormous things tinted with blue and red, very discouraging to look at, worse to eat. The next day Tanya soup was carefully boiled with all sorts of condiments to make it palatable; that was better, but two or three spoonfuls were sufficient, and we have never tried Tanyas as vegetables since, though I planted in my garden what remained of the brown rough balls and reaped a harvest of delight in their lovely growth, which I had then never seen in Europe. On what is called the King Street Road the same summer on the edge of a very muddy ditch, intersected by another equally black and oozy, grew, apparently wild, a magnificent growth of Tanyas. Year after year they increased and multiplied, till they covered both ditches and much of the surrounding field. In those far-off times of which I write the negroes had a legend that Tanyas were originally brought by them from Africa, and certainly to this day they are eaten by them, and a patch may always be found in their gardens.—MRS. D. M. W.

Japan Persimmon in the South.—It is now some six or seven years since the Japan Persimmon was first introduced into Mobile by distributions made by the United States Commissioner of Agriculture. It has fruited three or four years in succession in the vicinity of Mobile and Pensacola, and found to do well there. M. Delchamps has a flourishing orchard in the lower

part of the county, and Mr. Langdon has another in the upper part. M. Delchamps, who is perhaps the pioneer in experimenting with this new fruit, says that he has three hundred trees, all doing well, and Mr. Langdon has about one-third as many—his orchard including no fewer than thirteen varieties, namely, Tanenashi, Hiakume, Nihon, Hatsiga, Yamato, Kurokuma, Royal, Daidaimara, Mikado, Goshō, Goshomara, Imperial, and Mino. —*Gardener's Monthly*.

Adhesions.—Mr. Wilder recently exhibited to the Torrey Club a section of a Hemlock Spruce in which one of the branches had curved inwards and become at its extremity fused with the trunk. Mr. Britton described and illustrated a case of adhesion between the branches of two Maples that had been observed by him recently at Mt. Clair Heights, New Jersey. Many similar adhesions have been observed in this country, but not, as far as we know, amongst Conifers.

Pruning shrubs.—Messrs. Ellwanger & Barry, in their new descriptive catalogue of ornamental trees and shrubs, give the following excellent directions as to pruning: Pruning, as sometimes practised, has the effect to render trees and shrubs unnatural and inelegant, by shearing them into cones, pyramids, and other unnatural shapes. Every tree and shrub has a habit of growth peculiar to itself, and this peculiarity is one of its beauties. If we prune all alike into regular shapes, we destroy their identity. The pruning-knife, therefore, should be used and handled with judgment to lop off straggling branches. Shearing may be practised on hedges, but never on trees and shrubs. Weigelas, Deutzias, Forsythias, and Mock Oranges flower on the wood of the preceding year's growth, and hence these shrubs should not be pruned in winter and spring, but in June after they have finished flowering, when the old wood should be shortened or cut out, thus promoting the growth of young wood which is to bear flowers the following season. But Spiræas, Lilacs, Althæas, and Honeysuckles may be trimmed during the winter or early spring, and the branches should be reduced only enough to keep them in good shape. The old growth should be occasionally thinned out, and suckers and root-sprouts removed. The best time, however, for pruning all shrubs is when they have done flowering. The plumed Hydrangea should be severely cut back and thinned early in spring. In pruning Evergreens, use the knife occasionally to thicken the growth and preserve the shape. This may be done in April or May, just before the trees start to grow.—*Country Gentleman*.

SHODDY AS MANURE.

"A. D." asks several questions about this. It can be had in Bradford or Leeds, though I regret that I cannot give a definite address. Some years since an agency was established in Bury St. Edmunds, and considerable efforts were made to push a trade in shoddy manure. I among others used it for various crops, applying it as a top-dressing to Vines and fruit trees in pots, such as Apples, Peaches, Plums, Pears, and also to vegetables, such as Celery, Cauliflowers, Peas. We also top-dressed Fuchsias, Pelargoniums, and Roses in pots with it, but did not mix it with the soil for pot plants. We liked it, and it seemed to prove a strong, useful stimulant to all the crops to which it was applied. It was rather objectionable as a surface mulching, owing to its heavy, oily, fulsome smell, otherwise its open, porous character rendered it a most efficient mulch, keeping out the heat and cold, and in the moisture. It decomposes slowly, and, being almost wholly composed of rough or refuse wool, is a strong manure. It was tried on root and other crops, either as delivered or soaked with sewage, either from being thrown into tanks or trodden down with farm-yard manure. The object was to establish a trade among farmers rather than gardeners, and those who tried it were satisfied with it. But somehow the agency failed and the supply was cut off, and since then I have seen or heard no more of shoddy as manure, though most of us meet with rather

too much of it in other departments. So far as I remember, the price was about a shilling a hundredweight, delivered in shoddy bags, which went into the ground, the best place for all shoddy, with the manure. D. T. FISH.

Russian fruit.—Prof. Budd, of Iowa, now travelling in Europe in the interests of horticulture, writes to an Iowa paper concerning the orchards of the famous fruit city of Simbirsk, on the Volga, in Russia. "Simbirsk" (he says), "may be more properly named 'The Orchard City' than any town we know of in Europe or America. Literally every available spot in and around the city is planted with Apple, Pear, Cherry, and Plum trees, all of which this year have produced great crops of really choice fruit. But not a single variety can be found that belongs to the races of fruit found even in North Germany. The climate is very trying, both summer and winter. The city is located in the dry steppe region, 500 miles east and a few miles south of Moscow. The air is very dry, and during the day excessively hot. On account of the rapid radiation, the nights, however, are decidedly cool, yet not too cool to prevent the ripening of Tomatoes and first-class Melons. The winters are colder than in any part of Minnesota, that is, the extreme winters which come, as with us, at intervals of from six to eight years. In 1877, for instance, the temperature the last of December reached 50° Fahr. with very little snow, while last winter was very moderate with very heavy snows. Thousands of acres of orchard here are planted with a very few commercial varieties of the Apple, which do not differ materially from those grown in the province of Kazan. The trees are small in size and bushy in habit of growth, but loaded with very showy and excellent fruit. Could our friends at home drop in our hotel room at this moment they would see every stand and table loaded with very fine specimens of Apples, Pears, and Plums. I wish to speak specially of the Pears of Simbirsk. Many thousand trees are found growing under exceedingly varied circumstances. Some Pear orchards slope to the east, and many to the south, west, and north. Some are on cultivated ground, the most are in stiff sod, and very many are found in yards and even planted in the public park. Under almost all circumstances they are loaded with fruit. But as a rule the fruit is not good. Ninety per cent. of the trees are seedlings of the Bergamot type, and the type and race known as Grucha. The true Ironclads have the leaf and habit of growth of the wild Apples found native near the bluffs of the Upper Volga. The trees are low and scrubby in habit, but they are loaded with high coloured and really excellent fruit. With the quality of the Apples here called good we have been surprised."

W. Cobbett as a gardener.—"At eleven years of age," says William Cobbett, "my employment was clipping Box edgings and weeding beds of flowers in the garden of the Bishop of Winchester, at the Castle of Farnham, my native town. I had always been fond of beautiful gardens, and a gardener who had just come from the king's gardens at Kew gave such a description as made me instantly resolve to work in those gardens. The next morning, without saying a word to any one, off I set, with no clothes except those on my back, and with thirteen halfpence in my pocket. I found that I must go to Richmond, and I accordingly went on from place to place, inquiring my way thither. A long day (it was in June) brought me to Richmond in the afternoon. Twopennyworth of bread and cheese and a penny worth of small beer, which I had on the road, and one halfpenny which I lost somehow or other, left 3d. in my pocket. With this for my whole fortune I was trudging through Richmond in my blue smock frock, and my red garters tied under my knees, when, staring about me, my eye fell on a little book in a bookseller's window—'Tale of a Tub,' price 3d. The title was so odd that my curiosity was excited. I had the 3d., but then I could have no supper. In I went and got the little book, which I was so impatient to read,

that I got over into a field at the upper corner of Kew Gardens, where there stood a haystack. On the shady side of this I sat down to read. The book was so different from anything I had ever read before, it was something so new to my mind, that, although I could not at all understand some of it, it delighted me beyond description, and it produced what I have always considered a birth of intellect. I read on till it was dark without any thought about supper or bed. When I could see no longer I put my little book in my pocket, and tumbled down by the side of the stack, where I slept till the birds in Kew Gardens awaked me in the morning, when off I started to Kew, reading my little book. The singularity of my dress, the simplicity of my manner, my confident and lively air, and doubtless his own compassion besides, induced the gardener (who was a Scotchman I remember) to give me victuals, find me lodgings, and set me to work. And it was during the period that I was at Kew that the present king (George IV.) and two of his brothers laughed at the oddness of my dress while I was sweeping the Grass plat round the foot of the pagoda. The gardener, seeing me fond of books, lent me some gardening books to read, but these I could not relish after my 'Tale of a Tub,' which I carried about with me wherever I went; and when I, at about twenty years old, lost it in a box that fell overboard in the Bay of Fundy, in North America, the loss gave me greater pain than I have ever felt at losing thousands of pounds."

OBITUARY.

WE have to record the death of Mr. ROBERT WRENCH, treasurer, since 1849, of the Gardeners' Royal Benevolent Institution, and head of the firm of Jacob Wrench & Sons, seed merchants, London Bridge. In days gone by when the Royal Horticultural Society held its meetings at 21, Regent Street, Mr. Wrench was a constant attendant as a visitor, seldom as an exhibitor, except perhaps to show a sample of the true old Pine-apple Strawberry, of which we believe he was the only stockholder. In later years his interest in the society got diverted into other channels; but not that in the Gardeners' Benevolent Institution, of which he was to the last a warm supporter. He was fond of gardening, and at one time grew a good collection of plants in a small glass house on the roof of his warehouse at London Bridge. He died on the 15th inst., aged 70.

Celery.—I shall be obliged to any of your readers if they will give me the names of the best red and white Celery for show purposes.—BEGINNER.

Moving Rose trees (J.).—It is unlawful to move Rose trees to a new residence, unless you are a nurseryman or have some agreement to that effect with your landlord.

Carnation Susan Askey.—This is said (p. 66) to be a yellow ground. It is a pure white colour. It is also said to be raised by Mr. C. Turner; this is an error; it was raised by Mr. Culverwell, of Thorpe Perrow.—S. A.

Bijou Chrysanthemum.—This is one of the latest flowering of all the Chrysanthemums. It was the only one in really good bloom here during the first week of the new year. The blooms are about the size of a crown-piece, quilled like an Aster, and bright lilac. Owing to its lateness it merits general cultivation.—J. MUIR, Margam.

Names of plants.—*B. P.*—1, Abutilon vexillarium variegatum; 2, Lardizabala britanica; 3, Peristrophe speciosa; 4, Alonsoa incisa.—*G. M.*—Dendrobium primulinum (fine variety).—*W. B.*—Odontoglossum Lindleyanum, Cypripedium pardinum (rare species), species of Epidendrum.—*Forbes.*—We doubt if it is possible to name trees correctly from twigs. Can you not wait until your tree or shrub is in flower or leaf?—*T. Mackay.*—1, Veronica Andersoni variegata; 2, species of Sempervivum (tender); 4, Helleborus abschasicus.—*Alpha.*—1, Maranta zebra; 2, Aspidistra lurida variegata; 3, Amaryllis reticulata; 4, Cyperus alternifolius.

COMMUNICATIONS RECEIVED.

J. G.—Berkshire.—A. D.—J. C. C.—A. T. R.—W. M.—O. M.—E. H.—W. J. S.—J. S.—W. M.—W. T.—Alpha.—J. T. C.—W.—Peregrine.—W. C.—R. G.—J. D.—W. W. H.—D. B. C.—W. E. G.—W. J.—F. H.—T. A. H.—T. W. B.—B. J. B. B.—W. M.—J. N.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

CONCERNING GARDEN DESIGN.

Formal edgings destroy the good effect of many gardens, particularly in ground of natural and informal design. Where permitted at all, the situation should call for them, as in a true terraced garden, and then they should be of the best stone possible under the circumstances. Formal edgings of mean pattern—tiles, ropes, &c.—are never admissible in any garden for any purpose. Far better, and more easily procured in many districts, are thin stones, which are set on edge more easily than cast tiles. Over a large area of the land some kind of stone naturally cloven into a useful size is procurable. In other districts flints are common; half sunk in the ground, and with rock plants running among them, they are prettier than any form of cast edging. Even bricks half sunk are better, and well fitted for the kitchen garden. If it is not possible to do better, use a live edging of Box or some rock plant. Stones get so prettily mossed over, and are so friendly to alpine plants, that they often may be said to be live edgings.

Variety.—There should be no limit to this consistent with beauty and repose. There need be no limit to variety, considering the rich stores of living things we have from every part of the world and the endless difference they show, and not merely among themselves as species. A single kind often has striking differences, according to the varied soils in which it grows. The still greater variety of aspects, elevations, or climates in which it is hardy will influence it more. A tree may pass without notice in one country and be grand in another.

Plantations should not be hard, angular, or square in outline—a rule good always, and for the sake of near views its truth is fully seen in bold and diversified country, where the outlines of the plantations are what strike the eye most. Excellent work in planting may be weakened in effect by want of attention to this point, as may be noticed in the woods on the hills near Bangor, as seen from Beaumaris, and in many other places. In the case of established plantations it is not difficult to break the outlines artistically by letting bold, chosen groups stand without the true boundary or fence of the plantation. Such groups, or even small groves, would be no disadvantage, but a gain in the grazing fields to which so much of our hill and other land is devoted.

Simplicity.—All other arts depend for their success to some extent on cost and labour. In the garden landscape the highest success results from simple methods—from abolishing costs and complications instead of creating these. Given the understanding and the observing eye, we shall have beauty at less pains than ugliness. But this is only possible where gardening is a reflex of Nature in its happiest aspects, and not a transferring to the ground of the "decorator's" dreadful and profitless art. Keep him to the fire-shovel, side-board, or clock if he "must live," though we prefer even these things without his mark upon them.

The colours of rocks in gardens.—

These should be quiet and low. It may seem a rule not often called for, but as I have, the day I wrote this, seen over a dozen rockeries of a staring hard white colour, it is not so. In certain parts of the country it is the fashion to choose colours of a glaring character for this purpose. In parts of Lancashire where smart villas abound it is almost the rule to have these white staring rockeries against the red brick houses! Granting that the only material obtainable was of a bad or showy colour, it would be then possible to soften its effects by using only the best stones, and by burying all but the best points of these, and then softening them with the abundant rock-plant life. In any case, one could avoid using stones at all—not a bad rule where the making and planting of a rock garden are not understood.

Ferns.—Graceful and new effects may be developed in foregrounds by drives through glades, and in many other positions by the bold use of hardy Ferns of the larger kind. The Bracken we see everywhere; but some of the others are more graceful in form, and delight in the partial shade of open woods and drives, and even do in the sun. But few will for a long time practise this, or perhaps understand it, unless they see the fine effect of a colony of some bold Fern (other than the Bracken) in possession of a glade. Then would come in the opportunity for associations with wood flowering plants, according to the nature and size of the Fern. Up to the present time Ferns have, as a rule, been stowed away in obscure holes, and never come into the garden landscape at all. But not only can they give us new and beautiful aspects of vegetation in the garden landscape, but even in parks and ornamental woods of the largest class. The bolder kinds should be selected and multiplied, and the fitness of the position to the Fern must be considered.

Water.—There is no situation where clear running water may not be made a beautiful as well as healthful thing, and the opposite in all ways of the stagnant water—ugly. Artificial water is wrong when it is at all stiff or mean in outline, small, too near the house, unclean, mud-nourishing. The greater number of garden artificial waters are of this class—foul, expensive to clean, occasionally dangerous from steep margins, lawn-destroyers. Artificial water to be good must be large, clean, deep, bold, flashing light in the open, not near dwellings. It should be only attempted where there are means to secure the best results.

Artificial water should not be formed in the immediate neighbourhood of fine natural water, be that river, lake, or sea. I have seen a variety of instances of the violation of this rule, and with invariable bad effects. Artemus Ward's moon was very funny in the Egyptian Hall, but with all his drollery he would not present it to us in the open air. Some public gardens placed on the banks of fine rivers indulge in the weakness here pointed out.

Natural water should be seen. In an island country, seamed, too, with inlets and rivers, the many beautiful aspects of natural water should be jealously brought into every garden picture. The fashion of over-planting the immediate surroundings of the house, however, often leads to fine views being lost in part or whole. The frequent neglect of woods and plantations, too, leads to many bright river, bay, and sea scenes being obscured or hidden.

GARDENING CATALOGUES.

LITERATURE has several departments that are comparatively unimportant, but in which success can only be attained by those who have a special aptitude for the peculiar kind of work required. Such aptitudes, at times amounting almost to genius, seldom make their possessors famous, because of the obscure and confined sphere in which they have to be exhibited. The gardening catalogue supplies a case in point. We do not know the authors of these astonishing works, and few people, it is to be feared, appreciate their literary merits. The ordinary reader selects his seeds and his bulbs while glancing carelessly through the catalogue, and has no idea that he is passing line after line and page after page of brilliant English, remarkable for its unflinching relevancy to the ends the writer has in view. The spring catalogues are now appearing with the gayest of colours upon their covers—the early butterflies of the literary year. Let any unprejudiced critic read a few of them as carefully and lovingly as he reads his Theocritus and say whether this estimate of them is unduly favourable.

It is in diction that the author of the gardening catalogue most signally excels. His vocabulary is full, and he knows all its resources. His mastery over the adjective, his favourite part of speech, is nothing less than astonishing; he wields it with an amazing power and discrimination. Nevertheless, his well-ordered phalanxes of words are marshalled under the most harassing conditions. He must bestow his commendations so judiciously that the customer may find reasons for purchasing every item in the catalogue. The new alba sub-variety must not be so extolled as to make the old rubra (of which there is a large stock in hand) unsaleable. He must indicate, in one sparkling sentence, the satin-like texture and earliness of the alba, and in another the hardness and richness of that "grand old variety," the rubra. He must point out fine shades of distinction (for many of the varieties named by the florist and seedsman are quite undistinguishable to the eyes of the public), and he has consequently to deal with such subtleties as the difference between bronze primrose and primrose bronze. Yet, at the same time, he must avoid much repetition, although he is writing a work in which a good deal of repetition might be forgiven. His office is to charm and allure as well as to enumerate. He must conjure up before his readers the beauty of the garden plots, the scent and colour of the flowers; the burly Savoy, gemmed with diamond drops, the shining Tomato, with its ruddy interior succulence. And so efficiently does he do this that one might imagine him an enthusiast crying out, like Mahomet, "Bread is the food of the body, but Narcissus is the food of the soul." One can see that he regards the prices that follow his descriptions as mere accidents of a cruel world. They are the drossy beds of earth by which his beloved flowers have to be supported. Alas, that it should be so! Take up a gardening catalogue, open it at any page, and you will find traces of the true poetic afflatus. This flower is of a "velvety deep violet," that "plum-purple, with a pencilled throat." Mr. Swinburne might be proud to claim such alliterations as these. Our minor poets, at least, can show nothing so fine as "golden-marbled foliage," "rose, suffused with lake, flamed with carmine-amaranth," or "intense glowing crimson, deliciously fragrant." The author of the gardening catalogue may possibly not originate those parts of the botanical description which mark the gardener's sub-varieties, but they are certainly done by a kindred spirit. What majesty there is in the long roll of superbissima, of atropurpurea, or of giganteum roseum superbum—what suggestions of richness and vividness in rubro-cerulea or orientale splendidum! When the vegetable department of the catalogue is reached, the poetic style will be found to be well sustained, but the tone is very properly changed. The beauty of the vegetable is more robust and masculine, and requires a bolder treatment. The varieties are named in trenchant Saxon. All is large and heroic. We are among

Champions, Long Swords, Goliaths, Giant Supremes, Conquerors, Defiances, and the like, who are "robust," "stout," "hardy," and "prolific." The softer shades are given by tender allusions calculated to make the mouth water. This has a "rich, melting, and delicious flavour," and that is "crisp, nutty, and pungent." A Broccoli is described as "glorious, magnificent, and white as snow." What is the great office of poetry but to ennoble the common things of life?

The pictures that accompany this letter-press cannot be said to be equally artistic, especially when they are coloured. They are deficient in reserve and refinement. It is to be feared that they represent the ideals of the gardener rather than those of the world of taste. The flowers are in common masses, or if solitary are enormous individually. They grow in shapes as formal and neat as those of a clipped Yew hedge. No flower, or leaf, or petal dares to perk up and mar the clearness of the outline. The Dahlias might be diagrams of bead cushions, done in colours of the most intense crudity. Verily in these pictures no trouble is spared in putting the rawest and most inharmonious colours together. That Petunia would irritate the mildest bull going. The vegetables, again, are massively symmetrical and inconceivably prolific. The Cucumbers are like umbrellas without handles, and the frame is choke full of them. The Potatoes resemble bolsters or cannon balls. The Asparagus is monumental—a cluster of pillars with a cincture. The Cabbages are tightened out with heart until they look uncomfortably plethoric. The rows of Peas are so crowded with pods that only a leaf here and there is visible; an opened pod is depicted, inside which is a row of ten Peas of the size of marbles and as regular and close as a fine set of teeth. The Rhubarb might shade armies. It is possible that such things are to be seen in "our experimental grounds;" the æsthetic amateur will not be altogether sorry if he cannot reproduce them in his garden.

Yet, in spite of its illustrations, a gardening catalogue is not unpleasant reading at this time of year. The garden is damp and dreary; there are a few Primroses, an old Polyanthus, and a few Snowdrops, but these are only oases in the general bareness. Seated by a crackling fire, with the gardening catalogue in his hand, the amateur may enjoy to the full the pleasure of imagination. His old favourites will appear in all their summer bravery—his lowly Pansies, his stately Lillies, his Carnations spicing the warm air. To these he will add such images of new and untried plants as his skillful guide knows well how to suggest. And should his *Adoxa splendissima* not turn out all he had expected, no one can deprive him of his pleasant anticipations.—*Globe*.

ENGLISH NAMES FOR PLANTS.

REFERRING to the controversy on this subject, it has struck me as somewhat singular that while no objection has ever been made to the free use of popular English names for beasts, birds, and fishes, such a violent outcry should have been raised against the endeavour to extend and improve our very defective English nomenclature of plants. No naturalist, so far as I am aware, has ever insisted on the advantages (?) of using scientific names when anyone speaks or writes about the water rat, the prairie dog, the hedge sparrow, the sea swallow, the fresh-water herring, the sand eel, the sea mouse, &c., none of which belong to the genera or species after which they are named. Why an exception should be thought of in the case of plants is, to say the least of it, not very clear, as there is no greater necessity that anyone should employ the term *Cheiranthodendron pentadactylon* in speaking of the Hand plant of Mexico than that he should use the words, "*Ornithorhynchus paradoxus*" when he means the water mole of Australia.

To object to a new and appropriate name for a plant merely because it is new does not seem very reasonable. Like the lady of whom Byron wrote that

Often she was, but had been very young

the oldest of the accepted names must once have been very new, and if everybody in times past had been of the same opinion as some people of the present day, we should now have no popular names at all.

Many of the new names which have appeared in THE GARDEN were absolutely needed for plants which previously had no popular English names, and others are decided improvements on older names. As an instance in which it is a clear gain to "ring in the new, and ring out the old," I may mention Torch Lily, which I should think few would hesitate to adopt instead of Red-hot-poker plant. It would be simply frivolous and vexatious to object that it is not a *Lilium* or Lily proper while we retain such names as Water Lily and Lily of the Nile. I observe that the outcry is almost wholly confined to a few "irreconcilables" in this country. The more sensible Americans, instead of standing still or retrograding, are "going ahead" in this, as in every other matter, and originate and use vernacular names for plants whenever they want them. I trust THE GARDEN will not be discouraged by the opposition met with from "going ahead" also in this direction. It will have the support of everyone who desires that our plant names should be expressive and intelligible to the general public, to whom the entire system of "scientific" names is as unmeaning as the cabala of the rabbins or the chopped Latin names of drugs in a medical prescription. It is altogether in the interest of the public at large that every plant should, if possible, have a well expressed and appropriate popular name; and he who labours to attain this end deserves the gratitude of those for whose benefit he is exerting himself.

MARSH MARIGOLD.

TWO RARE AMERICAN PLANTS.

STREPTOSOLEN OR BROWALLIA JAMESONI AND SHORTIA GALACIFOLIA OR CALIFORNICA.

In the second part of the *Révue Horticole* for the current month is given a coloured plate of the first named of these plants, with description by M. E. André, and a woodcut of the second with description, extracted from the *American Agriculturist* by M. Jean Sisley, of Lyons. The *Browallia* seems to be quite the most showy and ornamental of the small family to which it belongs, and was first introduced some thirty-four years ago by Messrs. Veitch, to whom it was sent by their collector, Mr. W. Lobb, from Ecuador, where it was first discovered by Hartweg. It was then much admired on account of its bright orange tubular flowers with lighter coloured throats, and coloured plates of it appeared in no fewer than five of the leading horticultural works of the day, commencing with the "Botanical Magazine," where it is figured vol. lxxvii., tab. 4605. It has since, however, been for many years lost to European gardens till recently re-introduced by M. André, whose stock has passed into the hands of that well-known florist, M. Victor Lemoine, of Nancy, by whom it will be distributed during the present spring, and may be looked upon as quite an acquisition to our stock of hardy ornamental greenhouse plants, even if it do not prove sufficiently hardy (as there is every reason to hope it will) to bed out as an ornament of our summer borders. The name of *Streptosolen*, under which it is figured in the *Révue Horticole*, was given to the plant by Miers in his work on the plants of South America, and has also been adopted by Bentham and Hooker in their "*Genera Plantarum*" as most correct.

Shortia californica or *galacifolia* is a native of Dowell County, North Carolina, where it was discovered as recently as 1877 by Mr. G. W. Hyams, and named by Professor Asa Gray after the late Dr. Short, of Kentucky. It belongs to the small family of *Diapensiaceæ*, and is an evergreen herb, producing with great freedom large, pure white flowers, the petals being sometimes smooth and sometimes irregularly fringed. Seed of this interesting plant can be obtained from the well-known Paris seedsmen, Messrs. Vilmorin, 4,

Quai de la Mégisserie, and plants from Messrs. Woolson & Co., of Passaic, New Jersey.

W. E. G.

FRUIT GARDEN.

PEAR GROWING FOR PROFIT.

ALLOW me to offer a few remarks on Pear growing for profit from my own experience. I have grown a good many sorts of Pears both on the Pear stock and the Quince, and also both as pyramids and trained horizontally on walls, the branches in the latter case being three courses of bricks apart. The two most profitable kinds with me on walls are Glou Morceau on the Pear and Winter Nelis on a south wall on the Quince. I have the latter on both stocks on a south wall, but the quantity and quality on the Pear stock bears no comparison with those grown on the Quince. The trees on the Quince are short-lived compared with those on the Pear stock. I am now replanting those on the Quince I planted twenty-four years ago, while Glou Morceau on the Pear is a model of health and fruitfulness; each sort bears so freely as to necessitate the fruit being generally well thinned, and the summer growth is to a great extent regulated by the amount of the crop. It is also left on to keep off the net which is always used to protect the fruit from being bird-pecked, and remains on as long as possible, thereby retarding the ripening. Bergamotte d'Esperen is also a good late free-bearing sort. For pyramids I find the best are Doyenné du Comice, Louise Bonne of Jersey, Le Curé, Comte de Lamy (on the Quince), Huyshe's Victoria, Williams' Bon Chrétien, Duchesse de Angoulême, Knight's Monarch, and Madame Treyve (on the Pear). I have not gone into the cordon system, as it was not the fashion when I planted the trees just named. Your correspondent (p. 545) says: "For exhibition purposes this is the one to follow, as a blind man could pick out cordon grown fruits." I have nothing to say against this way of training, but I am still waiting to see the horizontal and pyramidal systems surpassed. I have grown Beurré Clairgeau 20½ ounces, Doyenné du Comice 20 ounces (shown at South Kensington), both on the Quince as pyramids; Easter Beurré, Pear stock, 21 oz.; Glou Morceau, do., 15½ oz.; Van Mons Leon le Clerc, do., 14½ oz. Chaumontel, Quince stock, 14 oz.; Beurré Rance, do., 13½ oz.; and Winter Nelis, do., 8½ oz. The above were a few of the finest fruits I weighed of one season's growth, and they only had ordinary treatment, as given here. I recommend Glou Morceau especially, as it is a good bearer and keeper (last year I had it until April), and I have had 6s. per dozen returned from Covent Garden for my best fruit of this sort. About three years ago last autumn two eminent horticulturists, who were making a tour through the south-western counties, were surprised at the Pear crops produced here, and remarked that they had seen nothing to equal them that season. My own experience is that good crops and fine quality depend more upon the culture and a selection of the best sorts than on any particular system of training. From a pyramid of Doyenné du Comice I was awarded a first prize in the class of any sort at South Kensington two years following, there being respectively twenty-seven and twenty-one dishes against mine.

J. E.

Huyshe's Prince Consort Pear.—Mr. Allan (p. 49) strongly recommends the planting of this Pear, but I do not think it is advisable to plant it in cold clay subsoil. I planted a pyramid of it a few years after it was sent out, and it proved a complete failure. It never ripened, not even in the most favoured summer. I grafted it on a Beurré Rance on an east wall and the result was the same. I had some scions given me in 1878 from a tree the fruit of which was as good as that which Mr. Allan describes. The tree in question was a pyramid, growing on a light soil with a sandy subsoil, and the tree on which I worked the scions was on a south-east wall. The soil was free-working material, but still we had

the cold clay subsoil. The Pear on which I worked was Broompark, but the result was the same as that already named. In 1881 it bore several fruit, but none ripened. I have no doubt of Mr. Allan's success on his warm, friable loam, but I should not advise anyone to plant it on cold, wet soils. The place to which I refer is Barningham, about eight miles west of Gunton.—E. S.

FRUITS IN SEASON.

Kinds of Fruit.	January	February	March	April	May	June	July	August	September	October	November	December
Apples
Almonds
Apricots
Blackberries
Bilberries
Bananas
Brazil Nuts
Bullaces
Cherries
Cranberries
Currants
Chestnuts
Dates
Damsons
Figs
Filberts
Grapes
Gooseberries
Hazel Nuts
Lemons
Medlars
Melons
Mulberries
Nectarines
Oranges
Peaches
Pine-apples
Plums
Pears
Prunes
Quinces
Raspberries
Raisins
Strawberries
Tomatoes
Walnuts

Vegetists' Dietary.

JOSEPHINE DE MALINES PEAR.

I CAN assert from experience that in the matter of ripening this Pear does not differ from other Pears. To me the vagaries of Pears are inexplicable. I find after the middle of November that I can never rely on the reputed ripening time of any Pear. A variety reputed to ripen in December will sometimes be fit for table in the early part of November, and sorts stated to be ripe in March and April will sometimes be ripe in January, and occasionally they ripen in just the opposite direction in point of time and season. I am now sending to table Beurré Rance in good condition, while, according to the most reliable sources of information, the proper season of ripening of this sort is from March to May. I remember nearly twenty years ago being shown a grand dish of this Pear in the month of May by Mr. Page, then gardener at Combe House, Croydon. He grew pyramid Pear trees at that time better than I have seen them either before or since, and some day I may give an account of his practice. He told me that Josephine de Malines could not be relied upon to ripen at the same time every season. Mr. Rust, of Eridge Castle, did at one time (if he does not now) think very highly of Ne Plus Meuris as a sort to ripen in the month of February. Here it is fit for dessert very often in December, and always in January. I can make no attempt to describe why this should be so. Probably soil and climate and varying seasons have much to do with it. The shrivelling of Pears after they are taken to the fruit room is another enigma; treated in exactly the same way, some Pears will be very much shrivelled one year and not at all the next. All that I know is that it is a difficult matter to tell when Pears are in just the right condition to be gathered, and that to secure the whole of a crop from any particular tree in good condition for storing

the fruit must be examined two or three times, and those only that leave the tree without any effort to pull them off should be picked. Where, however, there is much fruit to be stored, this is a troublesome business, and what is more in the case of late varieties it is attended with some risk, for an unexpected frost may come and spoil the crop.

J. C. C.

FRUIT PROSPECTS.

TIME alone can tell how far forecasts in this matter may prove correct, but from a trade point of view there is some reason for discussing the probable condition of the fruit crops now, and an illustration of the value of so doing occurs in my own locality, where some 30 acres of market orchard are just being offered for tenancy by public tender, and where the chances of getting a crop of fruit in the coming season or otherwise may make all the difference in the obtaining of liberal offers as to rent or none at all. This large orchard presents also an admirable illustration of the nature of the vicissitudes which attend market fruit growing. It forms a portion of the once famous Hounslow Heath, a wide expanse of the county of Middlesex that extended from Hounslow to Staines in one direction, and was some half-dozen miles broad. On this heath the inhabitants of the different parishes spread over the ground enjoyed the right of cutting turf and many other privileges. When the heath was enclosed, portions of the land were allotted to each parish, and this particular 30 acres were enclosed, and let at a moderate rental to a market gardener, who broke them up and planted them as a market orchard. In time the orchard, having largely increased in value, and the original lease having run out, and as the land was held in trust by the parish officials on behalf of the poorer inhabitants, the larger portion of the rental being expended in coals for distribution in lieu of the firing once obtained from the heath, it became a matter of importance that a much larger income if possible should be obtained. The land was in the present case submitted to public tender, and the old tenant agreed to give the very large rental of £10 per acre, thus representing to the trust an income of £300 per annum. That such a crushing weight could be borne by any tenant was impossible, and in a few years, by mutual consent, the rent was reduced to £8 per acre, at which point it stood. Even with this reduced amount things went on from bad to worse; payment of rent became irregular; and finally, a few months since, the tenant, a broken-down man, died with some two years' arrears of rent hanging a veritable millstone round his neck. But a crushing rent allied to heavy rates and taxes was not alone the cause of failure. Fruit crops are now, alas, far more frequently failures than successes, and with little return it was difficult to pay for the needful labour and manure, much less a heavy rent. The case presents a good example of the haste exhibited some few years since on the part of many persons to get into the market trade, because it was then thought to be a great money-making business. The past few years have served to explode that notion, for no capital or skill can contend against the unfavourable character of our climate; as long as the seasons are unfavourable to the production of hardy fruit crops, capital and skill may contend in vain.

To any prospective tenant of this poor's land market orchard, as indeed to myriads of tenants of market orchards in possession, the probable character of the coming season's fruit crops becomes of the first importance. In all open land where ordinary vegetable or corn crops are grown a return of some sort always more or less profitable is assured. If the labour needed in cultivation is greater the risks are less, because corn on the one hand, and Potatoes, Peas, Beans, Cabbages, and similar products on the other, are almost always sure to give some return. But whilst these crops are dependent upon the state of the summer and autumn weather (and as a rule those seasons are not often unfavourable) the fruit crop is so contingent upon the most fickle and too often of the year the most inclement of all our growing

seasons, the spring, that it is thus always rendered a far more uncertain element in the grower's calculations than are other crops. No matter how delightful a summer may follow, how warm and how ripening, if sharp frosts and bleak, biting east winds have prevailed in April and May, the fruit crop will probably prove nearly *nil*. Just now we have to regard not merely the present look of the fruit buds on standard trees, which are far from being plump and promising, but the condition of the weather last autumn when the ripening of the wood on the trees and the maturing of the fruit buds should have been in active operation. The autumn was, as we remember, dull, cold, and lacking sun heat, presenting conditions that could hardly have helped to render the trees fertile. We have since had a mild, soft winter, with an excessive rainfall, and this will too probably be followed by a cold, treacherous spring. Should that be so, the prospect of a good crop of hardy fruits becomes dim, and the position of large market growers of fruit anything but enviable. A. D.

Quick returns in the way of Grapes.

—“Peregrine” seems to think that Mr. Rochford's Vines (p 47) support the practice which he recommends, viz., that of cropping one-year-old canes of young Vines their whole length. He is, however, quite mistaken, as their treatment has been as much opposed to that which he advocates as it well could be. They were planted two years ago last spring, cut back to about 3 feet from the bottom in the winter, and such of them as I mentioned were allowed to bear the few bunches as stated the following summer. Last winter the rods were all shortened to about 8 feet from the bottom and bore the crop described; the coming season they will be fruited their full length up to the ridge, about 15 feet. The houses, which are span-roofed, are 25 feet wide and the Vines are planted on each side of the house. It will thus be seen that Mr. Rochford's course of treatment does not correspond with “Peregrine's” plan of leaving the rods their full length the first year, a practice by which he will have some difficulty in convincing Grape growers there is anything gained. As I said when he first broached the subject, if the young canes are shortened to half the length of the rafters, there is still length enough of rod to bear as much as the roots of Vines of that age can support, beyond which there is no advantage. Market growers are keenly alive to any treatment that will improve their Vines so as to enable them to bear the full weight of which they are capable in the least possible time, and if there was any gain in retaining the young rods their whole length the first season, they would undoubtedly do so.—T. B.

FLOWER PAINTING.

I NOTICED some remarks on this subject lately in THE GARDEN, under the heading of “A Lily Screen.” The failure of ladies in flower painting is greatly owing to the useless and trifling style of drawing which still lingers in boarding schools, while in schools for the poor a practical system is taught and a useful power imparted. In too many middle and upper class schools only bad copies of bad drawings are produced, and when the power acquired in years of supposed study comes to be tested, it is found to be practically wanting. It is a frequent occurrence for pupils who have taken prizes for drawing and painting in private schools to be totally unable to make an accurate drawing of a few simple letters without the aid of measurement. Accuracy is the alpha and omega of all drawing. When Giotto was asked to furnish the Pope with a drawing as a specimen of his ability in competition with other artists, he took a panel, and with a brush charged with colour drew on it a perfect circle with one turn of the hand. His Holiness knew what the drawing meant, and selected Giotto as his artist. Painting is only drawing with the brush. Ladies who wish to learn flower painting should follow the simple, straightforward course of the Department of Science and Art, which begins with outline from

outline, and proceeds from that to outline from casts, then a single leaf from Nature, then a group of leaves, then a whole plant. The first stage, drawing from ornament, is indispensable, as the forms of Nature are too subtle to be seen by the beginner. Colour and light and shade are taught by the same gradual steps. As every stage is tested by annual examinations, the pupil runs no danger of imagining, as is too often the case, that his or her drawings are works of art, fit to be placed before the public before the foot is well on the bottom round of the ladder that leads to excellence. There is no more pleasant form of work for ladies than flower painting, and none which finds a more ready sale in all its forms, from flat or decorative treatment, giving only the lines of growth and the colour with a little shading to explain the forms, up to drawings which are works of art. Any attempt, however, to learn flower painting by beginning to paint from copies or Nature without previous training is certain to result in failure, being simply trying to jump to the top of a house instead of going up the stairs.

J. D.

HEATHS AND THEIR CULTURE.*

THE large Natural Order Ericaceæ (Heath family) is one of especial interest to the horticulturist owing to the number of useful garden plants which it contains. The genera *Rhododendron*, *Azalea*, *Andromeda*, *Kalmia* and many others, along with that to which my remarks will be chiefly confined, are among the most popular of cultivated plants, and from the manner in which they lend themselves to the requirements of the cultivator and hybridiser, it seems not unreasonable to expect that still greater garden treasures may be worked out of the pliable material of which these plants have proved themselves to be made. For the sake of convenience, it may be best for me to divide my paper into two parts, the first of which may be devoted to a short history of the genus *Erica*, and the second to the cultural requirements and other special garden matters in connection therewith.

The genus *Erica* contains about 400 species scattered over the cool regions of Europe, Asia, and Northern Africa, reaching their headquarters in the extreme south of the last mentioned continent. Taking the British species first, we have (exclusive of the common Ling, which is not a true *Erica*) five distinct kinds. These, however, are common European plants, being found in just as great abundance in many parts of Europe as on our own moors and hill-sides. Exclusive of those which are British, there are not a dozen species found in Europe or Northern Asia, the whole of those remaining being natives of the Cape of Good Hope. In the New World *Ericas* are entirely unrepresented, with the exception of the common Ling, which is found, though rarely, in Newfoundland and Massachusetts. Francis Masson, a collector sent out by George III. through the representations of Sir Joseph Banks, was the man on whom the pleasant duty devolved of introducing the Cape Heath to this country, and of the many beautiful and useful varieties introduced by him we have abundant testimony in the "*Hortus Kewensis*" and other books of that period. In a short time the rich colours and beauty of these new introductions caused them to be in great demand. At that time Kew Garden was a private garden belonging to the royal family. Even then, however, the collection of plants which it contained was a very fine one, owing, doubtless, to the many additions that were frequently made by the government botanists sent along with various expeditions to different parts of the world. Masson sent his seed to Kew, and it may be interesting to mention that in 1810 no fewer than 186 species of Heaths were in cultivation there. In those days Messrs. Lee and Kennedy, of Hammersmith, also paid much attention to the introduction and cultivation of

Cape Heaths, and gradually the immense popularity won by these plants at exhibitions and elsewhere resulted in their being taken in hand by various other nurserymen. Messrs. Rollisson, of Tooting, grew great numbers of them, and in addition managed to raise many very handsome hybrids, the majority of which are still in cultivation. Altogether they raised ninety kinds, of which some of the best known are *E. Cavendishiana*, *Clowesiana*, *eximia*, *Archeriana*, *hybrida*, *inflata*, *tricolor*, &c. Other workers in the same field were McNab, who made the Edinburgh Botanic Garden famous through his well-grown collection of Heaths, but which now, alas, are almost all gone. Turnbull more recently raised many hybrids and grew a large collection; while Baines, Ward, Williams, and others have been highly successful in the cultivation of these beautiful plants. According to Andrews, whose finely illustrated works on the Heath doubtless played a not unimportant part in making the genus known, about 300 species have been introduced into this country, and from these it may safely be said quite an equal number of hybrids and varieties have been raised. The superiority of the hybrids over the true species has caused them to gradually push many of the latter out of favour, so that if one takes up a catalogue of cultivated Heaths, by far the larger proportion will be found to be of garden origin. Horticulturally this is no doubt a gain, yet we must bewail the loss of many of the curiously-formed and botanically interesting species figured in Andrews' works.

The Kew collection of Cape Heaths contains at the present time about 140 kinds, 45 of which are good species, and the rest hybrids or varieties. I do not think there are many species in cultivation in this country which are not in the Kew collection, though there are hundreds of varieties and hybrids to be met with, many of which bear a very close resemblance to each other. Until about fifteen years ago *Ericas* and other hard-wooded plants were generally cultivated, and there were many large nurseries devoted almost wholly to their propagation and growth. Since that time, however, the taste for plants of this character has gradually declined, and although one sees fine collections of Heaths now and then at exhibitions, it, nevertheless, is abundantly evident that hard-wooded subjects are being displaced by plants perhaps a little less difficult to manage and equally beautiful. To the true lover of plants, however, the richness of colour, gracefulness of form, and, when well grown, pleasing habit of hard-wooded plants must always be a source of pleasure, and therefore, it is to be hoped, we shall always be able to see them, if not in gardens generally, surely in such places as Kew. There, if anywhere, these old-fashioned garden plants ought to find a home. But, reverting to the Heaths, a visit to Covent Garden Market in the autumn mornings or to many of our market nurseries during the summer months will show that some members of this family at least are still in favour. The hundreds of thousands grown yearly in nurseries about London afford evidence that they are in request. These consist mostly of the freer growing kinds. The system of cultivation in general practice among market growers, while it produces a marketable plant in a marvellously short time, is, as a rule, a stuffing, cramming, forcing-up sort of treatment which causes the plants to overgrow their strength. The richest collection of *Ericas* of which I have any knowledge is that at the Hanover Botanic Gardens, where they are grown well under the loving treatment of the present director, Mr. Wendland. This garden has long been famed for its Heaths, the present director's father having paid much attention to them, describing and figuring great numbers of kinds.

The home of the Heaths.—Cape Colony has an estimated area of 201,000 square miles. Its greatest length from N. to S. is 600 miles, and its breadth 450 miles. Roughly stated, it is about three times the size of England. The interior of the country consists of table-lands, which range from 1000 feet to 4000 feet high, and are en-

circled by a chain of mountains parallel to the coast and distant from it about 150 miles. The highest peak on these mountains is Mount Compass, which rises to an altitude of 10,250 feet. The central plain is an arid sandy desert, 100 miles across and 3000 feet high, nearly bare for nine months in the year, but after the rains it suddenly becomes covered with brilliantly-coloured flowers—Irids of all kinds, *Gladioli*, *Ixias*, *Sparaxis*, *Babianas*, *Amaryllis*, and many other bulbous plants peculiar to that country all springing from the bare glaring sand. Lower down the *Pelargonium*, *Protea*, and other moisture-loving plants are found in great abundance, while scattered over the whole plain, on marshy lands as well as in dry places, on the hill-sides and reaching to the tops of the highest mountains, are the Heaths—here a small creeping kind nestling by the side of a stone; there a large shrub standing boldly up against the heavy storms and fierce sun, as various in the shapes of their flowers as in their shades of colour, everywhere meeting the eye, and always gay. As might be expected, these plants are so common at the Cape, that the natives have no name for them other than one signifying bushes. Burchell, a botanist, who travelled over a large portion of South Africa, speaking of its flora, says: "All that I had pictured to myself respecting the riches of the Cape in botany was far surpassed by what I saw in one day's walk. At every step a different plant appeared, and it is not therefore an exaggerated description of the country if it should be compared to a botanic garden neglected and left to grow in a state of nature, so great was the variety everywhere to be met with. As I walked along in the midst of the variety and profusion I could not but regret that at every step my foot crushed some beautiful plant. To give some idea of the botanical riches of the country, I need only state that in the short distance of one English mile, though the most favourable season had passed and many of the bulbous and herbaceous plants had disappeared under the influence of the drought, I collected in four and a-half hours 105 distinct species, and I believe that more than double that number might have been found there." I might go on to some length pointing out the various and many beautiful plants which in addition to Heaths are found in this botanically rich country, but sufficient has been said to give some idea of the country itself and the natural conditions under which Heaths are found growing. Of course it will be understood that the Cape summer is our winter, and that the climate in the coldest month at the Cape is as warm as our April weather—warmer indeed than that of recent Aprils. With the exception of the coast lands, where rain falls frequently, long periods of drought are experienced during the warm weather, after which heavy rains are frequent for about three months.

Management of Heaths.—Commencing at the beginning, the propagation of Heaths is an art in itself, requiring for its successful accomplishment much care and attention and treatment of an almost special kind. In large establishments in which these plants are raised by tens of thousands yearly Heath propagation is managed in a very systematic and excellent manner. To walk through some propagating houses at a time when hard-wooded plants are being raised is a treat indeed, and to note the cleanliness and care so apparent and essential in this department if a "large strike" is to be turned out is a lesson well worthy of the attention of all young gardeners. The season for putting in cuttings of Heaths commences in August, and may be practised on through the autumn and winter months until February. Autumn, however, is the best time for putting in the cuttings, as by so doing they have a chance of becoming safe and well rooted before damp and dark weather sets in. The cuttings to select are those wiry little pieces about 1½ inches long found round the base of the plants and clothing the bottoms of the main shoots. When gathered they should be stripped of their foliage from the base upwards about half an inch. Scissors were once used for this purpose, but these are not necessary, the

* A paper read by Mr. W. Watson, Royal Gardens, Kew, before the Kew Gardens Young Men's Improvement Society, January 24, 1883.

leaves stripping from the shoot quite freely if carefully handled. Holding the cutting not too tightly between the thumb and finger, the leaves should be pulled two or three at a pull downwards towards the base. Should the bark come away with the leaves, the cutting may be thrown away, and greater care exercised in the manipulation of the next. After stripping off the leaves, a sharp knife should be used with which to make a clean cut at the base, and the cutting is then ready; 4-inch, 6-inch, or even 8-inch pots may be used, filling them to within 2 inches of the top with clean crocks, over which a thin layer of peat fibre should be placed, and the pot then filled up with a mixture of good fine peat and sand, three-fourths of the latter to one of the former. On this place a layer of clean silver sand and then dibble in the cuttings. These ought not to be placed nearer than half an inch clear from each other, or damp will inevitably prove fatal to them. Water well on the completion of the dibbling, and after the water has drained off the cuttings bell-glasses may be placed over them, and the pot placed in a house where the temperature ranges from 55° to 60°. Wipe the glasses dry about every other morning. Water may be given whenever the sand appears dry, care being taken to allow the water to drain off the cuttings before the glasses are replaced. When rooted, the cuttings will commence to grow, when the glasses should be gradually removed, and the young plants hardened by a little exposure, until finally the pots are transferred to a cool frame to await

Potting off.—This may be done whenever convenient, using for the purpose small pots and a very sandy peat mixture. Pinching the tops out of the young plants may be done as frequently as shall appear necessary for the formation of a bushy little plant. A stake should be given each plant as soon as it begins to make a head. A cool frame, the lights of which may be removed on all fine, bright days and replaced at nights, will be found suitable for these young plants, and afterwards protection from frost, heavy rains, and cold draughts will suffice to keep them healthy and thriving until they are as large as required. For the softer wooded kinds, such as *E. hyemalis*, *E. gracilis*, &c., a less sandy mixture is required than for the harder woodier sorts. Early spring is always the best time for potting Heaths. Pot firmly, and do not give too large a shift, one or two sizes larger than what they are in being quite as much as most Heaths require each year. The watering of these plants is a process on which success or failure largely depends. Many are under the impression that Heaths require comparatively little water from the fact of so many of them appearing to have perished through an overdose of it. Of course, too much water may easily be given, but, supposing the drainage to be perfect and the soil the proper material, water may be given whenever dryness at the root is suspected. Neglect to supply sufficient water is too often the cause of death to these plants, though that is in almost every case attributed to the wetness of the soil consequent on the plant having had a thorough soaking after the mischief has been done. In the warm summer months most Heaths may be placed out-of-doors, where, as a rule, they are much happier than under glass. It may be wise, however, to keep them indoors if one is situated in a rainy or cold neighbourhood, as heavy rains sometimes prove disastrous to many of the kinds.

A cool, airy greenhouse, where plenty of top and side air can be given on all suitable occasions and with a light sunny aspect, is the best house in which Heaths can be grown. A position near the glass, and if possible elevated well above the surrounding plants, so that a free circulation of air may take place all round them, is of great importance. As the specimens increase in size the strongest shoots should be carefully watched and their points pinched out, or they will make a too strong growth at the expense of the lower weaker ones. It is a good practice to overhaul each plant after it has flowered, pinching off the old flowers and cutting back or tying in the most vigorous of the shoots. The staking of Heaths requires a

little practice before one can manage it satisfactorily. It may, however, be well to advise beginners against the practice, too frequently met with as regards Heath training, of placing such a tremendous array of stakes about the plants as to suggest the idea that the stakes are arranged for our admiration rather than being subservient to the requirements of the plant. For my part I object to closely-tied symmetrical plants such as one often sees at exhibitions and elsewhere. The fewer stakes to a plant the better its appearance. Sufficient to support and retain a Heath in the shape in which it grows naturally is quite enough; by supporting the strongest shoots with a stake and looping up any of the straggling smaller ones, we do all that is needed. In the case of some of the softer, freer growing kinds it will be found necessary to cut them back rather freely after flowering, or tall, leggy plants will soon be the result. Some cultivators recommend syringing night and morning during warm weather, but this, I think, a doubtful practice, often producing mildew and misleading one in respect to the state of the soil.

Varieties.—Coming now to the kinds to be recommended for cultivation as being the most useful and ornamental, the first is undoubtedly *E. hyemalis*, a species which grows freely and shapely, and produces large quantities of handsome flowers during the winter months. *E. Wilmoreana* is somewhat similar and also well worth attention, owing to its flowering after *E. hyemalis*. *E. gracilis*, *E. hybrida*, *E. cerinthoides*, *E. persoluta alba*, the *ventricosa* varieties, *E. Parmentieri*, *E. perspicua nana*, *E. colorans*, and *E. melanthera* are also free growing kinds, which will keep up a succession of flower all the year round. I might enumerate a large number of the harder wooded varieties, and then by no means exhaust the list. Specially worthy of mention, however, are *E. jasmiflora*, *E. primuloides*, *E. Macnabiana*, *E. obbata*, *E. inflata*, *E. Jacksoni*, *E. Cavendishiana*, *E. Mar-nockiana*, *E. aristata* and its varieties, *E. Victoriae*, *E. tricolor* and its varieties, *E. Massoni*, *E. Paxtoni*, and *E. opulenta*. A word on the

Hardy or European kinds.—These, though less valuable than the Cape kinds, are, considering their fitness for the shrubbery and the gay appearance of many of them when in flower, by no means unworthy of attention. As in the case of the Cape species, many hybrids and varieties have been raised from these hardy Heaths—many of them superior to their progenitors. Growing, as they do, so luxuriantly in peat, or even in good open loam, and looking so fresh all the year round, and especially during their flowering season, which is generally in the winter months, a selection of these plants may be made highly useful for out-door gardens. The smaller growing kinds, such as *E. tetralix*, *E. cinerea*, and *E. vulgaris*, make good edgings to beds or borders, while the larger sorts, such as *E. arborea*, *E. codonoides*, and *E. mediterranea*, grow into good sized plants, and are useful in the shrubbery.

RECENT PLANT PORTRAITS.

THE number of *Illustration Horticole* for January contains well executed coloured portraits of the following plants:—

Cypripedium Spicerianum.—A double plate (473) showing the back, side, and front of four fully expanded blooms of this beautiful and distinct Lady's Slipper.

Cherry Bigarreau des Capucins (Plate 474).—A fine variety of unknown origin, and resembling the well-known White Heart of our English gardens. The fruit is said to be produced in great abundance, to be of excellent flavour, and to be especially adapted for sending to a distance by the firm consistency of its skin.

Yucca gloriosa recurvifolia fol. var. (Plate 475).—A highly ornamental and apparently vigorous growing variety, with a light red marking on a whitish ground down the centre of each leaf. It is said to be marked in a precisely inverse manner to the variety known as *Yucca rufocincta*.

W. E. G.

MARKET PLANTS.—THE CYCLAMEN.

FEW plants have burst as it were upon the market with greater suddenness and perhaps in greater abundance than the Cyclamen. But a few years ago, and few indeed were those who could grow Cyclamens at all well, whilst moderate was the quality of the flowers. The change made in the flowers of an earlier Persian to a good giganteum compactum is, indeed, remarkable, whilst not more marked is the present superior cultivation which, instead of consisting of turning out a score of specimens from a hundred corms fairly presentable, rather turns out tens of thousands within little more than twelve months' growth from seed of far better plants than the most carefully, and perhaps too carefully, husbanded corms could give not so many years ago. Old Cyclamens have, indeed, gone the way of named herbaceous Calceolarias, Cinerarias, Gloxinias, and similar greenhouse plants. The ready and simple seeding habits of the plant, the ease with which the flowers can be fertilised, and thus the good qualities of a flower strengthened, the exceeding simplicity of culture to ensure success—these things have all combined to revolutionise the culture of the Cyclamen, and to make it not only one of the most popular, but also one of the most widely grown of greenhouse winter flowers. None the less, however, that the Cyclamen is so universally grown are there some of our market cultivators who stand out prominent amongst their compeers as first-class growers, and of these the names of Mr. Richard Clarke, of Twickenham, and of Mr. H. B. Smith, of Ealing, come uppermost. Both of these have not only high reputations as growers, but also have the finest strains in cultivation, the product of much careful selection and cross-fertilisation. In the case of Mr. Clarke, some 20,000 plants are annually raised; it therefore becomes obvious that the opportunities to select flowers of fine quality and plants of good habit are many. The Cyclamen is so ductile in the hands of the hybridist, that any desired character may soon be impressed upon it, and its quickness to reproduce not only the best features of the parents, but advances in quality makes it specially a favourite with growers.

Calling at Mr. Clarke's nursery the other day, I found Cyclamens in all stages—beginning with recently sown seed not yet germinated, some 6000 seedlings pricked out into $\frac{1}{2}$ -inch pots, the product of last September's sowing, as many in small 3-inch pots, the product of a late sowing the previous year held over to make early bloomers next autumn, several thousands in $\frac{1}{2}$ -inch pots, all more or less in bloom, and being run into market as fast as possible, and not least in importance a long, low house full of late plants for March blooming, many of them in $\frac{1}{2}$ -inch pots, and promising to make very fine specimens. It only needed that we should follow a vanload of Cyclamens to market and from there to some of the places where they bloom and then die, to trace the history of the market Cyclamen from its cradle to its grave. Many of Mr. Clarke's largest houses are lean-to vineries, but these seem less fitted for the culture of the Cyclamen than the low span-roofed houses such as the one now full of the late bloomers. To ensure good bloom through the winter a general temperature of about 60° is desirable, but a warm, sunny day in winter will send a large south lean-to up to 90° if care be not taken, and thus the plants are much distressed and the blooms suffer. Extremes of moisture and drought, too, must be avoided, and the soil should be prevented by judicious watering from becoming so dry that the plants flag and thus suffer. August and September seem to be the favourite months for seed sowing. And from the first until in full bloom and ready for market no rest is permitted; the plants are kept constantly growing. Cool frames form the best positions for them in hot weather. A position that is heated and dry may be productive of green fly, and this aphid is a very destructive enemy. Under the old system of keeping corms over several years, and resting them by drying during the summer, the most elaborate

precautions were needful to prevent aphides during the dry state of the root from settling on the young leafage. Whatever some private growers now may do as to the keeping of old bulbs, market men have long given up the practice except in a very few instances where some good variety was kept to give seed. Still, these are not now dried off or rested, only in a very limited sense. With seedlings there is very little risk, and expert growers can tell to a week when a sowing of seed will, under proper culture, give by thousands plants well fitted for sale in the market. A. D.

FRUIT AND VEGETABLE MARKETS.

ABOUT two years ago a long correspondence was conducted in the daily press on the subject of the general dearthness of fruit and vegetables in the metropolis and in some of the manufacturing towns in the north of England. While consumers in those places were complaining of the high prices they had to pay to the retail shopkeepers, market gardeners were lamenting the low price at which they were compelled to part with their produce to the wholesale dealer. The suggestion was made that in the course of intermediary transactions with middlemen the price became unduly inflated; and there would appear to be some grounds for the allegation. The remedy for this state of things would clearly seem to be proper markets. The tendency in the metropolis, at any rate—whence the complaint of the dearthness of fruit and vegetables first arose—is to accumulate, if we may use the term, these articles of food in a few great emporiums, such as Covent Garden Market, and the markets in the Borough and Spitalfields, which are out of the way of the general consumer, so that to reach him they have to pass through the hands of middlemen, being naturally enhanced in price in the process. This system, though it may benefit a certain number of dealers, is a disadvantage alike to the consumer and the producer. If it were in a measure abandoned, the consumer would pay less, and the producer would receive more than he does now. More markets, easily accessible to the general public, therefore seem in our great towns to be one of the requirements essential to the profitable cultivation of fruit and vegetables. This being so, we notice with regret a decision recently given by Vice-Chancellor Bacon in regard to a proposed new market at the East-end of London.

It seems that the Great Eastern Railway Company some time ago resolved to set up a market for the sale of fruit and vegetables on the site of their old station at Bishopsgate, which is about 300 yards distant from the old-established Spitalfields Market. Thereupon the owners of Spitalfields Market, who claim under letters patent granted so long ago as the reign of Charles II. and James II., applied to the Vice-Chancellor for an injunction to restrain the Great Eastern Company from setting up their market, on the ground that their so doing was an infringement of the rights of the owners of Spitalfields Market. The company endeavoured to show that theirs was not a market in a technical sense, but was rather, what they subsequently called it, a *depôt*. It was clear, however, that this contention turned upon a mere play upon words, and that what the company sought to establish was nothing more nor less than a market for the sale of fish, fruit, and vegetables. The real point in the case was whether the market set up by the company at their old station at Bishopsgate was so near to Spitalfields Market as to infringe the rights of the owners of the latter, who, under their letters patent, possessed exclusive right to the holding of a market "in or next to" Spital Square. It was shown that Bishopsgate Station was 300 yards distant from Spital Square; and 300 yards in London, especially in the densely-populated neighbourhood in question, means a great deal more than the same distance in the country; and it was also contended that the accommodation at Spitalfields Market was insufficient for the wants of the locality. On both

points, however, the Vice-Chancellor decided against the railway company, and granted the injunction prayed for. The result, therefore, will be that the company can, at the expiration of a month from the date of the order, no longer use their premises, some of which have been newly erected, or any part of them, as a depot, or warehouse, or market for the sale of fruit and vegetables.

We do not know whether the company propose to appeal against this decision; but if they were to do so with success, it would not be the first of the learned Vice-Chancellor's judgments that has suffered a reverse. However, the decision really turning upon the construction to be put upon a document of title, we have nothing further to say on that point. Nevertheless, it does strike us as somewhat anomalous that a monopoly granted 200 years ago should stand in the way of a distinctly advantageous modern improvement. We have no wish to countenance any infringement of the rights of property, however ancient; but if, in such a case as that upon which we have been commenting, those rights could be extinguished or curtailed upon just compensation being given to the owners, we cannot help thinking that little, if any, private injury would be occasioned, while much public good would be effected.

We are glad to see that, yielding to the pressure of public opinion, and in view of a proposed application to Parliament to sanction the Mid-London Market Bill, the Duke of Bedford has at last resolved to take some steps towards improving Covent Garden Market. The promoters of the bill just mentioned have in consequence withdrawn the measure for the present, although they deem the proposals of the duke to be meagre and unsatisfactory. Nevertheless, they think it right, in the first instance, to give due consideration to the scheme of the owner of the property.—*Field*.

ORCHIDS.

ORCHIDS AT BURFORD LODGE.

IT is only those who have had an opportunity of seeing such a collection of Orchids as Sir Trevor Lawrence has in his garden at the foot of Box Hill can form an adequate idea of what these plants really are when grown to the highest perfection. This unrivalled collection at all seasons more than repays a visit, for there are always flowers to be found in one house or another. It is, however, from about the present time up to about the end of May that the collection is at its best, and during this interval flowers are plentiful in every house—a matchless floral display combining brilliant and varied colours with elegance of growth in a manner difficult to express by words. Not only is this collection marvellously rich in species and varieties, but it contains unequalled specimens—the result of the most skilful treatment. One would think that a list of flowering Orchids in January would not be a long one, but such is not the case, there being here far more than space will admit of mentioning; therefore these notes will only include some of the most remarkable.

Dendrobiums contributed largely to the display, and among them were several noteworthy kinds. In great perfection was that lovely new hybrid D. Ainsworthi, a cross between the well-known D. nobile and D. heterocarpum. It has the bright colour of the former and the delicious perfume so characteristic of the latter; therefore it is exactly intermediate between the two parents in these points, besides being so as regards form, size, &c. Here were some fine plants of it with their bulbs 2 feet or more high, wreathed for half their length with beautiful blossoms. We need hardly remark that this is one of the choicest of Orchids at present, though small plants are procurable at a high price. Very similar to Dr. Ainsworth's hybrid is one raised at Chelsea called D. splendidissimum between the same parents as the former. But there is a perceptible difference in the shades of colour and the form of the labellum, though slight. This, too, was in great beauty,

and with D. Ainsworthi and some very fine high coloured forms of the old D. nobile made a charming group. In the way of D. nobile is D. Dominii, a hybrid between D. nobile and D. moniliforme, raised many years ago. It is pretty, but many would prefer D. nobile pure and simple, or a good form of its other parent D. moniliforme or Linawianum, which, by the way, was uncommonly fine here likewise. It is a most distinct species, very delicate and pretty in colour, and quite different from D. nobile, inasmuch as the labellum is spotless. Of especial interest was another new hybrid variety, the lovely little D. endocharis, which is making its way into all the best Orchid collections. Rarely, if ever, has it been seen so fine as the plant which flowered here this season, each of the bulbs, about 1 foot high, being covered with exquisitely beautiful flowers. They are about 1½ inches across, with milk-white sepals and petals, and a fawn-tinted lip with just a dash of purple on it to lighten it up, as it were. One of its parents is D. japonicum, itself a gem, so that the progeny is capable of being grown in a lower temperature than that in which *Dendrobiums* usually are. An intermediate house seems to suit it admirably. Still another hybrid remains to be noticed; it is D. Rhodostoma, a Chelsea hybrid between D. sanguinolentum and D. Huttoni. It is an improvement on both of its parents, and possesses a beauty peculiar to itself. The flowers are what would be called small for a *Dendrobe* and rather sparingly produced, but they are of wax-like texture, the petals and sepals white, conspicuously tipped with a rich carmine-magenta tint.

D. *Wardianum*, represented by the richest coloured varieties, was hanging from the roof in gorgeous wreaths, and seemed common enough, but not so the white-flowered variety, which is as lovely as it is rare. One can imagine how chaste the colourless flowers of such a large and fine *Dendrobe* as this are, but only an adequate idea of its beauty can be had by seeing it as it was here with flowers in long drooping racemes. Sir Trevor is the possessor of two or three other albinos amongst *Dendrobiums*, such as the white-flowered D. crassinode and D. bigibbum, both charming varieties which will shortly flower. One of the most remarkable of all the Orchids in bloom was what is called the Cobweb Orchid, D. teretifolium, having fleshy cylindrical leaves, from the bases of which are produced myriads of small slender flowers, all matted together with the foliage in a singular way, giving the whole plant the appearance of a big mass of cobwebs. The plant here was a very fine specimen, clothing on all sides a portion of tree stem suspended from the roof. In the East India house in a warm corner was a plant in flower of the D. Goldiei, a near, very near, relative of D. superbiens. It differs mostly in its sepals and petals being less undulated, and by being of a higher colour. Other flowering *Dendrobiums* of lesser note were D. fimbriatum, not the black-eyed (*oculatum*) form, now so common, but the typical with large rich orange-yellow flowers without a trace of another colour. This plant has bulbs 5 feet or 6 feet high, a grand specimen rarely matched. The extremely handsome D. Cambridgeanum, in a square basket suspended close under the roof, had its short, fat, pendulous bulbs studded with golden and black-blotched flowers, which, with the green foliage, make a charming contrast. This species possesses the desirable character of flowering on the young growths, the young foliage of which sets the blossoms off to great advantage. Large plants of the old D. Pierardii hung from the roof, and every one of its long slender bulbs—perfect sheaves of them—were wreathed with soft delicate blooms, and the same may be said of the still lovelier D. primulinum, which was represented by some fine varieties. D. luteolum was in fine bloom, and though not thought much of, is not one to be despised; indeed there are few Orchids that possess such delicate primrose-yellow flowers accompanied by foliage. D. speciosum and Hilli, both grown in a Mexican house, were just on the point of bursting their flower-buds, and in the course of a few weeks the roofs and stages of the *Dendrobium*

houses will present a glorious display of bloom, for every plant seems studded with buds.

The *Laelias* in flower just now are alone worth a long journey to see, for it is doubtful if the enormous masses of *L. anceps* could be matched anywhere in gardens. This lovely species may be seen in its richest varieties. Those in full beauty were Hilli, with pure waxy white sepals and petals with just a dash of rosy pink on the labellum; rosea, with the colouring of the lip paler; Barkeri, with larger flowers than those of the ordinary form and with an intensely deep lip; superba, with broader and longer segments of a much deeper colour than the preceding, though the lip is not so rich, but for all that it is a splendid variety, probably unequalled. No one could really form a correct idea of the splendour of *L. anceps* without seeing such grand masses of it as exist here. One huge plant rooting into a bed of peat resting on a flat teak raft a yard or more square was carrying no fewer than eighteen long slender spikes, each terminated by two, three, or four flowers, a rare floral sight in itself. That pretty little species *L. albidula* could be seen in numbers in a cool, dry house where their delicate blossoms, would be preserved longest. The varieties bella and rosea, so named on account of the labellum being of a pale or warm rose tint, could be distinctly singled out, and very charming they are in association with the almost pure white blooms of the typical form. This sweet little Orchid should be grown by everyone who likes a flower that remains in beauty for some few weeks, and such delicate beauty, too. Half-a-dozen flowers on a spike was common among the plants here, though usually they do not carry so many. Of a rarer nature was a flowering plant of *L. furfuracea*, which now-a-days is so seldom seen in bloom. It is much in the way of *L. autumnalis*, which has just gone out of bloom, but the flowers are a trifle smaller, but quite as beautiful, the segments being white handsomely tipped with deep purplish rose, as is also the labellum. It may be at once distinguished from *L. autumnalis* when out of bloom by the longer and thinner bulbs. Among Cattleyas the numerous varieties of *Trianae* were coming into flower, and of *C. Percivaliana* there were three or four flowering plants which helped to enliven the otherwise flowerless Cattleya house.

Ipsea speciosa, a terrestrial species and resembling a *Bletia* in growth, was exceptionally fine. A good-sized plant of it growing in the *Phalænopsis* house was carrying several flower-spikes, some of which bore four blossoms about 2 inches across and of a rich chrome-yellow. It is seemingly a water-loving Orchid, requiring to be kept while growing as moist as a *Disa*. Another beautiful terrestrial of a similar stamp, *Spathoglottis Lobbi*, will soon be in full bloom; a large specimen of it suspended in the East Indian house has produced quite a sheaf of flower-stalks, each of which will bear four or five bright yellow blossoms, over an inch across and in form like that of *Phalænopsis Schilleriana*. These two species are so distinct from most other Orchids, both in colour and growth, that they deserve special mention, and more particularly as they lend themselves kindly to cultivation. A coloured illustration of both appeared a short time since in THE GARDEN.

Epidendrums, in which this collection is so rich, were represented in flower by such handsome species as *E. Wallisi* and *rhizophorum*, both of which belong to the tall, slender-stemmed group. The first has a large pendulous cluster of blossoms terminating the stem, and these have bright yellow segments copiously spotted, while the ample labellum is white, blotched and streaked with purple—a strange mixture of colour. In *E. rhizophorum* the flowers are borne much in the same way, but are smaller and more numerous, and of a brilliant vermilion colour, as bright as that of *Sophranitis grandiflora*. Those who have no special predilection for this section of *Epidendrum* can scarcely help liking such fine species as these, and, moreover, they are not inelegant in growth, the stems being evergreen. Another species of this section, *E. crassifolium* or

erectum, was in bloom, which, though pretty, has altogether a common look about it compared with the aforesaid two. There are a lot of odd things in the way of *Epidendrums* to be found here flowering at various times of the year, and presently the houses will be enlivened by the glowing blooms of that finest of all *Epidendra*, *E. vitellinum*, which is grown so well here.

Cool house Orchids were bearing an abundant crop of bloom, particularly the *Odontoglossums*, which are always to be seen here so finely, no matter at what season of the year. Just now the variable *O. crispum* is developing crowds of long gracefully arched spikes covered with bloom. As may be supposed, no inferior form is tolerated, but all must either be remarkable for spots and markings or be first rate in form. Among the less common species were *O. crocidipterum*, a pretty variety, but only to be recommended to the notice of the connoisseur, and the same may be said of the rare *O. nevadense*, which was uncommonly fine, as, indeed, it has been for the past two or three seasons. Those two gems of the first water, *O. Ruckerianum* and *Andersonianum*, were in fine form, and represented the finest varieties. There is a similarity between the two, but the first has a sort of vinous purple shade, whereas the ground colour of Anderson's variety is or should be pure white. A long branching spike of either of these two Orchids is a beautiful sight, and one that anyone not specially Orchid lovers can appreciate. *O. prionopetalum*, one of those mysterious mongrels of the luteo-purpureum stamp, was producing a fine spike, as were also a host of others, including numerous forms of *O. gloriosum*, odoratum, and that handsome, but slighted species, *O. Uro-skineri*, which if seen in its best form is as fine as any. Here there was a variety with a labellum an inch or more broad, and of a lovely rose-pink.

Masdevallias in flower were not numerous, but these included some of special note. The showiest was *O. Lindenii superba*, a truly superb plant, with large blooms of a lovely rose-magenta with a white tube. Another fine one was the ever beautiful *M. Veitchii*, represented by its finest form. *M. tovarensis*, with its snow-white blossoms, was in delicate harmony with the brilliant colours of the preceding. Among the *Chimaraoid* section was a fine specimen in a suspended boat-shaped raft of *M. Backhouseana* with seven flowers; while near was an equally fine plant of *M. Chimera* with nearly as many blooms. These and their allies are grown admirably in an intermediate house. In a cooler division were fine examples of the singular little *M. polysticta*, which, when profusely flowered, as here, is an attractive plant. A great variety was *M. leontoglossa*, which seems to have affinity with the coriacea type. It is no great beauty, but curious and extremely rare.

The Phalænopsis house had a brighter appearance than it has had at corresponding dates for some time past, and *Phalænopsids* seem to be thriving uncommonly well now. There is a perfect thicket of spikes of one kind and another, principally of *P. Schilleriana*, *amabilis*, and *grandiflora*. The greatest attraction was a superb plant of the rare *P. leucorrhoda*, a hybrid presumably between *P. Schilleriana* and *amabilis*, with which it is intermediate. The flowers are paler than a good form of *Schilleriana*, but larger, and the specimen in question bore a long, widely branched spike, carrying a large number of blossoms. Another great beauty was a variety of *P. Schilleriana* called *delicatissima*, than which no form could scarcely be finer. The blossoms were large, the segments broad and overlapping, of a deep, rich rose-pink tint, profusely spotted with minute spots, so as to give the markings a clouded appearance. *P. Stuartiana* and its variety *nobilis*, the almost perennial flowering *P. Luddemanniana*, and various others contributed to the floral display in this house.

Other noteworthy Orchids included *Catasetum Scurra*, a great rarity, and moreover a great beauty. Its short, round bulbs bore from their bases short pendulous racemes of white blossoms nearly 1 in. in diameter, pure white except the centre, which was yellow and chocolate, while the lateral wings

of the labellum were prettily lined with green. The labellum is fringed at the extremity in a singular way. It has a delightful perfume, most resembling that of ripe Guavas. *Maxillaria lepidota* in a cool house was a sight in itself; it was a large plant bearing some scores of its yellow flowers with long slender brown tails; the whole form a compact mass, producing a striking effect among the light-coloured *Odontoglossums*. In the same house was a variety of *Oncidium cucullatum* called *Chestertonii*, having an unusually broad labellum of a deep rich violet spotted with purple, and which in contrast to the golden central crest was very fine. *Pothieva maculata* was one of the most curious of all the Orchids in bloom. The flowers, produced in short erect spikes, in form resemble some kinds of moth; the upper sepals are spotted with green on a light ground, while the basal portion of the flower was yellow. Near was a plant of the rare *Vanda Goweræ* just expanding its flowers, which appear to be white. The pretty little *Sophranitis violacea* vied in brightness with its larger congener, *S. grandiflora*, but it has the advantage of being less common. *Aerides Leeanaum*, not a very attractive species, was in flower, as were also several rather rare kinds of *Cypripeds*, such as *C. Spicerianum*, *concolor*, *Warneri*, *Harrisonianum superbum* (a very fine variety), and *Dayanum*. *Limatodes rosea* was exceptionally fine, and when grown thus is a bright and attractive Orchid, possessing a beauty peculiar to itself. *Calanthe Veitchii* could not possibly be seen better than it was here, the colour being the deepest of rose-pink, with spikes a yard or more long. Sir Trevor Lawrence most certainly possesses an uncommonly fine form of this Orchid. W. G.

ORCHIDS AT THE YORK NURSERIES.

The most remarkable Orchids now in flower in Messrs. Backhouse's nursery are the following: *Angræcum sesquipedale* and *A. citratum*, *Vanda tricolor*, *Odontoglossum Roezlii*, *Cypripedium Sedeni*, *Roezlii*, *Boxalli*, and a few others, but the chief feature is the large unshaded

Cattleya house, the most noteworthy plant in which is a specimen *C. Trianae*, very aptly named *Aurora*. The pale rosy tints in this flower are exquisite, and its broad petals and bold form place it at once in the first rank. Then comes *Trianae alba*, bearing nine flowers; *Trianae Ruckeri*, grand masses of *Warszewiczii* and its variety *delicata*, and a host of others more or less worthy of notice. The finest of all, however, is *Trianae Backhouseana*, undoubtedly the best form of *Cattleya Trianae* grown. One specimen, covered with gorgeous blossoms, is worth a long journey to see. There are also several smaller plants of this variety in flower, as is also the much-talked-of *C. Percivaliana*.

Other Orchids worth mention are *Oncidium Cavendishi*, *Wentworthianum*, *unguiculatum*, *Krameri*, a lovely variety; *Lælia harpophylla*, a beautiful species, the flowers of which open orange, and after a few days change to vermilion; *Dendrobium Hilli*, with spikes 2 feet long and sweetly scented, and several other *Dendrobes*. There are also examples of *Saccolabium giganteum*, some carrying two spikes, though the plants are not more than 9 inches high. In the

Mexican house *Cœlogyne cristata* makes a fine display, many fine specimens being perfectly covered with spikes, many of which bear six and seven flowers apiece. *L. anceps* is almost over, but the numerous dying spikes bear witness to what it has been. One plant, however, is still worthy of notice; it bears eight flowers on two spikes, four on each. Can anyone quote an instance of *anceps* with more flowers than this? *L. albidula* and its varieties *bella* and *rosea* are likewise well represented, some fine spikes bearing from eight to twelve flowers. *L. autumnalis* is just over. There is a house almost full of *O. vexillarium* in luxuriant health, just pushing up spikes, and *O. Rossi majus* in variety. The cool house is a beautiful sight, there being a

quantity of *O. Alexandræ*, of all sizes, also of *gloriosum*, *cirrhosum*, and *Halli*. The pretty little *Oncidium cuculatum* also seems at home here, as indeed do the whole of the Orchids in this establishment. E. W.

Cattleya Percivaliana.—By far the finest example of this new variety we have yet seen was one we saw a few days ago in Mr. Stevens' rooms, King Street, Covent Garden. The specimen bore three flowers on one spike. The flowers were only about a third smaller than those of the typical *C. labiata*. The petals were broad, richly suffused with rosy lilac; the labellum was gorgeously coloured with rich velvety maroon, amethyst, and golden yellow, and much fringed at the margin. The anterior lobe of the lip was much prolonged, as in the true *C. labiata*, of which it may justly be considered a variety. There is a bright future for this *Cattleya*.

Phalænopsis amabilis variety.—The enclosed *Phalænopsis amabilis* is the only one of an importation that has spotted sepals. I also enclose a bloom which represents most of the other plants. The late dull weather has much interfered with the blooming of these Orchids and also militated against size and colour. The house in which they were grown has several times been as cold as 55°, with the result of every root in a state of growth being killed, thus proving that *Phalænopsis* will not bear a less temperature than 60° unless in a perfectly dormant state.—M. H. Voss, *De Montfort House, Stratham*. [The spike sent is lovely. We have seldom if ever seen a form of *P. amabilis* in which the lowermost sepals are so beautifully spotted or the middle lobe of the labellum so deeply stained with brownish red.]

PLANTS IN FLOWER.

ANEMONE BLANDA.—The first blooms of this lovely little hardy Windflower have just expanded in the York Nurseries, and shortly there will be a fine display of its beautiful turquoise-blue blossoms.

SENECIO GHIESBREGHTII.—I send you a spray of bloom of this plant, which is very showy in a conservatory here at the present time. My specimen is a standard 8 feet high, and some of the flower clusters measure 18 inches across, and at a distance resemble a gigantic yellow *Hydrangea*. J. M., *Charmouth, Dorset*.

HELLEBORES.—From Mr. Archer-Hind's warm Devonshire garden we have received a wonderfully fine collection of Hellebore blooms, a fact in itself which sufficiently indicates how finely these plants are grown by him. At page 113, Mr. Archer-Hind alludes to this collection at some length, and to which we refer our readers.

SAXIFRAGA LIGULATA.—This, one of the large-leaved or Megasea section of the genus, lends itself kindly to forcing. In the Chiswick garden there are numerous plants of it in flower in pots which have been lifted from the open ground and gradually inured to a warm house, so as to induce them to expand their clusters of rosy pink blossoms. Such plants are valuable for conservatory adornment at this season.

BEGONIA ROEZZII.—This beautiful new Begonia, alluded to last week as being so fine at Burford Lodge, is apparently grown admirably at the Cambridge Botanic Garden, for Mr. Lynch sends us some glorious sprays of it. The deep cherry-red of the newly opened flowers is charming, as are also the densely packed clusters of buds, which just show the tips above the brown membranous covering. We commend this plant to the notice of our readers, as it is one of, if not the most beautiful of all winter flowering Begonias.

A GIANT ANTHURIUM ANDREANUM.—A remarkable specimen of this comes to us from Sir N. M. Rothschild, measuring 8½ inches long by 6 inches across the scarlet spathe. It is supported on a stem nearly 3 feet long. A plant

bearing such blossoms must be a splendid object. This is a particular variety, though no doubt good culture is increasing the size of the flowers of the species compared with what they were when we figured the plant a few years ago. This fine specimen was grown by Mr. Hill, gardener at Tring Park.

CHINESE PRIMULAS.—The rich collection of these in the Horticultural Gardens at Chiswick is just now in perfection. There are large numbers of plants, and one house which is full of them is a fine sight, the varieties being arranged in rows of various colours. The sorts are numerous, but such very fine kinds as Chiswick Red, white, and purple predominate. These all originated here, and take the lead in their respective colours. The latest addition is Chiswick Red Improved, a kind remarkable for greater brilliancy of colour than that of the original.

LATE CHRYSANTHEMUMS.—I send you blooms of *Chrysanthemum Elaine*, Hero of Stoke Newington, Guernsey Nugget, and Princess of Teck, in order to show how fine they are even so late as this. The three last named are particularly useful as late blooming kinds; they help now (January 30) to make the conservatory gay. By keeping some plants of *Elaine* very cool I have not been without an abundance of its valuable flowers for a period of over three months.—W. JENKINS, *Aldin Grange, Durham*. [Very fine blooms considering the season.]

GALANTHUS ELWESI.—Mr. Kingsmill has this handsome Snowdrop now finely in flower in his garden at Eastcott. A specimen of it which he sends us is as large as we have yet seen it, the flowers measuring nearly 2 inches across, and furnished with three snow-white concave outer petals which spread horizontally. It is the largest and finest of all the Snowdrops. Mr. Kingsmill likewise sends us his first blooms of *Leucojum vernum*, and also examples of the charming little Corsican *Crocus minimus*, which has tiny flowers of a rich purple within and fawn coloured without.

ALOE PEACOCKI.—A new species in the way of *A. abyssinica* is now in flower in the Sudbury House collection, Hammersmith. It has huge fleshy spiny edged leaves, covered with a glaucous hue. The tall branching flower-stem bears from the tip of each branch a crowded tuft of long tubular blossoms of a reddish yellow colour. It is a handsome plant and very rare. In Mr. Peacock's collection there are also several other succulent plants in flower, and among them *Aloe ciliaris*, a slender growing plant inclined to climb. Several fine specimens beneath the rafters of the roof are bearing numerous clusters of bright orange-red flowers in long close heads.

A MINIATURE BROMELIAD.—Among the rarities in flower at Glasnevin just now, what is in sooth a little gem in its way deserves, according to the *Irish Farmer's Gazette*, especial notice. This is a tiny epiphytcal *Tillandsia*, of Pine-apple aspect, growing on a morsel of wood no thicker than the middle finger, and the plant itself so small that a pill box would cover it. The leaves have their surfaces glistening as if beautifully frosted with silver, and from their centre rise a slim pair of narrow, tubular, glossy purple, Crocus-like flowers, each not thicker than a crow quill, and crowned with gold in the shape of the yellow anthers, which rise just barely above, and contrast strikingly with, the colour of the flowers. The whole affair, plant and wood, we fancy would scarcely weigh half an ounce.

SPRING FLOWERS IN BERWICKSHIRE.—The spring flowers are now again beginning to bloom with me after their summer and winter's sleep. The Snowdrops are just coming out, also the Hepaticas and *Primula denticulata*. *P. cashmeriana* will soon be in flower. The common Primroses, of which I have some thousands of all colours, including Dean's rich coloured varieties, have begun flowering in my garden. They are great favourites of mine. *Anemone blanda* is peeping above the ground, but it is later this year than last, when it flowered here on the 18th of January. The frost was very severe here in

December, the thermometer indicating 34° of frost on the night of Thursday, the 14th. I do not think, however, that anything in the garden here has been killed. I was afraid of my Tea Roses, but as I had them protected with dry straw and Spruce Fir branches, they are quite safe.—GEORGE MUIRHEAD, *Paxton, Berwick-on-Tweed*.

EARLY RHODODENDRONS.—Mr. Launcelot Gubbins, of Salterbridge, Cappoquin, Co. Waterford, writes that the Rhododendrons there are just coming into flower already (January 25).

FINE STRAINS OF PRIMULA.—Mr. B. S. Williams, Victoria Nursery, Upper Holloway, sends us flowers of his beautiful varieties of Chinese Primulas, red and white. Of the latter there is one called *alba magnifica*, one of the finest white sorts we have seen. The blooms are nearly 2 inches in diameter, finely crisped and fringed at the edges, pure white, with a conspicuous yellow centre. These fine sorts serve to show what strides have recently been made in the improvement of this useful flower.

PORTEA KERMESINA.—This fine Bromeliad, which is rather new to cultivation, we saw finely in flower the other day in Mr. Peacock's rich collection of Bromeliaceous plants at Sudbury House, Hammersmith. It is nearly related to the *Billbergia*, and, like most of the species of that genus, the foliage is arranged in a vasiform tuft, from the centre of which the erect flower-spike arises about 1 foot in height. This is clothed on its upper part with broad overlapping bracts of a rich rose-pink colour, and these enclose long tubular blossoms of a bluish lilac hue, which protrude here and there from the bracts. This is one of the handsomest Bromeliads we have seen, and if a selection of these plants is needed this should be one of the chosen ones. Being a native of Bahia, it requires a rather warm and moist house. Among other members of this family in bloom in Mr. Peacock's garden is *Vriesia brachystachys*, a Brazilian species with yellow flowers and green and scarlet bracts a singular mixture of colours.

GYNURA AURANTIACA.—We saw this plant for the first time in flower the other day in Baroness Rothschild's garden at Gunnersbury Park, where Mr. Roberts has grown it rather extensively during the last year or so. The plants in bloom are those which were planted out in the open beds during last summer and lifted in autumn. They are now in a frame and are some 2 feet or 3 feet high, and each bears numerous loose clusters of flower-heads from the extremities of the branches. These flower-heads are about half an inch across, and consist wholly of tubular florets of a warm orange-yellow colour. Taken individually, the flowers are not much superior in beauty to those of a Sow Thistle, but in contrast with the purple-plush-like pubescence which covers both surfaces of the leaves the effect is charming; indeed, we have rarely seen in plants such a strange combination of colours. The young leaves which immediately surround the flowers, being more densely hairy than the rest, show off the flowers to advantage. We believe this is the first instance of the plant flowering in this country, but it is for its beautiful foliage that it is most valued. Mr. Roberts speaks highly of it, and he has used it freely as an ornamental foliaged plant in the summer flower garden. It is remarkable that a Javanese plant should be so hardy.

Complete Index to "The Garden."

The general index, embracing the whole of the volumes from the commencement to the end of the twentieth, is now ready. It has been compiled, printed, and bound with much care, and will be very useful in making more accessible to all who possess the volumes the immense mass of practical gardening matter, plates, and woodcuts embodied in its pages. Those who intimated their willingness to subscribe for it will be supplied at the subscriber's price of 10s. 6d. per copy. As its production has been more expensive than was anticipated, the price has to be fixed at 12s. 6d. per copy. There will be no free copies, and no reduction to the trade on the published price.

SELECT SELAGINELLAS.

ALTHOUGH the many handsome plants belonging to this genus bear no relation whatever to Ferns, many of them are so similar in general appearance that it is no wonder if by the side of a good collection of Ferns is often to be found one of Selaginellas equally worthy of note. They are most of them of very easy culture, and as a rule invaluable for decorative purposes, as their elegance can hardly be overrated, and their power of endurance in many instances proves sufficiently satisfactory to enable their owners to utilise them for indoor

at one end of the house; in any case it will be found beneficial to have them kept separate from the Ferns, as they require a greater amount of constant moisture around and about them. To effect that they should be placed on a solid bed which constantly gives off moisture, or, if that is not practicable on account of the house being provided with stages, the latter should be covered with Sphagnum, to be kept wet, and the pans not allowed to rest directly on it, but to be set up above it on three small pots or on an inverted pan, so as to avoid all contact with the saturated material. In

as they cannot endure their massive, feathery fronds to be wetted over at all. They are very variable

In colour and size. Among their numbers may be found all the shades of green from the lightest to the darkest tints; some are of the most dazzling hue, while others have their foliage prettily variegated. One of them even changes to white or grey as the sun sets in the evening; but resumes its green appearance again in the morning. In fact, from their different sizes, modes of growth, and distinctive habits, they may



Selaginella grandis. Drawn from a plant in Messrs. Veitch's nursery, Chelsea, in December last.

decoration, as some of them succeed admirably in a Wardian case. The majority of these beautiful plants come from the East and West Indies, and consequently require a warm, close, moist atmosphere where draughts are carefully avoided, although some are quite at home in a temperate house and even a few of them are quite hardy; but those which are found doing well at a comparatively low degree of heat are few in number. The temperature most suitable for the bulk of them is from 65° to 70°, and they will, by growing more luxuriantly, give even more satisfaction if the heat can be kept up to 70° or 75° all the year round. Growing them in shallow pans is the best method of cultivation, as, with the exception of those belonging to the rosulate section, they all require room to spread, and most of them root upon the surface. They should be kept on the shady side or

that way the plants will derive all the benefit of the surrounding moisture without the soil becoming sour. Although a few species do well in loam, the majority of them delight in an open compost consisting of equal parts of good fibrous peat and chopped Sphagnum, which will prove all the more nutritious to them if old and partly decayed. A good proportion of silver sand and crock-dust might be added with advantage, as it will tend to keep the soil porous, which is very necessary, as they require copious waterings at the roots, although they have a particular dislike to standing permanently in the wet. For the same reason also it is quite necessary that the pots or pans should be thoroughly well drained. Because Selaginellas are moisture-loving plants, it does not follow that they should have frequent syringings over the foliage, treatment really most damaging to them,

be divided into five distinct sections, the first section, comprising all the dwarf-growing kinds, seldom reaching over 2 inches or 3 inches in height; these are principally useful for covering the ground under taller growing plants. Putting aside the popular *S. Kraussiana*, better known as *S. denticulata*, and its white and yellow-tipped varieties, the most remarkable of this section are the pretty Brazilian *S. apoda* (apus), which only grows about 1 inch high, but spreads rapidly, forming a splendid and uniform carpet of a light green colour, which never requires any clipping; the beautifully tinted Chinese *S. cæsia* (uncinata), which, if kept from the strong light, will thrive apace and be very attractive with its fronds creeping on the ground, or if conveniently situated will hang down to a length of several feet, and of a bright metallic colour, sometimes reflect-

ing the most lovely blue. The elegant *S. Poulteri*, also very valuable where dwarf-growing kinds are required, is a very dense, prostrate species of free growth and hardy constitution, with leaves small and dark green; whilst for covering stones, walls, or any rugosities in the warm house, nothing is better adapted than a distinct little species from Jamaica, which clings to anything moist of however hard substance it may be, and which has many names, such as *S. mutabilis*, *variabilis*, *serpens*, and which, as these aliases denote, is of a changing colour; naturally of a bright green, it gradually fades towards the evening to almost a pure white, and is to be found green again the following morning. On that account, and also from the rough feeling experienced when touched by the hand, it is very easily distinguished from any other species.

The second section comprises all those of an erect-growing habit. The representatives of this section are of all *Selaginellas* the best known to the public at large. On account, I presume, of their rapid growth they have been taken in hand by the market grower, and form part of the bulk of decorative plants, where they hold their own with advantage. Of this section the most useful are *S. Mertensi*, a Mexican ornamental species of compact growth; its erect stems are densely clothed with broad, dark, shining green leaves, and they produce a great quantity of aerial roots from the under side and lower parts, in which way they are readily increased. The variegated form of the above species possesses the same habit, but is profusely blotched with pure white, which variegation makes a striking contrast with the other leaves of a shining green. Then the West African species, *S. rubricaulis*, is a pretty and elegant plant interesting in all its parts; the stem is slightly red below and grows to about 8 inches in height, with branches of a beautiful bright green colour. *S. atroviridis*, one of the most beautiful of the East Indian erect kinds, grows from 8 in. to 12 in. high, and produces along the undersides of the branches many adventitious roots; the larger leaves are broad and obtuse, the smaller closely covering the stem and branches. The whole of the plant is of a dark glossy metallic green colour. *S. formosa* is also considered one of the most decorative kinds grown. It is a stronger grower than any of the preceding species, although its foliage is much lighter both in colour and otherwise; it also produces all along the stem a number of aerial roots, grows to about 12 in. high, and is of compact habit. The most attractive plants from an amateur's point of view are those belonging to the third section. They are not such rapid growers as those belonging to the two classes above described, and therefore not so useful for decoration, but they are much more gorgeous in appearance—more aristocratic-looking, if we may use the term, than any of their associates. They are distinguished from all other *Selaginellas* by their stems rising from an underground stolon instead of either creeping on the ground or growing upright; their stems are not, as in the others, provided with aerial roots. Foremost among the gems of this important class is

S. grandis, a specimen of which forms the subject of our illustration. It is a native of Borneo, where it was collected by Mr. Curtis for Messrs. James Veitch & Sons. Its erect stems are produced from a creeping rooting base or stolon as thick as an ordinary pencil; they grow from 10 inches to 15 inches high, and are clothed with ovate acuminate, serrulated leaves, the lateral ones becoming larger and merging into the larger leaves of the fronds, which are bold, and at the same time graceful in habit, of a clear grass-green above, paler beneath, from 10 inches to 12 inches long, dichotomously branched with numerous furcations, some of which measure more than half an inch across in the more matured parts of the fronds. The leaves are also very closely set, indeed, leaving no interval between, and this renders the breadth of the branches much more effective, and gives them a remarkably leafy appearance. Every successive frond in Messrs.

Veitch's grand specimen plant grows taller and larger, and the fertile ones, fringed by the elegant tail-like spikelets which are produced abundantly at the tip of every shoot, add greatly to the already noble appearance of this magnificent plant which last May at Kensington, and last July at Regent's Park, captivated the members of the floral and botanical committees, who, in both instances, justly paid it the honour which it richly deserved.

S. africana (fulcrata), also belonging to the same section, is a fine, strong-growing ornamental species with stems rising from an underground stolon. They grow to the height of 12 inches to 15 inches, and bear handsome fronds about 8 inches in breadth, triangular in form, and of a beautifully dark, glossy green colour. *S. caulescens* is another very elegant and distinct species from the East Indies, which produces from an underground stolon its beautiful erect plumose fronds, nearly 2 feet high, somewhat deltoid in outline, and of a light green; the fruiting points of the branches are prettily contracted, and give the fronds the appearance of so many ostrich feathers. To the same section also belongs *S. eytropus* (umbrosa), producing stems from 12 inches to 15 inches in height and fronds 10 inches in breadth, dark green above, paler below, and broadly triangular in shape, and the beautiful massive-looking *S. hæmatodes*, both from Tropical America. This latter species is of very strong growth, and produces from its underground stolon thick and plumose fronds often reaching 18 inches in length and 12 inches in breadth, which, instead of standing erect, as in most of the other species, are gracefully arching over, and of a very bright green; it is highly ornamental. The last that will be described belonging to that section is the beautiful *S. Lyalli*, from Madagascar; the stems of this evergreen stove kind rise from an underground stolon, and grow from 10 inches to 15 inches high; the fronds often attain 10 inches in width; they are very finely cut, of a ferruginous dark green, and short, but large fruiting spikes, like *Juniperus* seeds in miniature, are borne at the points of the branches. To the fourth section belong all the

Selaginellas of a scandent or semi-scandent character, some giving branches of indefinite length. Their stems, as those of the plants of the second section, are all provided with aerial roots, but these are produced further apart and not in so great a quantity. The most telling of this class is without a doubt the noble *S. Wallichii*, from Penang. It is difficult to say what size it will attain, but with its beautifully branched stems 30 inches or more in height, and the longest branches quite a foot long, it makes a magnificent specimen. The colour is shining dark green, and the point of each branchlet is adorned with a fertile spike about 1 inch long, giving additional grace to the plant. Indeed, when well grown it resembles a very good specimen of the beautiful *Gleichenia flabellata*. Its nearest rival for stateliness and beauty is the Bornean species *S. Lobbi*, which is also a very robust caulescent plant and grows from 18 inches to 24 inches high; it is thickly branched, the fronds broad, and the leaves, of a dark green, produce masses of fertile spikes on the tips of the branches. *S. chinensis* is also a very distinct species belonging to the same section with fronds rather narrow and of a light green, produced on stems of an indefinite length. If kept cut back now and then it makes a very handsome specimen. The best distinct species of this class is the pretty and compact-growing *S. inequalifolia*, from Java. The stems are produced in abundance, and grow from 10 inches to 15 inches high with fronds of nearly equal width throughout; the fertile portion is contracted, forming spikelets on the ends of the branches. Then the fifth and last section is the one comprising all the species of rosulate or tabulæforme habit, the best one among them being *S. japonica* with incipient stem rising to about 1½ inches, then producing a profusion of circinate frondose branchlets, rather rigid in texture, which become horizontal as they lengthen,

and are furnished with numerous lateral offshoots, forming a good-sized spreading plant with a regular, but not formal outline. It is of a very deep colour, and succeeds best in the cool house. *S. pilifera*, often called also *S. lepidophylla*, is also a remarkable plant, throwing out its branches in a horizontal manner, and thus forming a flat top like a table; it grows to about 8 inches or 10 inches in diameter. Finally, one of the most interesting members of this rosulate section is the delicate and pretty *S. cuspidata*, whose stems are arranged in a whorl round the crown somewhat like the petals of a Rose; it is of a light green, and grows from 10 inches to 15 inches high. It is one of the most beautiful of the whole genus. C. G.

SOUVENIR DE LA MALMAISON CARNATION.

THIS fine variety is not by any means so well or widely known as it should be, and although occasionally found in good condition, it is oftener met with growing with ordinary tree or perpetual flowering kinds than otherwise, and as the treatment that insures a supply of flowers in winter in the case of true perpetual flowering Carnations, such as *Miss Joliffe*, *Vulcan*, *The Bride*, &c., is enough of itself to spoil all chances of success with this grand variety, perhaps a few notes on the system of culture by which I have yearly produced not only quantity, but quality, may be acceptable to many who attempt its culture, but fail from treating it as a true tree Carnation. In the gardens at the The Grove, Gosport, I lately saw some magnificent plants of it in the most robust health in a cold unheated orchard house, and although they showed their relationship to the perpetual tree kinds by producing here and there a flower-spike, it was not more than ordinary border Cloves will do if placed under the shelter of a glass roof. *Souvenir de la Malmaison* is a summer-flowering kind, and does not answer for forcing. A lengthened season of flowering may, however, be secured by placing a few of the most forward plants of it in a light, airy house, such as on the front stage of a Peach house, where plenty of light and air is admitted and a gently progressive temperature maintained, and by allowing another batch to come on in cooler quarters under glass, and by setting the remainder in a shaded position as soon as the frost is over to constitute the latest supply; thus a succession may be kept up from April to November. At The Grove this plant is made a speciality of; the main stock of plants for flowering this year are in pans made to suit the wants of this Carnation. They are 14 inches in diameter and 8 inches deep. Ordinary flower-pots of that diameter at top would be too deep, as this Carnation is a surface-rooting plant, and does not require a great depth of soil. Good drainage is, however, of the highest importance, and these pans are filled quite one-third with potsherds. On the drainage is laid rough fibry turf, and the rest consists of rather sandy loam, a little rotten manure, pounded charcoal, and silver sand. Only one plant is put in the centre of the pan when potted in spring, but in August when they have made five or six good strong shoots these are layered in the usual way; therefore, now to all appearance each pan contains five or six separate plants, although in reality all are united to the parent plant, and each side plant is furnished with quantities of shoots just starting into growth. The amount of blooms which one of these large plants produces is therefore astonishing. As regards the hardness of this variety, I may mention that the whole stock was out of doors until near Christmas—exposed, in fact, to some of the sharpest frosts we have had this winter; for, owing to alterations in the glass houses, they could not be got under cover so early as usual. I would strongly advise those who have failed with this Carnation through coddling or forcing it to try it on the cool, airy principle. Shelter from heavy rains or severe frosts is all that it needs. When in flower it will well repay any attention bestowed on it, its blooms being nearly as large as those of a *Souvenir de la Malmaison* Rose. Gosport. JAMES GROOM.

HYACINTHUS CANDICANS IN POTS.

THE culture of this plant in the open air has been frequently alluded to in THE GARDEN, but seldom has it been recommended for pot culture, a purpose for which it is admirably adapted. I grow it largely in pots expressly for embellishing the conservatory throughout July, August, and September—a season when plants like this Hyacinth are wanted. My plants range from 2 feet to 6 feet in height, and carry on each of their stout, erect stems waxy white bells from two to three dozen in number. Specimens like these intermixed with flowers of brighter hues, such as those of *Lobelia cardinalis*, *Gladioli*, which flower about the same time, produce a fine effect otherwise unobtainable. The flowers of this Hyacinth, in my opinion, rival those of the Tuberose and white *Lapageria* in purity and substance, and they emit a delicate perfume, and few plants possess such an elegant style of growth. My plan is to pot the bulbs, say about three in a 6-inch pot, at intervals of a week or so throughout February and March, using good turfy loam mixed with a liberal supply of sharp

*Hyacinthus candicans.*

white sand and well decayed leaf-mould. I place the bulbs about 2 inches below the surface and pot firmly. Until growth begins to appear water is withheld, except just enough to keep the soil from becoming dust dry. The pots are placed in a cool pit or frame heated at night only to keep out frost. After the leaves appear water is applied, gradually at first, but afterwards with a liberal hand, and this is the only treatment the plants receive until they come into flower, when they are removed to the conservatory, where they remain in perfection for about three weeks. The three chief conditions needful in order to ensure successful culture are plenty of light, plenty of air, and an abundance of water when once the plant has got fairly into vigorous growth. After the flower-stems and leaves have decayed the bulbs are shaken out of the soil, the offsets removed for propagating stock, and the old bulbs stowed away in a cool, dry place in dry soil in boxes until potting time comes round again in February. The reason why I pot at intervals is to afford a succession of bloom.

G.

Bomarea in fruit.—Besides the handsome flowers of the *Bomarea* some of them are very attractive when in fruit, owing to the

bright colour of their seeds, which, in the case of two kinds now in the succulent house at Kew, are very freely produced. They are two of the smaller species, *B. oligantha* and *B. edulis* or *oculata*, most of the flowers of which have been succeeded by seed capsules, now open and showing the seeds contained therein, somewhat in the way of the *Gladwin*. The *Bomarea* seeds are about the size of small Peas, and each capsule contains from ten to twenty of them. *Bomarea Carderi*, in the same house, is also fruiting freely.—H. P.

SURFACE DRESSING AURICULAS.

BEFORE the last week in January Auriculas will be seen to be growing even in ordinary winters, but under the mild season through which we are passing they should be surface dressed by the last week in that month. Auricula fanciers in the past put great faith in this surface dressing. They took out a large portion of the ordinary compost and filled up the space sometimes with strong pasty material, into which the roots refused to run. That this system of surface dressing is yet practised I have found on examining plants obtained from some Auricula fanciers. It is, however, injurious; it not only causes the plants to decay at the neck, but paralyses the roots, the result being weaker growth, which in its turn produces inferior flowers. If they are to be surface dressed, which is desirable, it should be done by removing only a small portion of the soil, not enough to injure any of the roots. About a third part only of the surface compost should be rotten manure, and it should be dried, powdery material and well decayed. When surface dressing thoroughly overhaul the entire stock, and take off any offsets that may be sufficiently rooted, although offsets will form roots if they are not furnished with any, but when taken off they get along better if even a very small portion of roots is attached to them. At no time of the year do offsets root more readily than now. We place them in cold frames in an open position, and keep the glass tops over them until they get well established. The offsets now in small pots, and which were rooted last autumn, should be potted. When this is all done and the specimen plants neatly surface dressed, a collection of Auriculas is an exceedingly interesting and pretty sight. And as spring leaves rapidly develop themselves, the different forms and tints of the mealed foliage captivate fanciers almost as much as the flowers do. Seedlings sown last summer will also now demand attention; they will either be through the ground or vegetating. Those large enough should be pricked out into small pots. I plant out about a dozen of these small seedlings into pots 2½ inches in diameter.

The raising of seedlings is now practised by some of the best growers. It is my belief that more really good seedlings have been produced during the last ten years than in the previous half century. Take the late Mr. George Lightbody, of Falkirk, as an example of an Auricula fancier and also a raiser of seedlings of the old school. The results of his work are now in the hands of the public. Another great grower, the late Mr. Richard Headley, of Stapleford, has earned for himself lasting renown by raising the best and most constant grey-edged Auricula in existence. This variety will doubtless long hold a leading place, but it is my belief that there are now in the hands of the raisers seedlings in all the classes that will displace most of the old varieties when they shall have become common. In addition to the raisers just mentioned, the name of a good Lancashire grower, Mr. James Heap, must not be omitted. He was the raiser of the best of the older white-edged varieties, *Smiling Beauty*, and it is a question if there is yet a better white edge if we except Walker's *John Simonite*. If superior varieties of edged or show Auriculas are to be raised, it must be done by growers taking care to cross the best varieties belonging to the various sections with others of the same section. Notwithstanding all that has been said about the beauty of the edged sections, it cannot be asserted that the

general public take to them quite so kindly as they do to

The alpine.—There is no doubt a great future in store for these; for one reason, they are much more hardy, and in most situations are well adapted for out-door culture. They are charming plants for the rock garden, and succeed well in dry upland districts in suitable soil. In the rock garden in the York Nurseries not only alpine, but many varieties of the show section succeed. They require suitable compost to grow in, and if the soil is not of a moderately clayey character, they must have some of this material placed round the roots. What Auriculas require, as well as most of the family to which they belong, is a deep, moist loam. More of them suffer from lack of moisture in summer than from any other cause, that is, if we except those that are liable to the attacks of red spider, which the Auricula is not. If the public are to heartily take Auriculas in hand, they must be alpine hardy enough to pass the winter as well as the summer months in the open border and to seed as freely as choice *Primroses* do. In order to do this they must have suitable surroundings. *Primroses* will not increase unless the seeds drop into some dwarf herbage not too dense or into a carpet of very dwarf *Sedums* or *Saxifrages*, which must not, however, be dense enough to smother the young plants. The various and scattered forms of *Primula Auricula* found in the alpine regions of the south of Europe prove that they seed freely in a wild state, and under suitable conditions there does not seem to be any reason why their descendants should not do so in our gardens. There is an unlimited field open to us in this direction. We know what the florists have done and are doing with alpine in the way of pot culture—"coddling under glass," some will say. Who will grow them in the open air in their gardens and show what can be done to popularise them in that way?

J. DOUGLAS.

BLANDFORDIAS.

THESE New Holland plants form beautiful objects in the greenhouse during summer when in flower, especially those with large, massive blossoms, such as *Cunninghami*, *princeps*, and *flammea elegans*. The two last are the most showy, and they greatly resemble each other, their flowers being pendent, bell-shaped, 2 inches or more in length, of a bright crimson outside, shaded around the mouth with yellow, and borne in an open cluster on a spike about a foot high. More slender in growth than those just named, and with smaller flowers, are *B. nobilis* and *aurea*, two which I find require more water than the others, especially during the growing season. Although the *Blandfordias* like plenty of moisture when growing, if kept too wet in winter their roots speedily decay; indeed, I find them to flower best when kept in an ordinary condition as to moisture at that time. The soil best suited for them is a good, open, fibrous compost, which the roots can penetrate with ease, and good drainage is absolutely necessary. I had been often troubled by decay in some of the thick roots at the base of the plant till I tried the experiment of just surrounding the base with silver sand—that is, just bedding it in the sand; since then the roots have kept sound. A suitable soil is one-third turfy loam to two-thirds of peat, with a liberal admixture of silver sand. Pot moderately firm, but take care not to bury the roots too deeply in the soil. I like to pot them as soon as flowering is over, as the principal season of growth is in the late summer and early autumn months; in that case they start away in the new soil at once, and are thoroughly established before winter sets in. A cold frame in a shady position suits them perfectly during summer, and in winter they can be removed to the greenhouse.

H. P.

Two good Pelargoniums.—Among the many winter flowering zonal *Pelargoniums* the two following deserve notice, viz., *Lady S. Stanhope*, orange-scarlet, good truss; and *Lady Sheffield*, lilac-pink, fine form, and good truss. With me these are the freest blooming of any, and my collection contains most of the kinds that have been mentioned in terms of praise in THE GARDEN.—J. S. T.

HURSTSIDE, MOULSEY.

THIS, the country residence of Sir Henry Thompson, is pleasantly situated amid green fields intersected by tall Thorn hedges, over which Brambles cast their long spiny branches. Scarcely more than a gun-shot distant flows the swift current of the Thames. The house, a pretty creeper-covered villa, stands back from the road, and is approached by a drive through a narrow belt of trees and shrubs, which form a screen or blind. The gardens and grounds (about 5 acres in extent) are surrounded on three sides by belts of shrubs, which as they grow up will give an air of snugness to the place. Though the gardens are small, they contain many objects of interest, for miles of hothouses and lofty garden walls are not essential to good culture or to the gathering together of interesting horticultural products. The house is well situated as regards making the most of the ground, being near the western boundary. On the southern front an ornamental verandah shelters the lower windows, and forms in summer a kind of open-air conservatory, with a background of *Passiflora corulea* growing in great luxuriance; borders of Clove Carnations, Wall-flowers, Primulas, &c., load the atmosphere, when they are in bloom, with sweet scents. The lawn in front is open and level, its only garniture being a few small specimen Conifers and several beds of Roses in the distance, with a bed of hardy flowers of considerable size. Daffodils are now pushing up the points of their long lance-shaped foliage, and by-and-by their blossoms will form quite a striking display. As is well known, Sir Henry Thompson entertains a high opinion of the value of fruits and vegetables as articles of diet; therefore special arrangements are made for the production of a constant supply of the choicer kinds, as far as possible, all the year round.

The principal glasshouses, which lie on the northern side of the kitchen garden, are well constructed and fitted up. The young Vines and Peaches which they contain have done well; perhaps in the early Peach house there are signs of rather too much luxuriance, but the first good crop of fruit will rectify this, and in the meantime the same object has been sought by checking the roots. Peach borders do not require manure on their first formation, whatever they may need afterwards, *i.e.*, if the loam is good. The houses have been built with short north lights, which enable trees to be put on the back wall. In front of the principal houses, and a little to the west of them, is a capital forcing house in which quantities of valuable produce are brought forward. French Beans are gathered all the winter; Tomatoes are trained up the back wall, and pot Vines cover the roof, and ripen their fruit early. In this house, too, I saw last spring a crop of Hamburgs and Foster's Seedling Grapes in pots which it would have been difficult to beat, and the Vines were not more than sixteen months old from the eyes. Excellent crops of Strawberries are also produced on shelves overhead, and at the time of my visit, early last year, I saw some good Melons ripening at one end of the house. It is perhaps rather dangerous to the Vines to grow Melons so near them, but in this instance no insect pests were observable, and the two crops were a success. A Mushroom house at the back of the long range, and a row of useful forcing pits on the eastern side of the garden complete the forcing arrangements. On the north side of the poultry houses, which are well stocked with prize birds, especially Bramahs, is carried on

Vegetable culture under glass in a lean-to house, 90 feet long and about 20 feet wide; and the experiment (for in such an aspect it was an experiment) may be said to have answered, though doubtless a span-roofed structure with a better aspect would have answered still better. As it is, however, excellent crops of early Peas, Cauliflowers, French Beans, Horn Carrots, Turnips, Potatoes, &c., were obtained here last spring, and they were succeeded by Tomatoes in summer, and in autumn and winter the house becomes valuable for the preservation of

winter vegetables, such as Cauliflowers, Broccoli, &c. In a place where fruits and vegetables form the leading feature one may be sure the varieties grown are worth enquiring about; I therefore name a few which possess superior merit. Veitch's Forcing Cauliflower is the best of its class, coming in early, occupying but little space, and forming close, white, compact heads; it may be cultivated in pots. The American Wonder, a dwarf wrinkled early Pea, will be found useful for frame culture and for small gardens generally. The best French Bean for winter work is Osborn's Early Forcing, and as a general rule when large quantities are required boxes are better than pots. For open-air culture the Giant White Runner Bean for continuous bearing has no superior. Sutton's Late Queen Broccoli is hardy and late, and is really white, many of the so-called late white Broccoli being cream-coloured. A bed of this Broccoli which I saw here consisted of low-growing plants with leaves resting on the ground, no leg being exposed. A good many Strawberries are forced here, all the houses being fitted with shelves for their accommodation. The following varieties are most appreciated, and they ripen in the order in which they are named, *viz.*, Vicomtesse Héricart de Thury, Alice Maud, President, Sir J. Paxton, and Loxford Hall. This last is one of the best, if not the best, late Strawberry in cultivation. In front of some pits is an open temporary frame full of Rose cuttings put in last October. They have had no glass over them, but a sprinkling of rather rough leaf manure has been scattered over them for the purpose of protecting them from changes of temperature and to maintain the material in which they are growing in an even state as to moisture. This material consists of old Mushroom beds and fresh loam and some leaf-mould. Some of the cuttings were examined, and it was found that they had made in every case roots, some of the white tender fibres being half-an-inch long; and it is only reasonable to suppose that nearly every cutting will make a flowering plant next season. Near the Rose frame was a very useful kind of span-roofed frame supplied by a Norwich firm. It was strongly constructed, and the lights were all made to open, being hinged at the top. It was 26 feet long, 6 feet wide, and I should think somewhere about 3 feet high, but I am speaking from memory as to the height.

The orchard—about 2 acres—is divided and sub-divided by fences of galvanised wire to suit the breeds of poultry. The young trees of standard Apples and pyramid Pears have not made much progress. Whoever plants an orchard should, if possible, cultivate the surface of the ground for half-a-dozen years at least in order to give the young trees a fair start; but I suppose in this case the poultry, of which Sir Henry Thompson is very fond, had to be considered. It was intended to cover the wire fences with climbers of various kinds, but nearly everything that comes in contact with the galvanised wire dies during winter; even the Virginian Creeper makes no progress, and looks unhappy. A coat of paint would alter this, but the expense of painting all these lengths of fencing would be considerable, and, besides, it ought not to be necessary if the galvanising had been properly done. ADAM.

To protect iron from rust.—A new process for preserving iron is described in *Les Mondes*. It consists of treating the casting with dilute hydrochloric acid, which dissolves a little of the metal, and leaves a skin of homogeneous graphite, holding well to the iron. The article is then washed in a receiver with hot or cold water, or cooked in steam, so as to remove completely the chloride of iron that has been formed. Finally, the piece is allowed to dry in the empty receiver, and a solution of caoutchouc, gutta percha, or gum resin in essence of petroleum is injected, and the solvent, afterwards evaporating, leaves a hard and solid enamel on the surface of the ironwork. Another plan is to keep the chloride of iron on the metal instead of washing it off, and to plunge the piece into a bath of silicate and borate of soda.

Thus is formed a silicoborate of iron, very hard and brilliant, which fills the pores of the metal skin. As for the chlorine disengaged, it combines with the soda to form chloride of sodium, which remains in the pickle.

GARDEN FLORA.

PLATE CCLXXIV.

ROSE CHARLES LEFEBVRE.

CHARLES LEFEBVRE is a name that is familiar to every grower of Roses, for if not the very best Rose of its colour, it certainly stands in the very front rank of Roses of any colour. Not only is the flower large, full, solid, and well shaped, but the habit of the plant is robust and the foliage excellent. It is, therefore, equally prized by exhibitors and those who grow for garden and house decoration only. It was raised by M. Lacharme, of Lyons, and introduced to public notice by him in the year 1861. To those of us who can look back to the first Hybrid Perpetuals, what a fine example of the improvement of Roses does this group present. The break from other groups was so gradual, that it is not easy to say when the first Hybrid Perpetual Rose appeared, but De Neuilly in 1835 and Princesse Hélène in 1837 were the first striking varieties obtained. These were quickly followed by Comte de Paris, Duchess of Sutherland, and Madame Laffay in 1839, Mrs. Elliot and others in 1840, La Reine in 1843, and since then the number of novelties has gone on increasing year by year with but few interruptions.

The great improver, if not the originator, of this group was M. Laffay, of Bellevue, near Paris. All but one of the early kinds mentioned above were his, and he continued adding others for many years. If we proceed to analyse the group we shall find at the least four distinct lines of character: 1, the "Bourbon Perpetual," apparently a cross between the Bourbon and Hybrid Perpetual, compact-growing kinds with small, round flowers; 2, the "Rose de Rosomane," probably between the Gloire de Rosomane and the Bourbon and Chinese Rose; 3, the "Rose de Trianon," principally raised by the most scientific rosarian of his time, M. Vibert, but which, though embracing some distinct and lovely blush and pink Roses, were neither exact enough in form for show Roses, nor of a habit to be prized as decorative Roses, and are now lost; and 4, "Hybrid Perpetual." The last-named has outrun all the others in popular favour, and is chiefly descended from a cross between the hybrid Chinese or hybrid Bourbon and the Damask Perpetual. It is to this last line that Charles Lefebvre and a host of others of varied character and matchless beauty belong.

So much has been written and published on the cultivation of Roses of late, that we shall in this instance confine ourselves to a few remarks on this particular line. Given a good soil (strong loam) and good plants, good flowers can only be obtained by liberal manuring and skilful pruning. No manure seems more suitable than a mixture of decayed stable manure and night soil. In pruning the shoots should be regulated during the summer's growth by pinching out supernumeraries, so that when the plants are pruned in March little or no thinning out is required. It is unnecessary to give

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



ROSE CHARLES LEFEBVRE

instructions on pruning to those who understand Roses, and difficult to instruct those who do not; but to the latter we may say, the shoots of the small-growing kinds should be shortened back to two or three good eyes, the moderate-growing ones to four or five, and the very strong growers to six or seven, rubbing out intermediate eyes along the shoots should a greater number show signs of development than can find convenient room when they arrive at the stage of flowering.

Waltham Cross.

WM. PAUL.

THE CHRYSANTHEMUM AND ITS CULTURE.

The points of perfection, as set forth by the late Mr. George Glenny in his remarks on the Chrysanthemum, are the following: 1. The plant should be dwarf, shrubby, well covered with green foliage to the bottom, the leaves broad and bright, the flowers well displayed at the end of each branch, produced in abundant quantity, and well supported by the stems. 2. The flowers should be round, double, high in the crown, perfect in the centre, without disk or confusion, and of the form of half a ball. 3. The individual petals should be thick, smooth, broad, circular at the ends, according with the circle of the flower, the indentations where they meet hardly perceptible. 4. The petals must not show their undersides by quilling, and should be of such firm texture as will retain them in their places. 5. Size of bloom to be large in proportion to the foliage, but the size only to be considered when plants are in all other respects equal.

The canons here laid down agree with the ideas of modern florists so far as exhibition varieties are concerned, but there are artistic and tasteful people of all kinds to please, and now-a-days all the varieties of the Chrysanthemum have their admirers.

Properties of the Chrysanthemum.—

It is a curious circumstance in the character of the Chrysanthemum that, however nearly some of the flowers may approach the general form required, there are scarcely two of the same construction. One globular flower is formed of long petals reflexing, another by a succession of cupped petals, one row above another to the centre; a third may be formed by a mass of incurved petals, whose spoon-like ends, showing the backs only, curl over and form an almost solid surface by their closeness; others again have petals broad and flat, but towering one above another, forming a fine symmetrical flower to the centre; and we have only spoken now of the varieties fit to show because of their approach to the desirable form of half a ball. But for those who grow a general collection for the sake of variety in form and colour, there are many more forms—some throwing out their quill-like petals like so many diverging rays, and scarcely opening even the ends of these quills at all; others again have quilled petals, but open at the ends a tolerably broad surface of the inner side; then some have long ragged tassel-like flowers in the form of a loose mop—but the most fanciful of these varied forms, and perhaps the prettiest of all, is that of a round disk formed with broad flat petals, and a globular mass of quilly florets nearly filling it. It is this variety of construction running through the whole family that perplexes the judges at a show; but they should look to the main point first: no matter what the construction, whichever flower makes up the best and closest half of a globe is the best flower, while those which are open and loose are the worst.

The properties of the Pomponé varieties do not vary much from those of the larger family; but as their diminutive size is their chief distinction, it is the more necessary that they should be compact and symmetrical. They must not show a disk. If the centre be not covered well, they must be discarded as soon as their colour can be got with a sound close centre. They should be as perfect as the Ranunculus or double Crow-foot, and as double as a double Primrose of the better kind. The flowers should be

abundant at the end of all the shoots in bunches, with footstalks sufficiently long to prevent the blooms covering each other. They should not be larger than 1½ inches in diameter, nor smaller than an inch, and the habit of the plant should be short-jointed and shrubby. At an exhibition they must be shown on the plants. These should not be more than 18 inches high, nor less than 12 inches, with one or more flowers perfectly open at the end of every shoot. The style of flower in all the family of Chrysanthemums should rank thus: Flowers forming a half ball, Ranunculus fashion; flowers forming a half ball by incurving; flowers forming a half ball by reflexing; Anemone flowers; tasseled flowers; quilled flowers; flowers showing a disk. Of these the first three alone are showable in an open class; the Anemone flowers form a class by themselves; the tasseled and quilled sorts are not showable except on the plant in collection.

I. For ordinary decorative purposes.

—The first object in the culture of Chrysanthemums for this purpose is to obtain dwarf specimens, and to preserve all the foliage near the base of their stems. To effect this, the cuttings should be taken from the old stools in March or early in April, striking them in a shaded part of a cold frame under a hand-glass, and, as soon as rooted, the young plants should be potted singly into small pots filled with sandy loam, to induce them to emit an abundance of roots. A cool airy situation out of doors or a cold pit should be selected for them, and constant attention be given to the supply of water. After standing two or three weeks in this position, they should be shifted into the large pots they are intended to bloom in, one plant in an 8-inch pot or three in a 12-inch one, using as compost a mixture of equal parts loam and rotten manure, and at the same time the top of the plant should be taken off, which will cause it to protrude branches, and these again may be stopped if they have grown strongly and it can be done before the end of June. The old stools from which the cuttings were taken in March may be planted out under warm walls, or near palings, and will then afford strong tops for rooting in August. Five cuttings should be placed in a 7-inch pot, and these, if grown on freely, make useful little plants. During the whole of the time the plants are out of doors, which will be till the approach of frost, they should stand quite clear from each other, that each one may have the full influence of the air, and being carefully watered every day with pure water, and occasionally with diluted liquid manure, the new growth is vigorously developed, and the blooming consequently satisfactory. The plants may stand on a sunny vine border or beside walks in sheltered, but not in shaded positions; stake early and secure the plants from being blown over and damaged by high winds. If the points of the shoots which are last taken off can be induced to root quickly, they make pretty little plants of a few inches in height, surmounted with flowers nearly as fine as those on the larger specimens, and they are useful for the fronts of shelves or to stand before the large pots. On the removal of the plants to the greenhouse crowding should be avoided, and a full supply of both air and water given daily until the flowering season is past, when they may be removed to a shed or placed in the open ground, and protected at first from severe frosts by means of a mat or two thrown over them.

II. For large blooms.—In the culture of standard and trained dwarf Chrysanthemums judicious stopping and careful tying into shape is a main feature in their production. Now, on the contrary, when large blooms are desired, stopping the growths is reduced to a minimum, and success depends in a great measure on the judicious application of suitable manurial stimulants, on thorough maturation of the stout main shoots which are restricted in number from one to three on each plant, all axillary shoots being removed almost before they appear, and all the training the plants ever receive is securing them to upright stakes to prevent injury from wind. On the

plants being grown on from the cutting or rooted-sucker stage in December or January to the blooming stage in November without any check or other injury the production of really fine blooms may be said to depend. The stoutest of rooted suckers are preferable, but if suckers be weakly or drawn by the overcrowding of the plants when housed for blooming, then it is best to depend on the most solid and vigorous cuttings obtainable. Place each carefully in a small pot of sandy loam in a cold pit or frame, taking care that they are as near the glass as is possible in order to prevent their becoming drawn up in a weakly manner. Give air freely, drawing the lights off entirely during bright warm days. Repot from time to time in good loamy soil, keeping a sharp eye on the state of the roots, as plants which are allowed to become rootbound or checked in their early stages rarely if ever give satisfactory blooms. As soon as all danger from spring frosts is over the plants may be placed outside near a wall or fence, or in any position fully exposed to sunshine where they may be sheltered and secured from injury by rough winds. Temporary lath or other light fences, formed of upright stakes and wires not less than 5 feet in height, serve admirably, as the plants may be safely secured to them, and the light framework of slender sticks, with stouter supports here and there, does not prevent their obtaining the full benefit of air and light, both so essential during all stages of growth. The production of all growth from first to last without artificial heat of any kind, and in full exposure to sun and air, is the secret of proper growth maturation. Ripening up the growth in August and September means but little unless the previous growth has been well nourished by applications of soot water, and now and then a dose of liquid manure or soap-suds. An occasional syringing with soot water improves the leafage, and serves as a simple preventive to insect and mildew ravages. About the end of August or early in September is a critical time with growers of large blooms. Flower-buds will be showing at the ends of the strong upper branches or shoots, and it is now imperatively necessary that the buds in the leaf axils below be removed with the points of scissors or penknife. This causes all the flower-producing power of the shoot to become concentrated in the terminal bud, and the result is a bouncing big bloom early in November, just in time for the exhibition stands. This operation is called

"Setting the bud," and unless it be duly performed in the nick of time, the two or three axillary buds immediately below it take advantage of the slackening of growth which takes place while this terminal flower-bud is forming, to push forth on their own account, and, after growing away for 6 inches or 1 foot, these also each form what are called "terminal crown buds," but which are more properly "secondary" or axillary ones as opposed to the terminal or primary buds which form a few weeks earlier at the apex of the un-stopped main stem, and which are pinched out as soon as seen. Enormous blooms are thus obtained by this system of growth—force concentration. Some growers take out the primary bud as soon as it appears, and thin out the secondary shoots which protrude below it to one or two at the most, and so treated, aided by careful attention to feeding, noble blooms are obtained, and one has the choice of two or three flowers instead of limiting one's chances to one bud and its future development, as is the case when the terminal bud only is retained. Strong-growing kinds flower best from the third branching, that is to say, the flower-buds which are first seen are pinched out, and the strongest shoot is selected from just below them to lead away. Weak-habited kinds are not easily overgrown, and the second bud which shows is allowed to bloom. Messrs. Dixon give the following directions as to the culture of Chrysanthemums for larger blooms. They are clear and to the point: "The stands of cut blooms to be seen at exhibitions show to what perfection this flower can be brought by skilful treatment. In the early stages of growth the same soil and treatment are necessary as those

already described, except that the plants are not stopped, but allowed to grow naturally, and it will be found that as the season advances the crown will branch into three or four leaders, which should be allowed to grow, but all laterals should be removed as soon as they appear. When the flower-buds show themselves in September, the centre bud must be the one retained, as it produces the largest bloom. All the others must be carefully removed without bruising the stem, except when the centre one is imperfect, in which case one of the others must be left instead. If possible stand the plants in single rows, with room enough to get between each row, putting in a good stake at each end and one in the centre; then stretching wire to each stake, you can tie the stick by which the plant is supported to the wire, and prevent the wind from blowing them about; it also exposes them thoroughly to sun and air. Some growers for exhibition put two plants in a 10-inch pot, but we prefer only one in an 8-inch. Use manure water liberally until the flowers show colour, taking care not to give it when the plants are dry, but water first and then apply it." Since the above was prepared for press I have been so fortunate as to obtain the practical experience of a successful cultivator of the *Chrysanthemum* near Liverpool. I think I may fairly say that better or more comprehensive directions were never before given on this point.

Striking and stopping.—I strike at the end of February or early in March. If rooted in February in gentle warmth and then hardened to cool treatment as quickly as possible, the plants can be placed in their flowering pots (10-inch) in May. One flower and only one stem should be encouraged from the Mrs. G. Rundle type to produce large flowers, while three or more shoots should be encouraged from Queen of England, Empress of India, Golden Empress, and others. These should be stopped as soon as rooted, and the number of shoots required encouraged to lead upright. These with those not stopped will produce a small bud during May; the points of the shoots should be taken out at once to prevent this bud forming, and all the side shoots taken out with the point of a knife as soon as they can be seen except one nearest the top, which must be encouraged to extend. If you allow the bud to form and the plants to stop themselves, time is lost, and the next bud is late. The plants should be hurried out of this stage as quickly as possible. The next bud will appear about the middle of July, known as the July bud. Many leave or rely on this bud, but it is too early, and it will only produce rough, badly-shaped flowers. Do not allow this bud to form; remove all side shoots but one, as in the case of the earlier bud, as soon as they can be seen. The shoot you allow to grow will produce another bud about the last week in August after the plants have grown about a foot or little more. The August bud is the one to be selected, and will produce fine flowers. This bud appears at the end of the shoot, and is known as the crown bud. The moment it can be seen, the three that will be found nestling round it must be carefully taken out with the point of a knife, and every shoot that shows from the base of the leaves below, as the whole strength of the plants will be concentrated into the buds. If the growths around the bud are allowed to grow an inch or two the bud often afterwards will not swell, so you will see the necessity of removing them as soon as they can be seen. These three shoots to which I allude would grow about 9 inches long and produce other flowers known in *Chrysanthemum* circles as the terminal bud. If you wish a flower from the terminal bud only one growth should be allowed to grow. From this bud some of our finest flowers are obtained—I mean best shaped and most even, not the largest—from varieties inclined to grow rough or coarse. It is possible to overgrow some of the incurved varieties when one flower only is taken from a plant. This is not the case with the Japanese; the stronger they are grown the longer are their florets generally, and their curious character is better displayed.

Large-flowered or Incurved varieties are so many and so good that it is difficult to make a

selection. The following kinds, however, more often occupy a place on the first prize stands than others: Mrs. G. Rundle, George Glenny, Mrs. Dixon, Prince Alfred, White Globe, Queen of England, John Salter, Princess Teck, Barbara, White Venus, Mrs. Halliburton, Golden Beverley, Lady Hardinge, Nil Desperandum, Hero of Stoke Newington, Yellow Beverley, Princess of Wales, General Bainbridge, Peach Venus and Jardin des Plantes.

III. For trained standards.—In order to grow good standards select the strongest and stoutest of the root-suckers which can be found on the old plants after blooming in January or February at the latest. Carefully separate them from the old stools with as many roots as is possible, and pot them at once in 4-inch pots. Be careful as to names, as any neglect of this kind proves a fertile source of disappointment. Place them in a cold pit or deep frame on a bed of coal ashes, and sprinkle with water from a fine rose. Keep the lights down close for a week, so as to induce the protrusion of new roots, after which air should be freely given (except during hard frost), and on fine warm days the lights should be entirely removed. If lateral buds show themselves in any way prominently, carefully remove them with the point of a pair of scissors, or with a sharp penknife, until the required height is attained. As growth proceeds, secure the growth to a slender stake, so as to prevent its being accidentally broken. Pot on as may be required, taking care that the young plants never become root-bound in the pots. In April, or early in May, all danger from cold being over, the plants may be placed on a bed of coal ashes in the open air where they will be fully exposed to sunshine and air, but sheltered from rough winds. On no account must they be allowed to suffer from want of water. When the carefully nurtured single stem has reached the height desired, take out the upright stake which has hitherto supported it, and add one having a semi-hemispherical wire trellis at the top of this shape, and 10 inches or 12 inches in diameter. Bend the shoot around the outer rim of the framework. The plants should now be placed in their blooming pots. Now for the first time the axillary buds (hitherto carefully removed) may be encouraged to develop, which they will do speedily after the main shoot or stem of the proposed standard has been coiled round the frame. Judicious pinching now and then and syringing morning and evening with clear soot water will be conducive to the formation of strong shoots covered with healthy clean foliage. In cold districts it is not safe to stop or pinch off the growing points after about the last week in June. If pinched too late, the wood does not become thoroughly matured ere the flower buds form and the production of fine flowers solely depends on strong and well ripened growths. In warm localities, as in the south of England, pinching may go on as requisite until about the second week in July. As the pots become filled with roots, manure water and soot water may be given on alternate days. The best varieties for making good standards are the following: Large flowered—Mrs. Rundle, George Glenny, Mrs. Dixon, Aureum multiflorum, Empress of India, Eve, Venus, Lady Slade, Lady Hardinge, and White Venus. Annie Salter well grown makes a telling specimen, as also do most of the varieties of the Pompones and Pompones. *Anemone* race under liberal culture. Mr. Brunlees, Brilliant, Faust, Julia Lagravère, Calliope, Elaine, Mrs. Halliburton, and Peter the Great also make effective standards.

IV. Fan-trained dwarfs.—*Chrysanthemums* of the Mrs. Rundle (Incurved) and Annie Salter (Reflexed) types make very attractive specimens when trained in a mushroom or pancake shaped manner on a trellis work of bamboo sticks and wire. As to tying and training directions are fully given at page 34. The following directions are those supplied by Messrs. Dixon. The practical notes on stopping are especially valuable and must be carefully followed. "In the choice of plants for specimens great care should be taken to select only those varieties possessing the follow-

ing qualities—viz., free blooming, clear and distinct colour, fine foliage, and graceful habit. Every attention has been paid by us to select only those sorts which contain the above properties, and which will be found the best. The soil should consist of two-thirds loam, and one-third rotted stable manure, with a liberal admixture of sand. Two inches of broken potsherds should be placed in the bottoms of the pots for drainage. If large specimens are required for exhibition, it is essential that cuttings should be made in the autumn, and only such as are healthy and robust selected (or a strong sucker with roots). These should be potted into 2½-inch pots, and when rooted shifted to a large 3-inch size. As soon as they are established in these, they must be stopped, being careful to take out only the extreme point of the shoot, containing the unexpanded leaves, as the plant then continues to lengthen, and it also encourages the growth of the laterals, of which five or six will be found sufficient. These, as they increase in length, should be pegged down, and great care taken that they are not injured or broken. Place them in a cold frame near the glass, giving air on all favourable occasions; continue to shift, and as soon as the laterals are 6 inches long, they must be stopped. Do this until the second week in July. In the last week of June the plants should be shifted into their blooming pots, which are 11 inches in diameter. Never shift and stop at the same time. Fourteen days should always be allowed between these operations. The shift then strengthens the laterals. (For exhibition specimens this should never be departed from.) When in their blooming pots, we stand them on three small pots in a good open piece of ground; this enables the water to escape freely, and prevents the plants rooting into the ground. As soon as the roots get to the sides of the pots we commence giving liquid manure. For the first three weeks, once a week; the next three weeks, twice a week; after that until they show colour, every other day. The foliage should be well syringed, and constant and well watering is necessary during hot weather to ensure green and healthy foliage. Nothing spoils the *Chrysanthemum* sooner than want of water. They will now require more care in regulating the shoots, which should be kept down as near the edge of the pots as possible. About the middle of September train the plants into the shape you want them, by neatly staking each shoot, leaving the stick longer than the shoots, as they continue to lengthen until they come into flower. As soon as the flower buds appear, disbud. This is done by removing all buds except the one in the centre of each branch; for if the plant be vigorous, these will be quite enough to insure a fine head of bloom, but if a quantity of bloom is preferred to large flowers, little (if any) disbudding need be done. They should be housed about the middle of October; but in this be guided by the state of the weather, as they are better outside whilst the weather is open, and the buds do not show colour; the foliage improves by remaining in the open air. When housed, avoid fire heat, except when absolutely necessary, but give them as much air as possible.

"Pompones are cultivated in the same manner as the large-flowering varieties, but it is not necessary that disbudding should be carried on to the same extent. Another style of plant which has become very popular lately is the standard. Either Pompones or the large varieties will do, if care is taken to grow only the suitable varieties—of which now-a-days there is no scarcity. Vigorous autumn cuttings or suckers should be selected, shifting as already described, and staking the plant to the height you want the stem, which for exhibition is not generally less than 2 feet 6 inches. After they are a little beyond the required height, stop them, trying to get as many breaks as possible from the first stopping to form the head. Be particular in keeping all side shoots pinched off. A small framework of laths erected under the head is the handiest for training them on. The sorts selected are early varieties, which enable us to stop them a fortnight later than

the others, which is necessary to obtain a good head." F. W. B.

FLOWER GARDEN.

COMMON AND SWEET-SCENTED COLTSFOOTS.

THERE is such a resemblance between these two plants as regards foliage and style of growth that one may be easily mistaken for the other, but while one is a desirable plant to have a little of in a garden, the other is a troublesome weed, difficult to extirpate when once a foothold has been obtained. Everybody knows the common Coltsfoot (*Tussilago Farfara*) met with on roadsides and in waste places, but the sweet-scented Coltsfoot, or, to use its more appropriate name, Winter Heliotrope, is not so well known, though just at the present time there is not a more fragrant plant in the outdoor garden, or one that is better able to brave our worst winters. It is chiefly for the delightful vanilla-like perfume of its flowers that it is desirable, a few cut heads of its bloom being sufficient to scent a good-sized room. Though its foliage so much resembles that of the common wayside Coltsfoot, its bloom is quite different, as may be seen by the annexed illustrations. In the common kind the flowers are Daisy-like and bright yellow, while in the scented one several flower-heads are gathered into a dense cluster, which is pale lilac and purple. This floral arrangement is common to the genus *Petasites*, to which the plant belongs, though besides being known botanically as *P. fragrans*, it is synonymous with *Tussilago fragrans* and *Nardosmia fragrans*. Like the common Coltsfoot, it has creeping underground stems, but the plant may otherwise be distinguished by its much deeper green than that of *T. Farfara*. It is, moreover, evergreen, while the common Coltsfoot is deciduous. It is a native plant, but, as already remarked, its flowers are so welcome in the depth

stems spreading rapidly and widely. A dry bank where little else would grow might profitably be devoted to the Winter Heliotrope, and if the soil is of a strong loamy character, it will produce luxuriant foliage by no means unhandsome throughout the year. G.

CHRISTMAS ROSES.

I SEND you, from my collection of many years' standing, a few specimens of distinct species, and a few also of pretty hybrids. The former are by far the more interesting to me, but as garden flowers the hybrids are invaluable; and at this season of the year two-year-old seedlings are daily producing new forms according to the peculiarities of their parentage, and from these my selection is made. My plants are treated strictly as hardy plants, not in cold frames, and the unusual amount of rain has greatly injured the blooms. I may mention also that in this season, not less than last, the field mouse (*Mus sylvaticus*), and I suspect the bank vole also (*Arvicola riparia*), have been most destructive, eating off the blooms by hundreds in a few nights. This would interfere with me the more had I any intention of sending a perfect collection, but such is not my object. The species sent are:—

Persistent foliage.	Non-persistent foliage.
<i>H. niger</i>	<i>H. viridis</i>
<i>n. maximus</i> — <i>altifolius</i>	<i>fœtidus</i>
<i>argutifolius</i>	<i>cupreus</i>
<i>kamtschatkensis</i>	<i>intermedius</i>
<i>abchasicus</i> — <i>atrorubens</i>	<i>purpurascens</i>
<i>a. albus</i>	<i>graveolens</i>
<i>olympicus</i>	<i>pedatus</i>
<i>o. major</i>	<i>Torquatus</i>
<i>orientalis</i>	<i>dumetorum</i>
<i>antiquorum</i>	<i>Bocconi</i>
<i>lividescens</i>	<i>odoratus</i>
<i>Semi-persistent foliage.</i>	<i>Sambuc-odorus</i>
<i>H. odorus</i>	

And I should wish to direct special attention to *graveolens*, because of its extreme rarity; to *cupreus* and *intermedius*, because their names have been reversed; to *purpurascens*, because it has been called *graveolens*; to *olympicus*, which (true) is rare, and quite unlike what is sold under that name; it is white, shaded green, well represented in *Botanical Register*, vol. xxviii., pl. 58; to *antiquorum*, white, delicately shaded pink, and well represented in *Botanical Register*, vol. xxviii., pl. 34, under the name of *orientalis*, from which, as may be seen by the *orientalis* enclosed, it differs much, being more delicate, less cupped, and with more pointed sepals than the latter. Although *antiquorum* and *olympicus* inhabit the same locality, the latter is never tinted with the pink shade, which is always more or less present in *antiquorum*. Observe also *dumetorum* difficult to distinguish, and *Bocconi* with others which, I believe to be true species, though with unauthorised names—viz, *odoratus* and *Sambuc-odorus* much more powerfully scented than *odorus*, but with non-persistent instead of semi-persistent foliage. *Pedatus* also and *lividescens*, *Torquatus*, and *olympicus major*. Many of

The hybrids are much spotted after the manner of *guttatus*, which last, if really found wild, is, I suspect, only a hybrid, not a species. In *THE GARDEN* of Jan. 20 (p. 49) there is a notice of *niger angustifolius* and *altifolius*, which latter has a prior claim to the name *maximus*. It is not, so far as is known, a true species, but a permanent variety, exceeding all others in size and substance, and particularly and constantly in its red pistil. In the year 1878 a beautiful representation of this variety was given in *THE GARDEN*, but I think the colouring was misleading. When in perfection it is a pure white flower, without of necessity any pink whatever, except in the pistil; the sepals in their later stages are always more or less pink with perhaps some green; but if, as is occasionally the case, this plant, white one year, opens out its sepals even in perfection pink the next season, the change is not permanent in the old plant, nor capable of being continued in its parts by sub-division, but seems to have arisen either from some check given to its roots or from exposure to a cold draught or some peculiarity of atmospheric influence. I do not know, certainly, the plant to which your correspondent applies

the term *niger angustifolius*; this is not usually spoken of as a large variety, but rather the contrary, but it may be major or some other form of *niger*, of which so many varieties come from seed, but all distinct from *altifolius*—all without the red pistil. T. H. ARCHER-HIND.

South Devon.

LILIUM POMPONIUM (VERUM).

IN reply to the remarks made in *THE GARDEN* (p. 58) by the Rev. Wolley Dod, I must say that



Winter Heliotrope (*Petasites fragrans*).

I have not grown this Lily for ten years in the same spot, nor do I believe that it would be possible to grow it for so long a time without renewing it either by seeds, division, or scales. This Lily seeds very freely, and my experience is that all Lilies that do that invariably require renewing every few years, say from four to six years. I have grown this Lily for some years past, and my experience is that it is one of the easiest of all to grow. When collected the bulbs are very small, and if planted early in autumn a few flower the first season, all flower well the second, and the third they are at their best, forming handsome bulbs weighing from 6 oz. to 7 oz., and from 9 inches to 11 inches in circumference; the fourth year they split into two or three bulbs, and must be taken up, divided, and replanted, and I think if this were done no one would have any difficulty in growing this, one of the most beautiful of all known Lilies. With regard to

Lilium Browni, bulbs of this increase naturally at a very fair rate; after they get about 10 inches or 12 inches in circumference they can be divided, usually into three or four bulbs each, and the stems produce annually a few small bulbs just above the ground, varying from three to six according to the strength of the bulb; the loose scales, too, planted form in three or four years nice bulbs. *L. Browni* does best in sandy peat, *L. pomponium* in sandy loam, giving them plenty of manure below the bulbs, and a good annual top-dressing of the same material. I always give every Lily I plant abundance of good old rotten manure; I have been told repeatedly that it would kill them, but they grow splendidly, and increase every year in size, proving that Lilies, like most other things, are fond of good living. P.

Godetia Whitneyi var. *Duchess of Albany*.—This is described by its introducers as growing about 1 foot in height in a branched pyramidal form, and producing in clusters very large



Common Coltsfoot (*Tussilago Farfara*).

of winter that an odd corner should be allotted to it where convenient, so that a few of its sweet-scented blossoms may be cut to mix with other flowers. Care must, however, be taken not to allow it to take root in any choice border, for it is a difficult plant to eradicate, its underground

flowers of a fine glossy white colour, each flower being 4 inches across when fully expanded. This probably is one of the finest of varieties which have originated from the *Godetia Whitneyi* introduced by me some years since.—W. THOMPSON.

VARIEGATED TREE MALLOW.
(*LAVATERA ARBOREA VARIEGATA*.)

LEAVING the question as to whether variegation in plants is a sign of depauperation or not to be settled elsewhere, it is a fact that during recent years the list of variegated garden plants has been considerably swelled by additions to both the hardy and tender classes. In the former we have here a fine example in the way of variegated foliage in our native Tree Mallow, which may be found in various parts of the British Isles, chiefly in seaside localities. We first saw this plant when it was exhibited last year at the Royal Horticultural Society's summer show, where it was awarded a first-class certificate. We then thought it a handsomely variegated plant, perfectly hardy and desirable. The variegation is well shown in the annexed illustration, the light portions being a creamy white. The following account of it from the raiser, Mr. Smith, we extract from Mr. Bull's catalogue: "I have (says Mr. Smith) propagated many plants of it, and I have not yet seen one that was not beautifully variegated. I have proved that it comes true from seed, but it must be understood that, like the variegated Maize, it does not

desirable, for in the spring of the second year the beauty of such plants is beyond description."

DWARF ASTERS FOR CUTTING FROM.

THERE are several useful sections of these, not only useful for cutting from, but well adapted for small gardens, owing to their being capable of cultivation in a smaller space than that required for such robust growing types as Truffaut's *Pæony*-

averaging from 12 inches to 15 inches in height, and which are specially adapted for bedding or ribbon borders. Of these the dwarf *Chrysanthemum* flowered is deserving of all praise, and it is one of the best and most useful types in cultivation, the flowers being large and so abundantly produced as to almost hide the foliage. The average height is 10 inches, and it is one of the characteristics of this Aster to throw out a large number of side blossoms that are very useful to

cut from. The Schiller Aster is a most useful form also. This, like the foregoing, belongs to the flat-petalled type, growing about 12 inches in height, of robust constitution, and symmetrical growth, yielding a large quantity of flowers. As many as from 60 to 80 blossoms have been counted on a single plant, and of which there are several varieties. A more useful type cannot find a place in gardens. The large flowered Rose Aster is a dwarf strain of Truffaut's *Pæony*-flowered *Perfection*, and this also is robust and very fine, and of great value in the garden. The dwarf *Victoria* also comes into the flat-petalled group, and is a valuable acquisition. Though distinct, it is often confounded with the dwarf *Chrysanthemum*-flowered, and the latter is substituted for it. All the above are well worth attention for the purpose named, viz., cultivation in pots for cutting.

R. D.

Narcissus monophyllus.—Mr. Wolley Dod has (p. 84) misunderstood me. I certainly said that this plant was a desideratum in most English gardens, but I

was far from wishing to imply that it had not long since been introduced into our gardens. I should be sorry to say (what anyone who consults old numbers of the *Botanical Magazine* and other periodicals may see for himself) how many good things have been introduced into and since lost to our gardens where they would now be thoroughly appreciated. Of such losses the genus *Pelargonium* is a notable example; and of the *Proteaceæ*, once numerous in our green-houses, how many do we now see? I find *Narcissus monophyllus* in the Lesser Atlas in full bloom



Lavatera arborea variegata.

show much variegation in a young state. Plants from seed sown last spring are now beautifully variegated. There is not the least doubt that it will be one of the finest and most effective plants for large beds and borders ever introduced. I find the leaves to be useful for garnishing late Grapes when Vine leaves are not to be had. It withstood last winter without injury; it is best, however, to pot some up, keep them in a cool house, and turn them out in spring, but a slight protection outside would be sufficient to keep the plants undisturbed in beds or borders, which is

in March (not midwinter), and I feel satisfied that newly-imported bulbs, planted whilst dormant on a warm, sunny bank in turf, would have a good chance of success.—R. MILNE-REDHEAD.

I am surprised to read in Mr. Wolley Dod's article on *Narcissus monophyllus* that he has difficulty with the common Hoop-petticoat. With us it is no trouble at all, and I did not even know it was considered difficult. Our soil is a warm, peaty sand, the very opposite to his, and we are 400 feet above the sea level. It never fails to flower strongly, and increases satisfactorily. In 1877 I had a dozen bulbs; in 1879 I gave away one dozen, in 1880 two dozen, in 1881 one dozen, in 1882 four dozen, and I have seventy remaining. Perhaps Mr. Dod will do the sum, and say how many there would have been if none had been given away; later I will ask him to try a dozen from the same stock. It is a large vigorous kind, with strong, dark green leaves now a foot long; a woodcut prepared from some of the flowers appeared last year in THE GARDEN. The white Hoop-petticoat of Algiers I am trying in a warm bank of short turf and in other positions, and hope to be able to record some success next year. Our difficulty is with Jonquils. Some 300 planted in 1878 had dwindled to about fifty when taken up last summer; these were replanted in stiff clay, with us a scarce and precious commodity. They grow strongly and increase with our neighbours a few miles off on stiff soil on the edge of the weald of Sussex, where the sulphur and yellow wild Daffodil grows in damp meadows. Mr. Barr accounts for our failure with Jonquils by considering that the warm soil forces the foliage into premature growth, which is then injured by frost.—G. J., Surrey.

Mr. Wolley Dod's notes on *Narcissus Bulbocodium* are valuable, interesting, and inspiring. I observed some time since that my own bulbs, planted early last autumn, which in October last were making grass, had gone under again, and as I strongly suspect they have now gone altogether, I had concluded that I had not made the soil light enough, but it looks as if the evil lay deeper. Perhaps some of your readers may be able to give us a little further information on this matter derived from their experience. Such would be useful to me and probably to others, as although this is, I think, almost the most beautiful of the whole tribe of *Narcissus*, I am coming to the conclusion, in the matter of bulbs especially, that it is better to accept the defeat, and not to throw good money after bad. There are many beautiful Daffodils that will grow. There was an extremely fine display of *N. Bulbocodium* on the rocky at the Tottenham Nurseries last spring. I did not ask how long the plants had been there, but such things in nursery gardens are seldom left long enough to become established. *N. Bulbocodium* grew and flourished fairly well in my grandfather's garden in Devon in a very unlikely soil, but attempts to move it or give it away I believe always failed.—T. C. L.

I suppose that Mr. Wolley Dod considers that I live out of England (*vide* p. 84), and therefore his remarks about *Narcissus monophyllus* do not apply here. But it may interest him to know that in this favoured isle this beautiful bulb quite finds itself at home. It can certainly bear 17° or 18° of frost, and it blossoms in the open with ease, only its time of flowering is later than Mr. Dod imagines, viz., about the beginning of March. I sent you a blossom last spring from the open ground. Several pansful of *Narcissus monophyllus* have been at their best in the greenhouse for some weeks.—HENRY EWBANK, *St. John's, Ryde, Isle of Wight*.

Six-sepaled Hellebores.—Mr. J. Wood (p. 80) requests notice of this abnormal form. I send one specimen of *H. niger* and one of *H. olympicus major*, the latter a beautifully formed flower; each has six sepals or converted bracts. Amongst seedlings of *H. niger* I find very great variety of foliage and bract peculiarity; these seem purely accidental, for though in some cases the spotted stems would seem to point to inter-

mixture with *Helleborus maximus*, this would not lead to alteration in the sepals; it might, however change the character of the foliage, &c. In *argutifolius* we find in the same plant simple, bifid, trifid, and quadrid leaves.—T. H. ARCHER-HIND, *South Devon*.

BANKS OF SEDUMS, SAXIFRAGES, AND SEMPERVIVUMS.

IN the Botanic Gardens, Birmingham, a bank devoted to these plants is one of the most pleasing features of these well furnished gardens. It is placed near the fernery, a quiet, secluded dell devoted chiefly to Ferns enlivened with Foxgloves the first sight of which no one is likely to forget. The collection, as will be seen from the following list, is extensive and varied:—

Saxifraga aizoides
Aizoon
aretioidea
a. primulina
aspera
atropurpurea
bryoides
Burseriana
cesia
Cotyledon
crustata
flagellaris
geranioides
Hostia
jupiterina
lantoscana
longifolia
muscoides purpurea
oppositifolia
rotundifolia
seioidea
stellaris
Tazetta
ticipidata
valdensis
Wallacei

Sedum Anacampseros
arborescens
brevifolium
carnaeum variegatum
cruciatum
dasyphyllum
Ewersi
monregalense
Nevii
obtusatum
populifolium
spathulifolium
Sempervivum arachnoideum
arenarium
barbatulum
Brauni
ciliatum
cornutum
heterotrichum
Neilreichi
petrifolium
ruthenicum
Reginae-Amalie
Verloti
violaceum
Wulfeni

Such plants have a special interest in themselves, but no one seeing them at Birmingham can doubt that their interest and beauty are greatly heightened by their disposal on a sloping bank. The bank virtually enlarges the patches or groups by bringing them nearer to the eye as well as presenting them to us at what may be called an enlarging angle of vision. The line of beauty, it is generally agreed, is a curved one; but to render it most beautiful it must curve towards the sky as well as meander out of a straight course. One of the chief attractions of the Birmingham Botanic Gardens consists in their beautiful undulations.

D. T. FISH.

COLOUR IN THE FLOWER GARDEN.

THERE are only one or two points in "R. A. H. G.'s" article on this subject which call for any remark on my part. The original idea to which I objected as fallacious was that taking all colours as composed of red, blue, and yellow in various proportions and combinations to find the correct harmony for any colour, all that was necessary was to combine the remaining colours. This I have already shown to be untenable. "R. A. H. G." now claims that all combinations of colour are harmonious which contain what he calls the three primary colours; assuming as he does that these form all the others, combinations which contain these primaries include nearly all the combinations of colour which can be made, and this brings us to the conclusion that there is scarcely such a thing as discord. The flaw in "R. A. H. G.'s" argument is in assuming as true what I have already shown to be false.

The only further reply I need make is one which will enable readers of THE GARDEN to judge of the comparative value of my remarks on colour harmony. I should not have considered it desirable to reply to "R. A. H. G.'s" first article had not twenty-five years' experience in teaching in schools of art, and in the practice of just those branches of art which bring one into intimate relation with the tastes and ideas of the general body of the public, and in which bad colouring immediately receives practical punishment in loss of cash, given me ample opportunity of judging of those matters, and especially of what is most likely to meet with general acceptance. The

theory of colour "R. A. H. G." propounded owes its publication to the schools of art, and having been found useless in those schools, it is only fair to the public that it should be contradicted from the same source. I hope "R. A. H. G." will see that as my alma mater must bear the lion's share of the blame in misleading him, I have only been doing my duty by her in endeavouring to set him right again. I need only add, in conclusion, that we should consider ourselves lucky in having such pupils as "R. A. H. G.," who take everything we taught them as infallible, and defend it as tenaciously as he has done in this instance. J. D.

PROPERTIES AND CULTURE OF THE POLYANTHUS.

AN enthusiastic amateur, and one having a good knowledge of flowers and plants, writing on this early spring flower forty years ago, says it is "one of the loveliest gems in all the wide kingdom of Flora." At that time when people spoke or wrote of the Polyanthus they meant what we now call the gold-laced form. The type of Polyanthus of the mottled or border kind, which in recent years has been so much improved, did not seem to be known in those days, nor were choice forms of the Polyanthus grown as border flowers. Showy border Polyanthuses are admirable subjects to grow for the adornment of the spring garden, but when compared with the laced varieties they are as "moonshine unto sunshine," so far are they behind them in refinement. It may be desirable to give the following description of

The properties of a first-class laced Polyanthus, approved and published by the Metropolitan Society of Florists about forty-five years ago, and the best I have met with. "The pip should be large, and the nearer the outline approaches a circle the better; it should be free from any unevenness and lie perfectly flat; the edge must be smooth, and the divisions in the corolla, which form it into heart-shaped segments, should reach the eye, but not cut into it. The segments should be well rounded, making the divisions between them small and shallow. The tube must be of a fine yellow colour, round and clearly defined, well filled with anthers, and terminating in a narrow ridge, raised slightly above the surface of the eye. The eye should be bright rich yellow of an uniform width round the tube. The ground colour must be entire, free from specks and blemishes, of a dark and rich crimson, not paler at the edges, and uniform in every division. The edge should form a narrow and well defined rim of yellow, perfectly regular, bordering each segment, and passing down the centre of each division to the eye. It is essential that the edge and the eye be of a uniform yellow. These qualities in the pips, and the flower forming a compact truss, standing well above the foliage, on a firm, upright stem, will constitute perfection in the Polyanthus."

Culture.—Now, when the Polyanthuses are bursting into life and beauty, it may be well to make a few remarks on their cultural requirements. The finer forms do not grow very freely. Indeed, they must be classed amongst what may be termed difficult plants to manage; and it is only by importing plants occasionally from a northern district that collections in the south can be maintained intact. What is most trying is the hot, dry weather that generally occurs in June, July, and August. Our plants are put out into the open ground early in May, or as soon as the flowering period is over. They are planted in a shady place, and in good rich yellow turfy loam, brought from Primrose districts, but with all our care their most desperate enemy, red spider, makes sad havoc amongst them—many varieties being so debilitated by it, that they succumb altogether during the following autumn and winter. At present our plants are in their flowering pots and pushing satisfactorily; they must be kept in frames and well aired, the lights being drawn off whenever the weather is at all favourable. They are generally in flower before the Auriculas, and in order

to maintain them in beauty as long as possible they must be shaded from bright sunshine; but as soon as the sun passes off them the shading should be removed. They also succeed best when the frames in which they are growing have their backs placed to the south. If there is any trace of green-ly upon the leaves it ought to be removed now by fumigating the frames, as it injures the flowers to fumigate when they are in full beauty.

The Polyanthus lasts in flower longer than the Auricula, for, besides the centre truss, there are usually three or four side trusses which come in later, causing the plants to last in flower for six weeks at least. It is usual for those who make a fancy flower of the Polyanthus to remove the side trusses, allowing the centre one to remain, and also to thin out the pips to five or seven of the best only; but to treat a Polyanthus in this way destroys the natural character of the plant. One of the best amateur growers in the north of England told me that he never grew Polyanthus two years in succession in pots. His plan was to plant them out in borders as soon as the flowering period was over, and they were not potted again until they had made two seasons' growth. His time for potting was the first week in August, and I have also potted them at that time and found them to succeed admirably. The potting material should contain more loam in proportion to the other ingredients than the compost recommended for Auriculas. When they are potted the north side of a wall or fence seems to be the best place for them; they may be protected with glass lights until they are established, but they are best in the open air until frosts set in. They should also be aired very freely during the winter months.

J. DOUGLAS.

HARDY PRIMULAS.

THE interesting note, with list of Primulas, contributed by M. Gusmus, of Villach, to your last number (p. 83) suggests to my mind a pleasant train of thought as to the future of this interesting class of plants from a florist's point of view. M. Gusmus enumerates about thirty-six species of European origin and thirty-eight of Asian and American. To the Asian we must add the twenty-four new Indian species described by Mr. George Watt in the Transactions of the Linnean Society (December 18, vol. xx., No. 123). From the European series M. Gusmus gives a list of about forty-nine hybrid varieties, a great portion of which are practically unknown in England; but there are several forms known to us which are not in his enumeration, and there are also a number of interesting hybrids from the Asiatic section. What an interesting field for culture will be opened out to the florist when these new Indian forms come to hand!

The Continental florists know very little of our English Auriculas, which have all sprung from their mountain Primula Auricula, or perhaps from *P. pubescens*. What a troop of lovely forms are included in an array of show Auriculas—white edge, grey edge, green edge, selfs, and alpinas, which have been carefully cultivated from the parent stock. It is the same with *P. elatior* and the lovely progeny raised therefrom, our Polyanthus of every colour and of such perfect forms, and with *P. acaulis* and all its lovely varieties, single and double.

M. Gusmus gives the hybrid *P. intermedia* as arising from *P. minima* × *P. Clusiana*, but we have also a *P. intermedia* from *P. Auricula* × *P. viscosa*, which is likely to become a favourite garden flower. Mr. Harry Brownhill, of Sale, had a large batch of seedlings from show Auriculas, selfs and fancies, the seed of which had been set in a frame which had a plant of *P. viscosa* in bloom at the same time, the pollen from which seemed to have been carried to every flower of the Auriculas. The seedlings from this accident proved to be of great beauty, the blooms showing the dwarf, compact habit of *P. viscosa* with the lovely colours of the show Auricula, and the plants when in bloom were literally one mass of flower. No doubt there are many such hybrids

to be obtained from alpine varieties in this way. It is the same with the Asian species. What lovely forms have sprung from *P. cortusoides*, *P. denticulata*, and *P. japonica*! and we may look for many more from *P. rosea*, *P. capitata*, *P. luteola*, and *P. cashmeriana*.

Of the new Indian species described by Mr. Watt, many appear likely to be of great value. There are several forms of *P. Stuarti* varying from 6 inches to 1 foot in height, reminding one of large varieties of our own *P. farinosa*. *P. Watti* is a good deal like *P. capitata*, of a rich purple-violet colour. *P. Kingi* has looser and more drooping umbels of a rich claret colour. All these have the leafage of the *P. farinosa*. Then come a number with leaves like our Violets, *P. Gambeliana* having these leaves, with a purple flower like *P. cashmeriana* and *P. Clarki*, and *P. philipes* having tiny Violet-like flower-stalks and small flowers, clustered and single. But there are still smaller varieties. *P. sapphirina* is like a tiny Saxifrage with bright blue flowers; *P. reptans* has a creeping stalk, from which it throws up flower-stalks an inch high; and *P. Stirtoniana* and *P. muscoides* are dwarfier still. There is another tiny form called *P. soldanelloides*, from its resemblance to that flower. Another dwarf variety, *P. tenella*, has large bluish white flowers; and there is a tall yellow variety, *P. elongata*, which is likely to be most welcome of all. It will be seen from this brief description of a few of the new Primulas introduced to us by Mr. Watt, how interesting a lot they are, and one longs to hear of the seed or plants being obtainable for our gardens.

Brockhurst, Didsbury.

WM. BROCKBANK.

White long-spurred Columbine (*Aquilegia cœrulea alba*).—This has disappeared from the catalogues of the best hardy plant nurserymen, and, as far as I recollect, "the commentators" were ominously silent about it last summer. It would be a pity if so beautiful a plant were lost; it is, I fear, less hardy than *A. cœrulea*. The only plant of it I ever came across, itself a "come-by-chance," has long gone over to the majority.—T. C. L.

Hint for raisers of Dahlias.—Some years ago I brought from Bahia seeds of *Bidens atrosanguinea*, which I have grown ever since. I now see this plant in the catalogues under the name of *Dahlia Zimapani*; it has the advantage of being very dwarf and compact in habit, and although the flowers are small they are well shaped, and of such a depth of colour that when opened on a fine dry day they appear almost black. Surely by fertilising the flowers of a good single Dahlia with the pollen of *D. Zimapani* excellent results might be obtained.—R. MILNE-REDHEAD.

Hypericum empetrifolium.—Can anyone who has established this tell me if it is particular as to soil—for instance, is peat (as seems not improbable from the apparent affinities of the plant) a *sine qua non*? I had a nice specimen of it planted last spring, growing and flourishing on my rockery in common soil, but, without giving any previous warning of its intentions, it has suddenly "put its ears back and cut it," as sporting writers say when describing the defeat of the favourite for "the Oaks." I should be sorry not to have it, for it is a really good thing; indeed, I do not think I know a more beautiful dwarf shrub for rockery purposes.—T. C. L.

Aponogeton distachyon and mice.—I can fully confirm what your correspondent says (p. 50) as to the destruction of this plant by some small animals, but are they mice or rats? I have attributed my loss of the plant to the latter; it thrived with me in a shallow pool, but as soon as it came into flower it was attacked, first in the leaves, then in the flower-stalks, and finally the root itself absolutely disappeared. I then planted another good root in a deeper pool, say 2 feet deep (the water never freezes in either pool). Here again it bloomed freely in midwinter, but whilst so blooming most provokingly disappeared, not a fragment being left to show where its

curious and deliciously-scented flowers had been a day or two before.—R. MILNE-REDHEAD.

NEW HARDY PLANTS.

Abronia villosa.—To the two species of this genus already introduced to cultivation by me, viz., *A. arenaria* and *A. fragrans*, I now have the gratification of adding another of no less interest, which has the considerable advantage of being annual. *Abronia villosa* resembles in its general characteristics the well-known *A. umbellata*, but is more robust in growth, and is remarkable for the shaggy hairs with which its trailing succulent stems, foot-stalks, and peduncles are clothed. The flowers are produced in axillary umbels in great abundance, each consisting of from ten to fifteen flowers of a lilac-purple colour, surrounded by an involucre of several small lanceolate scales or leaflets. The individual florets are larger than in *A. umbellata* and of a deeper colour. It luxuriates in warm dry soils with a sunny exposure. The seeds vegetate with great facility, and preserve their vitality for a considerable period.

Layia elegans.—This is a pretty Californian annual composite, resembling the well-known *Callichroa platyglossa* and *Oxyura chrysanthemoides* from the same region, but differing from the former in having the broad deep yellow ray-florets margined with white, and from the latter in its larger flower-heads and more branching habit. It grows from 1½ feet to 1½ feet high, with numerous spreading branches and linear-lanceolate foliage, somewhat hirsute, more or less incised at the margins near the tips, but often quite entire. The flower-heads are about 1½ inches to 1½ inches across, having from ten to twelve wedge-shaped ray-florets of a bright full yellow, tipped with white, and three-toothed at the extremity. It continues in flower for a month or six weeks, and is very showy when cultivated in a mass. The seeds are very distinct in character, being quite dissimilar to those of the *Callichroa* and *Oxyura*, though these are now both classed in the same genus with the *Layia elegans*. It may be treated either as a half-hardy annual, sowing in March in a slight hot-bed, and planting the seedlings out in May, or as a hardy annual, in which case the seeds should be sown thinly in the open ground in April where they are to bloom.

Eriogonum cardiophyllum.—If not one of the showiest or largest flowered, this is undoubtedly one of the most remarkable and distinct of all the Californian *Eriogonums*. From a perennial root it throws up several stems nearly a foot high, furnished with heart-shaped leaves an inch or less long, hoary beneath, the margin sinuately and conspicuously toothed. The flowers, which are yellow, are produced in loose terminal racemes of ten to twelve blossoms, each flower being, inclusive of the funnel-shaped tube, about 2 inches long, and the limb an inch across, the petals somewhat rhomboidal in form. It is described by the collector as being an elegant little species, and likely to flower in the first year from seed. The seed is very small, being scarcely larger than that of the *Lobelias*.

Pentstemon Eatonii.—Of the numerous scarlet-flowered species of *Pentstemon*, this is described by Prof. A. Gray to be the finest. It is allied to the well-known *P. centranthifolius*, but is dwarfier in habit and less glaucous; the corolla tube is wider, and its colour a deeper scarlet, verging on crimson. It grows about 1½ feet high, producing several stems from the same root, the foliage being all entire, broadly ovate below to lanceolate upwards. The flowers are produced in a terminal panicle, a foot in length, the corolla gradually widening towards the mouth, the limb with five rounded nearly equal lobes. This handsome species is almost certain to prove quite hardy in England, seed having been collected at an elevation of 8000 feet in the sierras of California, where it is exposed to frost and snow.

Haplocarpha Leichtlini.—This is a handsome new composite from that "home for flowers,"

the Cape of Good Hope, with showy *Gazania*-like capitules. It is a stemless perennial plant, producing from a woody rhizome numerous lyrate-pinnatifidly-cut leaves, from 3 inches to 6 inches in length, smooth and cobwebbed above, densely white tomentose beneath. The flower-heads are borne singly on long scapes, and are from 2 inches to 2½ inches across, with bright yellow ray florets and a disk of deeper yellow. Seeds of it have been received from M. Max Leichtlin under the name of *Gorteria acaulis*, but it is believed to be a new species of the genus *Haplocarpha*, and has been named by Mr. N. E. Brown, of the Kew herbarium, in compliment to the amiable and enthusiastic horticulturist whose name it bears. Seedlings may possibly flower the first season, but no guarantee can be given on that point. It will, of course, need protection during the winter months, but will doubtless prove a very ornamental border or bedding plant in warm, sunny situations.

Acroclinium roseum fl.-pl.—This interesting novelty affords another illustration of the tendency manifested by many composite plants under cultivation to redundant growth, as exhibited in the transformation of the yellow tubular disk florets either into strap-shaped corollas, resembling those of the ray both in form and colour, of which we have an example in the *Peony*-flowered *Aster* and double *Pyrethrum*; or into largely-developed tubular florets, as in the *Anemone*-flowered *Chrysanthemum* and quilled *Aster*. In the new so-called double *Acroclinium roseum*, the original type of which was introduced some twenty years ago from Western Australia (not from Texas, as recently stated by the raiser, Mr. J. C. Schmidt, of Erfurt), this duplication of parts takes place in the involucreal scales which surround the disk, simulating the ray, their number being largely increased; the disk itself undergoing little change; in fact, if one may judge merely by the published figures, the scales are multiplied at the expense of the disk, which is apparently diminished in size. In any case the beauty of this popular *Everlasting* is greatly enhanced, and its utility both for border decoration and for use in a dried state much increased. It may be grown in pots for winter or spring flowering, in which case plants should be kept as near the glass as possible. The pappus of the disk florets is an interesting object under a half-inch lens, consisting of about fifteen to twenty densely plumose scales, united at the base, and tipped with a yellow club-shaped brush, to which, and not to the florets themselves, the colour of the disk of the flower is due. The plant is said to be a little taller and more branched than the older form.

Convolvulus tricolor roseus.—From the description given of this Bindweed it should prove a great acquisition, and will doubtless initiate a series of new varieties. The habit of the plant appears to be that of the older varieties of this popular annual, the only difference consisting in the colours of the flower. These are described by the raiser as being pure white in the centre, encircled by a band of purplish violet rays, intermixed with five broad golden-yellow stripes from the throat, the margin being of a lovely rose colour. It is said to be reproduced freely by seed, and requires only the treatment of the common varieties.

New double-flowered Godetia (*G. rubicunda splendens*).—This is represented to be a very fine plant, growing about 1½ feet high, or even 2 feet when sown in autumn, with the oblong-lanceolate foliage common to most of the species, and producing handsome double or semi-double flowers from the axils, about 2 inches across, each petal having a large bright purple blotch, which gives them a very striking and showy appearance. It is said to come perfectly true from seed, and will require only the treatment usually given to the hardy annuals. It may be sown either in spring or autumn.

Hesperocallis undulata.—This is a very interesting new Lilywort, the more so that it is likely to prove hardy in this country. From an

ovate tunicated bulb it produces fleshy, linear, keeled leaves about a foot long and nearly half an inch wide, with a more or less undulate margin, the flower-stem being from 1 foot to 2 feet high, with a few small leaves, and bearing from five to eight large white funnel-shaped flowers on short pedicels in a simple raceme. Each flower is about 2 inches long, having beneath it a conspicuous scarious bract. A native of California, where it blooms in March and April. The seeds are comparatively large, resembling those of many *Yuccas*.

Mimulus maculatus nobilis.—Few plants are more attractive than a well-grown specimen of the large-flowered blotched *Mimulus*, and the addition of a richly-coloured calyx, scarcely inferior in size to the corolla, must obviously lend an additional charm to its beauty. What are known as hose-in-hose *Mimuli* have been cultivated for some years, but *M. m. nobilis* produces flowers considerably larger and more conspicuously marked than any before introduced. The habit of the plant is remarkably compact, the flowers are abundant, and both corolla and calyx are handsomely spotted in a variety of patterns. It is said to be very hardy, and may be grown either in pots or the open border. Requires only the treatment of the ordinary kind; seeds being very small, should be but slightly covered with soil.

Oenothera albicaulis.—This species is widely diffused in the North American continent, but does not appear to have been introduced to cultivation, or if so has been long lost from gardens. It is a variable plant, but its best forms are well deserving cultivation. The present variety forms a compact branching bush from 12 inches to 15 inches high, with a glistening white slender stem, linear to oblong lanceolate foliage, sinuately toothed or even pinnatifid near the base, of greyish green colour. The flowers are pure white, and are produced from the upper axils of the stems and branches, each blossom being about 2½ inches across, the petals obcordate or inversely heart-shaped and assuming a purplish tint in fading. It flowers the first year from seed, but it is really a perennial with a creeping root-stock. It should be sown early in a greenhouse or on a mild hot-bed, and requires only ordinary garden soil.

Oenothera crassicaulis.—This species is allied to the preceding, but differs from it in having larger flowers and in being apparently of annual duration only. It grows about a foot high, with stouter stems and larger foliage than in the *O. albicaulis*, and produces a succession of large white flowers nearly 3 inches in diameter, tinged with pale yellow around the throat, and fading, as most of the white flowered species of this genus do, to a pale reddish purple. It requires the treatment of half-hardy annuals, and will probably succeed in most soils. The seeds are very distinct, being fusiform or spindle-shaped and nearly quarter of an inch in length.

Omphalodes Luciliae.—Of this small genus only two species have been hitherto cultivated in gardens, viz., the neat little white-flowered annual *O. linifolia*, long known as *Venus's Navelwort*, and the pretty *O. verna*, a perennial species with bright blue flowers. The present introduction is also perennial, but differs considerably from the species just named both in foliage and flowers, and is more strictly alpine in habit. Like *O. verna*, it is a very dwarf plant, and apparently more restricted in its growth, having slender rhizome-like stems, furnished with glaucous entire ovate leaves, and producing its flowers on short few-flowered racemes, the corolla being of a delicate pale blue. The plant requires the treatment of alpinists, and demands partial shade; it is well suited to pot culture, and may also be grown successfully on rockwork. The seeds are best sown as soon as gathered, but will germinate in spring after an interval of a few weeks; no artificial heat should be employed to hasten their growth.

Papaver somniferum var. Danebrog.—This promises to be an interesting addition to the group of ornamental Poppies. It is a single

flowered variety of the *Opium Poppy*, from which it differs in its dwarfer growth and in its flowers being of a bright scarlet, each petal bearing a large silvery white blotch, the four spots thus forming a white cross on a scarlet ground, and suggesting a resemblance to the Danish or Swiss national banner. It is a hardy annual, requiring the same treatment as the other varieties of the same section.

Primula obconica.—This very neat little Primrose is a recent introduction of Messrs. Veitch & Sons from China, where it was discovered in the neighbourhood of Ichun. In habit and foliage it resembles the beautiful *P. cortusoides*, but differs in flowering continuously and profusely from spring till autumn. The foliage is oval-cordate with crenate margins, and forms a spreading rosette, from which the scapes arise in succession. The flowers are about 1 inch in diameter, with a flat limb of a pale lilac or purplish tint, in umbels consisting of from twelve to sixteen or eighteen blossoms each, the pedicels very unequal in length. It has been distributed by Messrs. Veitch under the name of *P. obconica*, but has been recently described and figured by Sir J. D. Hooker in the *Botanical Magazine* under the name of *P. poculiformis*.

Salvia carduacea.—This pretty and very distinct Californian species first appeared in my catalogue two years ago, but as it is being offered this season as a novelty I again direct attention to it. From a cluster of oblong, sinuate, and spinulose-toothed Thistle-like leaves clothed with white, cobwebbed hairs it produces a stout, almost naked stem 1 foot to 2 feet high. The flowers form dense clusters around the stem at intervals, the bracts beneath the whorls being very spiny and pectinately toothed. The corolla is about 1 inch long, of a pleasing lilac-blue, and is remarkable for having its lower lip fimbriately cut or fringed, which gives it an elegant appearance. The reddish anthers contrast effectively with the colour of the flower. It should be treated as a half-hardy annual, sowing early and potting off the young plants singly prior to planting out in some sunny exposure, in light sandy loam, in May.

Muscari Argæi.—The Grape Hyacinths are among the prettiest of spring-flowering Liliaceæ, and *M. Argæi* is one of the finest of the genus. It produces an abundance of flowers of the brightest blue in large spikes, and is a worthy associate of the *M. Szovitzianum* and *M. armeniacum*, two other similar and very ornamental species. The plants of this genus are among the easiest to raise of all hardy bulbs, the seeds vegetating freely after lying dormant a few weeks, and producing flowering bulbs in two or three years.

Calochortus Kennedyi.—The species of this genus of Californian Liliaceæ are among the most beautiful ornaments of our gardens, and *C. Kennedyi* is not surpassed by any previously introduced. Its flowers are of a rich deep orange colour resembling that of *Eschscholtzia crocea*, but scarcely as large as those of that plant. It is a rather tall species, the stem growing nearly 18 inches high with a few distant lanceolate leaves, 2 inches or 3 inches in length, each stem bearing from two to four erect flowers. The sepals are nearly as long as the petals, orange within, with purple spot at the base; the petals are from 1 inch to 1½ inches long, of a uniform clear reddish orange, the glandular pit near the base being densely hairy, and surrounded by a broad, deep purple spot. It belongs to the *Mariposa* section of the genus, which includes *C. luteus*, *C. venustus*, *C. splendens*, *C. macrocarpus*, and a few other less known species. The seeds should be sown in light soil, and will be best left to vegetate without the aid of artificial heat; a greenhouse shelf will do well as a station for the pot. The first season the bulbs will attain but a small size, and care must be taken that the soil never becomes quite dry after the foliage has withered, or the tiny bulbs will shrivel up and perish. They may be expected to attain a flowering size in three or four years, when they may be treated like the rest of the species, that is, as half-hardy bulbs, to be planted

in warm light soil in April, and removed from the border in the autumn when foliage has decayed.

New double white Sweet William.—

The ordinary forms of double white Sweet William have usually a purple centre; this is said to be pure white, and to be very constant from seed. It must, therefore, prove useful for cutting, as well as for border decoration, from the contrast it affords.

W. THOMPSON.

Ipswich.

SEASONABLE WORK.

INDOOR PLANTS.

Æschynanthus and Torenias.—Such plants as possess a drooping habit of growth are much more suitable for hanging baskets than erect growers. Most of the kinds of *Æschynanthus* are particularly adapted for the purpose as well as *Torenia asiatica* and *T. pulcherrima*. If cuttings of either are at once put in they will, as a rule, root quickly, and should then be transferred to the baskets, using a sufficient number of the *Æschynanthus* to make them effective with a single season's growth.

Tuberous-rooted Begonias.—A portion of the stock of these may now be started by placing them in a house where they can have an intermediate temperature. These plants are so accommodating that they will succeed in either a hot or greenhouse; still, if grown too warm they make weak growth that produces comparatively few flowers, the plants in addition having an indifferent appearance. They may be shook out of the old soil and at once potted in new. Such of these *Begonias* as are now started in heat will be found very useful to precede the latter portion that will come on with greenhouse treatment. They do best with moderately light soil, fairly enriched with manure and a little leaf-mould.

Caladiums.—Although a few large specimens of these are suitable for use in large houses, still small examples, consisting of a single crown each, are generally preferable. Where large old plants are available they may be divided, retaining a portion of root to each piece. When so treated they must immediately be started in a brisk heat, and should not be placed in soil that is over moist, or they will be liable to decay. The small growing *C. argyrites*, if well managed by keeping it close to the glass, where it will get plenty of light with a moderate amount of air so as to secure stout growth, is one of the most useful stove plants in cultivation, for in such condition it will bear using in a lower temperature along with flowering subjects for some weeks when the weather gets warmer, and the leaves are alike available for cutting to use in bouquets and other combinations of flowers.

Peperomias, Fittonias, and Panicum variegatum.—These small-growing handsome-leaved plants are alike suitable for cultivation in either large or small houses, adding much to the appearance of the stages when used in quantity so as to act as a setting for larger growers, and where the side stages are composed of slate, stone, or other imperishable material, a carpet of such plants, with a moderate number of other things possessing larger growth stood about on them, produces a much better effect than is attainable by the ordinary arrangement of crowding all sorts of plants indiscriminately together. Where a considerable stock of the above plants are to be used, a sufficient number of cuttings should at once be put in, as by having them rooted thus early the plants should be in a position to get established early in the season.

Sonerilas and Bertolonias.—These pretty handsome-leaved subjects, although not able to bear the rough usage and shade inseparable from use in the way advised for the *Fittonias*, &c., ought to have a place in all collections of stove plants where a good amount of heat is available, without which it is useless attempting their cultivation. They root freely from cuttings which may be put in now, giving them a brisk heat,

and keeping them moist and close under propagating glasses.

FLOWER GARDEN.

Pruning shrubs.—So far as most parts of the country are concerned, better weather for the prosecution of outdoor work could not be than that which we have lately had, and if it has been taken advantage of, much of the rough work connected with alterations and all planting of trees and shrubs will now be finished, or if not, should be so as early as practicable, after which the next most pressing work will be hedge clipping and shrub pruning. All hedges, lines, belts, and screens of Privet, Beech, Holly, Yew, &c., to be kept thick must be cut annually; such work we usually reserve for frosty weather, which may perhaps not be the best for shearing them, but having from necessity done it in such weather for many years without perceiving any ill effects, we can safely recommend it to be done now no matter what the weather is. In the majority of gardens shrub pruning is but a secondary consideration, and in some never attempted at all; consequently Hollies, Laurels, Bays, and all similar habited shrubs soon get naked stemmed, a condition that can only be effectually prevented by timely cutting back the leading shoots, an operation which conduces to lateral extension of growth, and keeps the plants equably furnished with shoots. Moreover, we have an impression that such timely curtailment contributes to longevity, for all surely must have noted the wholesale destruction of unpruned Hollies and Laurels during the past few winters, whilst those that have been kept trimmed are as healthy as evergreens of any kind could be. That it may not be inferred from the importance here attached to shrub pruning that formal trimming is advocated, we would add that, from our point of view, trees never look handsomer than in their natural forms, the only aid here advocated being simply the restriction of the stronger branchlets to, as it were, aid the weaker to keep pace with them. Many kinds of trees, Conifers in particular, by the pinching out of the point of a strong shoot or shoots, as the case may be, can be made to grow of even proportions throughout. Of course these remarks refer more particularly to young trees; to influence or direct the growth of old-established Conifers is obviously out of the question.

General work.—This now consists in the completion of the turning or re-gravelling of walks to get them well consolidated by frequent rolling whilst the ground is still wet. Verge cutting and levelling of turf are also important works that should be completed as early as possible; as should also new edgings of Box or repairs to the same. Where turf would be in bad taste, not to mention the bother of mowing or clipping *Sedum glaucum* makes an excellent boundary line for walks in rockeries and ferneries, and when planted virtually requires no attention, except to be kept free from weeds. Sweeping and rolling are still a necessity as regards the preservation of neatness, worm casts, owing to the mildness of the weather, being still thrown up in abundance.

FRUIT.

Pines.—To meet the demand for early fruit, see that the bottom-heat in which the first batch of Queens are plunged does not fall below 80°, and let the top-heat range from 70° at night to 80° through the early part of the day, and 85° to 90° after, closing with sun-heat. Keep the evaporating pans filled with stimulating liquid, pay particular attention to root watering with the same in a diluted form, and reduce the necessity of overhead syringing by damping all available spaces, including the surface of the bed, when the house is closed for the day. If the bed in which winter fruit is swelling shows signs of declining, take advantage of a mild day for renovating it with fresh fermenting leaves or tan, and replunge the plants, keeping the Cayennes and Rothschilds which

started late in October and November together in the lightest and best part of the house, where they can receive heat and moisture with stimulating food, as recommended for the early Queens. If well rooted and not overpotted, these plants will give excellent Pines at a time when good English fruit is in great demand and not too plentiful.

Successions.—Strong plants intended to make a growth before their fruit should be examined, and if found very dry at the root a little tepid water may be given to prevent them from receiving too decided a check, which might cause them to throw up prematurely. In light, airy houses an occasional dewing over with the syringe may also be indulged in, but in close pits atmospheric moisture will be quite sufficient for the present. If the bottom-heat valves have been kept shut through the dead months of November and December, and the heat has declined below 70°, it will be necessary to admit a gentle circulation until the thermometer indicates a move upwards, but great caution must be observed, as the application of water to the fermenting material combined with increasing solar heat often produces the desired effect without having recourse to the hot-water pipes. Gradually increase the top and bottom-heat in pits containing suckers, which require shifting into fruiting pots. Give a little water from time to time to bring the soil into a growing state, and shift as soon as the roots show signs of moving. Meantime push on the usual preliminaries as opportunity offers by getting crocks, pots, and soil ready for use before a single plant is disturbed.

Peaches.—Do not neglect the fertilisation of the later kinds of Peaches in the early house, and when all the fruit is set resume syringing with tepid water a few degrees warmer than the house. In mild weather give air at 60°, and raise the temperature to 70° or 75°, under gleams of sunshine; close early, and aim at 50° to 55° by night. Disbudding must now receive attention, and in the event of a single fly having gained a footing fumigate lightly once or twice at short intervals as soon as the young fruit shows signs of swelling. When fairly on the move rub off a few of the smallest and worst-placed fruit, in order to give strength to those intended to ripen, always bearing in mind that Peaches nearest the base of the shoot and on the upper side are the most promising to leave for the crop. Examine the borders, and if old trees show signs of weakness top-dress with short manure and water with clear diluted liquid. To vigorous young trees give plenty of water, and defer the application of stimulants until they begin to feel the strain of the crop. Get all pruning and training finished, and retard trees in late houses by throwing open the ventilators when the weather is not very severe.

Figs.—While the weather is cold run down the blinds at night, and counteract the drying influence of fire-heat by introducing additional supplies of fermenting leaves. Syringe the trees twice a day to keep down spider; stop all gross shoots at the sixth leaf; thin out useless spray to give young spurs and fruit the benefit of light and air as the season advances, and feed the roots with liquid manure. Encourage the trees in succession houses by giving fire-heat and moisture through the day. Mulch inside borders and water with tepid liquid, but avoid an excess of moisture or high temperatures by night until the terminal buds show signs of pushing into growth. Trees struck from eyes last year may be encouraged with warmth and moisture. Remove all ground suckers. Pinch the points of the strongest side shoots and train the leaders to straight sticks.

Cherries.—Be guided by the state of the weather in the management of early-started trees now approaching the blooming period. When fire-heat is needed for the maintenance of the night temperature, 40° to 45°, with a little air, should not be exceeded, and in the event of a continuance of severe weather a few degrees lower will be preferable to sharp firing. As Cherries cannot be fumigated or syringed when in flower, see that the trees are quite free from insects when the blossoms

begin to open. Pay daily attention to fertilisation. Ventilate freely without causing a draught, and avoid damping in dull weather. The past autumn having been so fine, we may assume that lifting and planting were performed at the proper time. If still in arrear, choose the first dry day for the completion of this work in late houses, using good turfy loam and old lime rubble. Drain well, and mulch with manure.

Orchard house.—Owing to the mildness of the season, the buds on Peach and Nectarine trees still standing out-doors have got very forward, and altogether unfit to be exposed to moderate severity should this extraordinary weather be succeeded by frost. In many places the orchard house is used for other purposes in winter, and early housing of the trees is often attended with inconvenience; but steps of some kind should be taken for getting them under glass, as they may be placed closely together for a time, provided the house is fully ventilated at all times, unless frost is very severe. In years gone by it was the practice to pot and top-dress trees quite up to the time of housing, but this remarkable season fully confirms the sound advice to get all work of this kind performed before, if possible, or immediately after the fall of the leaf. When all the trees are under glass keep them well supplied with water, as dryness at the root after this date is sure to settle the crop for this season. Also look to trees established in inside borders, mulch well, and give them repeated waterings until the soil is as moist as it will be found in a well-drained Peach border out-of-doors.

Early houses.—After the fruit is all set on the early forced pot trees, syringing must not be neglected to keep insects down and to wash off the remains of the flowers. If fly has gained a footing, fumigate when the trees are dry, and repeat if necessary. Allow a night temperature of 50° to 55°, and 60° to 65° in the daytime, with a slight increase after closing on sunny afternoons. Where the young fruit is too thickly set relieve the trees by removing a few of the small and badly placed ones, and at the same time gradually carry on disbudding and shortening back, when the shape of the trees can be improved without detriment to the crop of fruit. Water well with tepid liquid and give the roots a little more fresh top-dressing when they show upon the surface.

Cucumbers.—Winter fruiting plants renovated with fresh top-dressing and fermenting Oak leaves, as formerly directed, will now be in the best possible condition for passing through the present trying period. Counteract the ill effects of incessant firing by covering the roof at night. Keep the glass clean. Syringe all available spaces to keep down spider and remove old leaves to make room for young growths, which must not be stopped until we have more light and solar heat. The change to weather of a colder character will not admit of more than the maintenance of minimum temperatures, but there will be short periods of sunshine which will raise the house to the maximum degree of heat, and this, combined with cleanliness and light cropping, will keep them progressing until we have brighter weather. Put in cuttings of Telegraph, sow seeds and pot on young plants if the hills or fruiting pots are not ready for them. Follow former directions with regard to making hotbeds. Where a good nursing pit is at command do not be in a hurry to turn out young plants until the soil in manure pits and frames is in good order and danger from rank steam has passed away.

KITCHEN GARDEN.

We have been employed during the week digging and manuring quarters left vacant by Brussels Sprouts, Savoys, and early Broccoli, also in salting and liming vacant Celery quarters, in order to get rid of slugs; this land we intend for spring Onions. We are planting Tripoli Onions from seed beds into rich land, and at this season we plant a large breadth of small Onions for very early use. We are likewise planting early Cauliflowers out of seed beds in cold pits into three-light boxes, in

order to make them stocky and strong for planting out in April and May. Small sowings of Lettuce and Cauliflower may be made at once. Radishes now up should be aired regularly and thinned timely, so that they may grow with little top and good bulbs. Wood's Frame ranks among the best. As the days lengthen all things indoors strengthen. Kidney Beans are looking and bearing like May Beans, and once again we say to all, use Osborn's; it is the king of Beans for forcing. Asparagus we force in old Pine stoves, and with very little trouble. See that old stools are taken out and replaced at once, a remark which also applies to Seakale and Rhubarb. Outside Mushrooms are now bearing well, and the quality far in advance of those indoors. We have finished making beds for this season, and doubtless shall have a full supply until next June.

KITCHEN GARDEN.

CULINARY AND SALAD HERBS.

ALTHOUGH herbs of a medicinal character have gradually been losing ground in public favour, there are many culinary herbs that are still indispensable; and as the best season for replanting herb beds and making provision for the coming year's supply is at hand, a few notes on the culture of such as are really useful may not be unacceptable. Herbs are mostly plants of easy culture, and only fail when cutting off the tops is carried to excess during the dormant season, when fresh growth cannot be made to keep the roots from perishing. Amongst those of a permanent character, of which I have found it advisable to have a good supply ready, must be named the

COMMON AND LEMON THYME.—These are what may be termed all-the-year-round herbs, as they enter into the wants of the culinary department both in winter and summer. They are readily increased by means of cuttings inserted under hand or bell glasses, also by seed; but, if taken in time, division of the roots is the readiest way of making good beds quickly, and during the month of February, or just as fresh growth is starting, is the best time to replant, as they strike fresh roots directly, and soon make fine clumps. The best position for herb beds is a border close to one of the main kitchen garden walks, where they are within ready access at all times and seasons. Beds from 5 feet to 6 feet wide, with alleys between, and rows of plants 1 foot apart will suit both common and Lemon Thyme.

SAGE, although not so frequently in request as the preceding, is a most useful herb, but, being of coarser growth, requires more space between the rows and plants. It will grow freely in any good kitchen garden soil, and is readily increased by slips or side branches taken off with a heel of the old wood attached to them, and dibbled deeply and firmly into the soil at this time of the year, so as to get rooted before the sun shines too brightly; or later in the season a shaded position must be selected for cuttings, or some glass covering must be used to check too rapid evaporation. Sage may be readily increased by seed that ripens freely in fine seasons; the broad and narrow leafed green varieties are those most largely grown, but the red leafed Sage is preferred by some, and it is very hardy.

MINT is a useful herb, being liked both in a green and dried state; the young shoots are especially valued for mint sauce in early spring, and, in addition to the requirements of the kitchen necessitating constant picking of the tops as long as procurable, both early and late out of doors, there is a considerable space of time when the supply of green shoots has to be made good from the forcing pits. A large stock of roots is necessary in order to insure a supply, and, the plant being of a true herbaceous character, its roots must have some rest before it starts readily into growth again. The best way I have found in order to have a good supply all the year round is to annually transplant a portion of the stock, as the underground roots or stems of the plant

need fresh feeding grounds, or they soon perish. The central portion will usually be barren, while a crowd of young growths will be found round the edge of the beds, an indication that the plants are seeking fresh soil. I find Mint to do best in rather light well-drained land, and the addition of road scrapings or old mortar rubbish is better than manure in stiff adhesive soils. It will now be starting naturally into growth, and, if pieces of the roots are laid in drills and just covered with soil, they will make fine clumps for next year's forcing. Dried Mint is useful in winter. It should be cut when the stalks are in flower, and carefully dried in a cool airy shed, well ventilated, to preserve it from mouldiness. Plants cut down will yield a supply of green shoots late in the season, while those left to mature their growth will be in the best condition for early forcing. They must be lifted carefully, so as not to break the growing points, and, if covered with light soil in boxes, and introduced to gentle heat, a supply of green shoots is readily produced.

TARRAGON is of very similar growth to Mint, and not only in great request in the kitchen, but especially for mixing with salads. It is rather capricious as to soil; but when it does not succeed in the ordinary kitchen garden soil, I have found a mixture of old potting material, finely powdered brick rubbish and coarse sand, never fail to grow it well. If treated exactly the same as Mint in respect to cutting, drying, and forcing, a supply of both green and dried shoots may be secured at all times.

SORREL is frequently used as a substitute for Spinach. It should be transplanted annually or the leaves get very small. The best way, in order to secure a continuous supply in summer, is to cut off the tops of a portion of the stock at intervals of a week, to prevent their running to seed, as when this takes place, the supply of succulent leaves soon fails.

SWEET MARJORUM, Winter Savory, Horehound, Hyssop, Rue, and Fennel should be grown in limited quantities. When once established, they are not fastidious as to soil or special attention. If the beds for them are well prepared at first, they will yield a supply for three or four years without renewal; merely keep them free from weeds in summer, and lightly fork in some old hot-bed manure at this time of year.

Annual or biennial herbs are of quite equal merit to those of a more permanent character. First on the list is that daily want of the kitchen,

CURLED PARSLEY.—It is, in fact, only when the supply fails that the importance of this useful herb is realised. This is the time to make preparation by thoroughly cultivating the soil intended for its growth. It is a strong rooter and gross feeder, and one good plant will cover a square yard of soil, and yield a large supply of fine leaves. Single rows in an open sunny position in rich soil yield the best results for summer and autumn, if sown at once; for winter, sow in July, under the friendly shelter of bush fruits or at the base of a wall, where the young plants can be easily protected by means of straw-thatched hurdles, evergreen branches, or similar protections.

CHERVIL is a valuable biennial or annual herb according to the time at which it is sown, the most important being the autumn for the winter and spring supply. It is much in request for salading, and, in order to keep up a supply in summer, frequent sowing is necessary, as in hot weather it soon runs to seed. A partially shaded position and good soil are the best antidotes to premature seeding.

SWEET BASIL is, perhaps, the most important of the true annual herbs. The first sowing should be made in pots or boxes in heated pits or houses, as it is tender, and a supply of it can only be relied on from the open air during the warmest summer months. A bed should be sown on a warm border in April, and another in May, for summer use; but, as soon as the nights get cold, the supply must be again procured from under

glass. This herb is highly prized in a dried state, and the first sowing out-of-doors, when in full bloom, in July or August, should be pulled up and carefully dried and preserved.

BORAGE is much prized for flavouring wines, &c. It is of easy culture, and its pretty blue flowers make it worth growing, even if not required for domestic use, especially where bees are kept, as they are especially fond of it. A sowing in spring, and another in August, will yield a constant succession.

CORN SALAD is a useful annual herb. If sown in drills 1 foot apart once a month, from February to September, it will yield a daily supply. A shaded cool border is the best position for it in summer, and a dry sloping border for the winter supply. Small sowings and often should be the rule with this, as with other herbs of rapid growth.

BUSH BASIL, pot Marigold, pot Majoram, Caraway, and many other useful herbs may be easily raised from seed; but, as they are only in request in special cases, I need not allude to them further than to say that, if sown in March or April in seed beds such as are annually made for the Brassica family, they will yield a good supply without further trouble than that of weeding or thinning.

WATERCRESS is a much valued herb, and, although it can hardly be said to be improved by cultivation—for the produce of a clear brook of spring water can hardly be excelled—yet there are many places in which these natural conditions are not at command. In that case it has to be cultivated, and very good Watercress may be obtained by sowing the seed in pans or boxes, and when large enough, planting out in cool shaded positions, such as the north side of a wall, where, if kept constantly moist by copious watering, very good cresses are obtainable.

THE DANDELION, I may add, has of late become very popular as a salad herb. It requires the same routine in the way of culture as Chicory, viz., sow in April in drills, take up the roots when fully grown in autumn, and plant in a dark warm cellar or Mushroom house. The young blanched leaves are excellent for making up winter salads, and they come in at a time when the ordinary supply of out-door materials for salading is at its lowest ebb.—*Field*.

GARLIC AND SHALLOTS.

THESE are grown in almost every garden, and in some even on a large scale. Both are frequently asked for, and with many Shallots are preferred to small Onions for pickling. Garlic, with very little attention, will produce a crop almost anywhere. When we first began to grow it we bought 2 lbs. of it from a seedsman, and in a few years we might have had several hundredweights from this small quantity, so quickly does it increase. At first the bulbs were planted singly, but by the end of the season they appeared in large clusters, and it is these offsets which are kept for use in the kitchen, or part of them may be reserved for planting again the following spring. About this time the ground for the reception of the bulbs should be moderately rich and free in texture. We never make a special plantation of this, but put in 100 or so of roots between the fruit trees on the border which edges our walks in the vegetable department. Here we never fail to get a full crop, and we consider such a position suitable for Garlic culture. The bulbs are put in 9 inches apart each way, and as each one is put in the soil with a blunt-pointed dibble, a little river sand is placed round to prevent it from decaying should the soil be very wet after planting. Hoeing is all the after culture given until fresh bulbs have been formed and are fully grown, when they are all taken up and harvested like Onions. During the growing season we have had to take up some for use, but as a rule we avoid doing this by always having a few bulbs in store. In planting now we do not insert every one, but keep as many as we can in reserve, and these keep the kitchen supplied until those that are growing are almost ripe.

Shallots are treated throughout in almost the same way. We plant them on the same day as the Garlic and on the same piece of ground. The Russian Mammoth is the best variety we possess, and by selecting the finest bulbs for planting the crop is much better than taking any size or kind for this purpose. As Shallots require more space in which to develop themselves than the Garlic, the roots should not be put in closer than 1 foot apart, and for very fine bulbs we have sometimes given more space than even that. In planting, the crowns of the bulbs are left above ground, and a handful of sand is put round every one of them. When planted about this time they will be well forward in growth in March, and all will be ready for harvesting in June or July. We have always found them to keep best when drawn up from the soil spread out on the surface for a week or ten days in the sun, and then stored away in a dry, airy loft, room, or shed. After that, as time may allow, the withered tops are drawn from them, the clusters are divided, and each bulb has all the dry, rough material removed when they are ready for use.

CAMBRIAN.

CELERY IN FRAMES.

HAVING grown this esculent to the weight of 6½ lbs., I thought I had obtained something above mediocrity. I had not, however, paid much attention to the weight of Celery, but, judging from appearances, I felt sure I had not seen anything in Covent Garden to equal it. The late Mr. Parsons, of Welwyn, thought he had done well when he grew some weighing 3 lbs.; and having exceeded that weight, I named the matter to an acquaintance, who, noticing my semi-exulting tone, retorted that the weight was nothing extraordinary, for he had seen some 9 lbs. in weight grown by weavers. This was a great blow, and my friend, I think, meant it to be so. All praise for all that to the Lancashire mill hands for their horticultural skill. It is pleasant to see them gliding home from their allotments with Celery sticks 3 feet long, Cauliflowers 10 in. or 12 in. over, and Onions more in circumference. Celery shows are a speciality in many parts of Lancashire. They may be counted by the dozen in an area of four miles in this district. Many are the devices resorted to to get the plants on without check and as early as possible. They do not all raise their own plants. One of our village mill hands who had to procure his plants some miles off arranged for them to be potted some time beforehand. Knowing how Celery succumbs, if of any size, when disturbed, one would have thought he had caught hold of an excellent idea, but for some cause or other (probably being in the pots too long) they "piped" or bolted.

Sowing.—We sow the first week in February, thinly in pans containing light rich soil, securing a position near the glass in a temperature varying from 50° to 55°. If too thick, we thin out as soon as the plants are large enough to lay hold of. When large enough we prick them out in boxes 3 inches apart. Last year we made up a gentle hotbed, and I fancy they were more at home managed in that way than any other. We kept them close and shaded them when required for three or four days. At the bottom of our framing ground, which has a slight declivity, we placed a quantity of half decayed manure, levelled it down 2 feet thick, and put it into shape to receive some frames. Some decayed manure was thrown in, and 8 inches of old Cucumber and Melon soil was laid on that, leaving 8 inches of space between the glass and the plants, and as they progressed the frame was raised, packing at the same time decayed manure round to keep the materials in the interior of the frame in their place. We planted six varieties 1 foot by 1 foot 6 inches apart. As they advanced they were top-dressed with decayed manure, kept well watered, attended to as regards ventilation, and by the first week in September they were ready for use.

Blanching.—When the plants are 2 feet high we tie them round loosely; this gives more air space between them. A month before the heads

are required for use these ties are cut and a portion is bandaged round with sheets of brown paper from 1 foot to 1 foot 6 inches wide drawn moderately tight. Each strip is tied and placed so as to well overlap the one below it. All the strips should go round three times at least. In wet weather we put one as a capping on the top. I have omitted to state that we remove the frames as soon as the weather permits us to do so, as top-dressing and watering can be more readily performed and ultimately the bandaging. We sow in a one-light frame on a slight hotbed for our earliest crop in the kitchen garden. This is usually done the first week in March, and as soon as the plants are large enough they are pricked out in the usual way in frames. I will not at present go over the usual routine of cultivation out-of-doors, but I may just add that, taking it on the whole, the best and decidedly the cleanest looking Celery I have seen has been growing in bog earth.

W. P. R.

Potato culture.—There is nothing new in what "E. B." calls his system of planting Potatoes. He must be placed in a cool district indeed if he can prevent his seed tubers—early ones especially—from sprouting without actually rubbing off the young shoots. It is better to recommend seed tubers not to be stored where the shoots get drawn, and if they be kept during such a soft winter as this where there is plenty of light and air, there will be no fear that the shoots will be unduly drawn. Then, ordinary observation shows that all properly-housed seed tubers at first break a less number of shoots than if these are rubbed off and a second break takes place. These first shoots are the most robust, and one, as the germ of a plant, is worth half-a-dozen weak ones. Then it may also be noticed that a seed tuber, let it be ever so big, has no power of itself to push shoots beyond 1 inch in length if the tuber be kept in full light and air. That is a most interesting fact, and it is correct. It is not till the tuber is put either into a moist temperature or in the dark, or else is brought into contact with soil or moisture that the shoots lengthen; but these shoots, even though not more than 1 inch in length, will be found to have several rootlets, each, perhaps, half an inch in length, thrown out as feeders, ready at once to take up moisture and nutriment, and thus promote growth. Until such moisture or nutriment is found the shoot remains stationary, if the atmosphere be dry, until the tubers shrivel and decay. This growth of shoots and roots is exactly what would take place in the soil, but being done out of it admits of later planting, when risks are fewer and success far more certain.—A. D.

DRAINAGE AND VENTILATION OF HOUSES.*

THREE sanitary principles govern house drainage: 1. All refuse matter must be completely and rapidly removed from the house. 2. There must never be any passage of air from the drains or waste pipes into the house. 3. There must be no connection between the drains and the domestic water supply. These, although so simple, are very frequently neglected. The first goes absolutely to the root of sanitation, for were it strictly complied with, there would be no leaky drains, no polluted subsoil, and no production of foul gases in the drains from decomposing organic matter. There cannot be a greater mistake than to assume, as is commonly done in investigating drainage, that if water runs away with freedom this is all that is required. Numerous cases are on record where the sewage from houses has apparently run away freely for years, but where the greater portion of it has really been leaking out of the drains into the ground under or close to the house. In illustration of this point two cases may be mentioned—one in which the connection with the sewer was actually found to be blocked with shavings, which had been left in when the house was built three years before; the other, that of a

* From a paper recently read before the Medical Officers of Health by Mr. Rogers Field.

school in which the drainage from the lavatories had leaked through disused drains under the floor of a large portion of the building, and where, although there was a mass of filth in some places 7 feet deep, no leakage had been suspected. If the drains are exposed and found clean and jointed with cement, this is not sufficient; the tops of the joints may be good and the bottoms bad. The only safe method is to actually test the drains by plugging them at the lower end and filling them with water. Very few house drains stand this test. Even if the drains are outside the house it is a mistake to assume that it is unimportant whether they are sound, for not only may sewage leak out of faulty joints and percolate under the house, but foul air may be drawn into the house. It is important to realise how small an amount of deposit will create mischief by decomposing and generating foul gases; a mere irregularity of the joints, even when the drain has a good fall, is sufficient to cause this. There is no better test of the condition of the drains than the amount of smell emitted from a ventilated opening, for if drains be properly laid and in thorough working order, practically no smell should exist. The principle that there should never be any

Passage of air from the drains or waste pipes is most essential, and the means of isolating the house drains from the public sewer, the necessity of keeping the drains outside the house, their ventilation, as well as that of the soil pipes, the position of the water-closets, the disconnection of the sanitary fittings inside the house from the drains are each and all highly important. The danger should be guarded against of trusting too much to those parts of the drainage of a house which are visible as an index of the condition of other and important parts which are concealed; the drainage of a house which had recently been constructed, and where all the sanitary arrangements appeared at first sight to be perfect, but where a subsequent examination of the drains which were under the house showed that the joints were in many places defective, and at one point the pipes were not jointed at all, but a space left large enough to put a hand in, though it was stated that special care had been taken to make the drains watertight. Old drains, which had no outlet connected with gullies, were found beneath the passages and rooms; the housemaid nearly died of typhoid fever, and beneath the room she occupied was found an old drain with a large amount of foul deposit. In another instance a lady and her cook were attacked with erysipelas and blood-poisoning shortly after occupying a house. An examination of the house showed that an old stoneware drain in the scullery, into which the sink discharged before it was disconnected, had not been removed, and though stopped with cement the stopping was imperfect, thus allowing the air of the drain to enter the house. There are various ways in which foul air from faulty drainage inside the house passes to different parts, windows and fires being the chief, the latter mainly acting by drawing the air through passages, staircases, and doors. But other channels must also be borne in mind; in one instance the passage of foul air was found to be along bell-wire tubes, the proximity of the bell pull to the fireplace giving an increased opportunity for air to be drawn from a distance to this part of the room. Channels for gas-pipes and for hot-water pipes also not uncommonly give facility for the admission of

Foul air.—Another remarkable instance in connection with this subject was a particular bed in a school, the occupants of which were constantly the subjects of slight attacks of pneumonia with tendency to typhoid. In this case the foul air was conducted from a lavatory, where there was defective drainage up a staircase, and, impinging on the ceiling of the dormitory, was reflected on the bed where the sickness occurred. In the recent illness of the Duchess of Connaught defective drainage was found in the basement of the house, and after numerous experiments the means by which the foul air entered the Duchess's bedroom was discovered. These showed that it was only

when occupying certain positions in the room that she would be exposed to the influence of the foul air, while in bed she would escape. In twenty-four hours after sitting on a sofa in one of these exposed positions her Royal Highness's symptoms fully developed themselves. T. C. W.

TREES AND SHRUBS.

CONSERVATION OF OLD AND REMARKABLE TREES.

IN considering the question of the conservation of large trees, the subject naturally divides itself into two heads, each of which in its mode of treatment is entirely distinct from the other. First, conservation may be directed towards the maintenance and development of trees in progressive vigour—two old large timber trees still enjoying health, and whose grateful shade, or graceful outline, in sweeping arms, it may be desirable to foster for amenity or picturesque effect in the landscape or park. Or, again, second, it may be requisite that steps be taken for the conservation of some old gnarled bare trunk, whose hollow stem and blasted head bear witness to the flight of many centuries, and around whose venerable form cluster memories and associations of historical or family interest or traditional lore, which it is well to keep alive in the minds of a countryside by the preservation of the trees themselves, whose very names refer to the events their presence commemorates. The steps to be recommended for the conservation of old trees, under either of the foregoing heads, are naturally much alike, and simply embrace measures of a remedial character, taking in both instances due cognisance of the elementary principles of vegetable life in the tree. If trees were, in the early stages of their growth, to receive that care and attention which their importance demands, and which their ultimate value will show to have been necessary, there would be little need for the adoption, in later years, of measures to promote their progressive vigour and ultimate recovery from premature decay or decline. Early and fearless thinning, so that the young tree may find ample scope and free air for the development of its youthful form, is one essential requisite too often neglected, and the oversight of which is one of the most fruitful sources of early decline in old trees. In trees, as in the animal kingdom, the true secret of success in promoting a full physiological development, and maintaining a healthy frame, consists in prompt attention to early habits and appearances, and in checking in youth what might prove baneful to the constitution of the plant in later years. This may be called the prophetic or active treatment for the maintenance of progressive vigour in trees. The other treatment involves the arrestment of decay or decline in individuals already evincing symptoms more or less defined; and, while the measures to be adopted are based on the same principles of the growth of vegetable tissues, they can never be so satisfactory, nor so remedial, as the same steps would be if taken in the case of younger and more vigorous subjects. The method of treatment in regard to such trees may be styled the retrospective or passive. In attempting to

Conserve old timber trees, attention must be directed, in the case of large trees still vigorous, though evincing incipient signs of decay, to the prolongation of the growing period of the tree, and efforts must be directed to stimulating the formation of additional cell tissue, and thus keeping the health of the tree in a progressively vigorous condition. On the other hand, should the subject of treatment be in a declining state, whether from accidental or natural causes, efforts must be used to arrest the decline by stimulating the growth of young wood, branchlets, and leaves, so as to aid in the elaboration of sap throughout the head of the tree. The causes of what may be styled, for the want of a better epithet, "backwardness" in large or old trees, are frequently obscure and puzzling. It may arise from many sources, such as exposure to sudden extremes of temperature in spring, chilling the young foliage,

and stunting its development to such an extent as seriously to interfere with the leaf functions for the season. The penetration of the rootlets into an ungenial substratum or subsoil, inimical to the further progress of the tree, is another cause of backwardness in large trees, and this is one of the most difficult and fruitful sources of mischief with which the arborist has to contend. Defective root action, arising from bad drainage, or from a water-logged state of the young spongioles and rootlets, also frequently tends to incipient stagnation of wood formation and to a hide-bound, unhealthy appearance of bark, resulting shortly in a stag-headed condition of the upper branchlets. Recently transplanted trees of a large size are peculiarly prone to suffer from this last form of backwardness, through the interference with the rootlets in the process of removal and subsequent drought. One of the first symptoms of a check having been sustained in the continued progressive vigour of any tree is an appearance of scanty foliage during the summer months along the very top of the upper branches and at their extremities. If this is allowed to go on, in another season these outer and upper branches present a bare, dead appearance, appropriately called "stag-headedness," from the resemblance of these denuded branches to the antlers of a deer. Trees in exposed situations are most liable to suffer from this evil, especially if the subsoil be shallow and of a cold, damp nature. The remedy therefore lies in stimulating, by such artificial means as suggest themselves, according to soil and situation and nature of the tree, the action of its vegetative powers, and the formation of cellular tissue at such extremities of the branches as have become bare and dead-like. This will be found to be almost invariably attained by giving the tree, around its trunk and for a space outwards as far as the outer tiers of branches overshadow, a

Liberal mulching of fresh loam or soil of a friable nature. By such an application to the soil, increased energy is imparted to the more fibrous roots, which are always situated nearest the surface of the ground, and any lack of chemical food agents in which the site of the tree may be deficient, from long occupation and consequent exhaustion, will be supplied. The application of such fresh soil may be made at any season of the year. Autumn is probably the most advantageous period, and it may consist of road scrapings in a loose, well-turned-over, friable condition, mixed with lime, or applied alone, or of old well decomposed leaf-mould mixed with peat soil; the scourgings of ponds or ditches, which have been allowed to dry, and been well turned over and aerated by the frequent use of fork or spade; or, indeed, of any good clean fresh earth of open texture. The surface of the ground about the tree should be lightly forked over previous to its application. The depth to which this compost or top-dressing should be laid depends upon the situation of the tree to be operated upon, but it should be deposited round the trunk to a depth of not less than 2 feet (in some cases, when the trunk is exposed at the neck, to a depth of 3 feet or 4 feet), and be gradually tapered off, so as not to offend the eye, from the stem outwards to a final depth, at the extremity of the circumference of the branches, of 1 foot of fresh soil. In the following season all the dead branchlets in the head of the tree should be cut back to where young wood will have formed, and it is a considerable assistance to the formation of young wood to thin out the head of the tree carefully, by cutting off several of the side shoots springing from the main branches, thus admitting light and air, and promoting a condition favourable to the development of young wood and foliage. In some cases Ash trees, from 60 feet to 70 feet in height, and growing in strong loam with a clayey subsoil, thus treated after they had shown evident signs of incipient decline, have been known to recover their former vigour. Horse Chestnut and Lime trees, in the same situation, and from 200 to 250 years of age, have been also successfully treated by the same process after having been allowed to remain "stag-headed" for fully three years. Hollies injured in the memorable winter of 1860-61, and

from 20 feet to 30 feet in height, after presenting an almost dead appearance, were treated in this manner, and the dead branches cut back to the very stem, in some instances leaving almost nothing but the quasi-dead trunk above, and are now fully furnished with dense masses of foliage of the most healthy hue of glossy brightness; and although now lacking the large wide-spread arms, they have been by this treatment saved, and their height, as tall evergreens, secured, where absence would have created an unsightly blank.

The growth of young wood under this treatment is sometimes so thick that it is necessary, after the first season, to thin it out, removing superfluous shoots, and singling out leading twigs into which the force of the resuscitated action may be directed for the formation and development of new cellular tissue. It may sometimes be necessary, where the natural soil in which the tree is placed is inimical to its habits and nature, to use as a compost or top-dressing a mixture of earths of various kinds, and the reverse in their chemical composition, of the soil in which the tree has begun to wane. In cold, clay, damp, or wet tilly soils, for example, in which few hard-woods will thrive for any long time or acquire large dimensions, it will be found advantageous to use a mixture of coal ashes or wood ashes (the cinders having been removed) compounded with road scrapings (silicious) or well-decayed peat in the proportion of one part of coal ash to three of road scrapings, or mould of peat or decayed leaves. A compost of this description need not be laid on thicker than about 1 foot at the tree neck, gradually tapering off to about 4 inches thick at the outer circumference of the circle. It should be applied in autumn and during the fall of the leaf, and carefully stirred into the soil in which the tree is growing. The use of ash-pit refuse from dwelling-houses from which all cinders have been carefully removed is not so generally appreciated as it ought to be for the promotion of vigour and healthy foliage in trees. If administered to young specimens and dug into the soil in which they are intended to be placed its effects very soon become apparent in the increased root action and consequent improved health and appearance of the plants. In cases of large trees whose condition seems to be stationary, although not positively backward, it will be found beneficial to use

A top-dressing of rich loam mixed with leaf-mould or house coal ashes, in the proportion of one cartload of the latter to four or five of the former, and to lay the compost "barrow thick" upon the roots under the drip of the branches, without levelling the surface during the first winter. In this way the rains and snows of winter wash in the various chemical agents of which this compound is made up, and carry down to the roots fresh supplies of food along with the quantity of carbonic acid gas derived from the atmosphere; and in this way the powers of exhausted soil in which trees have been too thickly planted are renewed, and the dormant functions of Nature in the tree itself receive a revivifying impulse. The application of street sweepings as a medium for increasing and intensifying tree life was first suggested by the appearance of several Beech trees of large dimensions standing in rows in the centre of a field which, after long remaining in pasture, had been broken up for cropping. During the earlier years of the rotation no difference in the progress or appearance of the Beeches was apparent. They had previously exhibited symptoms of decay and stationary existence for many years; but one season, after an unusually liberal application to the soil of rich, well-turned manure for a Turnip crop, the Beech trees suddenly appeared to have taken a new start—a fresh lease of life, as it were,—and their unusually strong growths of young wood quite apparent, while the colour of their leaves lost that sickly hue which had for years distinguished them.

Manure for Conifers.—To younger specimens, and chiefly to some of the more recently introduced Conifers and evergreens, the application of liquid manure has long been known, and its use has been in many instances of much

benefit. It requires, of course, to be presented in a highly diluted form, and either in the autumn or winter months after rain, and while the ground is well saturated with moisture. It is of considerable benefit to the progress of *Araucaria imbricata* and to many of the *Cupressus* and *Juniperus* families, but it requires careful use in the case of those Pines (*Abies* or *Piceas*) which are of themselves prone to throw out early buds in spring, for any undue stimulant of growth during the cold, frosty winds of March or April must be attended with corresponding failure and disappointment. In using liquid manure, therefore, in such cases it is better to apply it, well diluted, in May than at an earlier or later period of the year. To stimulate such species either into too early vigorous growth in spring or to prolong their active vitality into late autumn, and thereby retard the proper ripening of their young wood is alike a mistake, and necessary to be guarded against. When in any particular instance it is deemed proper to administer diluted liquid manure to cure stagnant energy in tree life it must be applied very slowly and gradually, for the principal object in the application of any manure is to supply as much soluble matter as possible to the roots for their absorption into the system of the plant or tree, and if it be administered slowly and gradually it must necessarily be more thoroughly assimilated in the gradual formation of sap and the various tissues. A mulching of short cut grass has sometimes been found beneficial for top-dressing the soil around and over the roots of choice or rare specimen trees and shrubs, and it has often proved of much advantage to the *Araucaria*, *Deodar*, and others in many places acting not only as a manure, but also as a preventive against evaporation, and as an important agent for retaining moisture in the soil. Such an application plays a double part, and is worthy of more general adoption than at present is accorded to it. If the covering be neatly laid on, and closely and evenly spread, there is nothing unsightly in this mulching, and it is of very great advantage in many other ways. Another fertile source of incipient decline, and a means of accelerating decay and death in old trees, is the practice of leaving dead wood, and allowing Nature to rid herself, by the intervention of wind or storm, of many a useless dead bare limb or branch which should have been skillfully removed when death became apparent. The rugged wound which a gale of wind causes in wrenching off dead branches from the heavy limbs of a tree is the source of much ultimate evil. Weather works down into the scar so created, and the dry woody tissues of the stump aid the further spread of decay. Old timber trees should, as regularly as young plantations, be gone over carefully every year, and have all dead or dying big branches and twigs sawn over, the wounds being at the time covered with a good coating of strong oil paint. This leads us to consider

The other process of conservation of large trees, referred to in the early part of this paper, viz., to the cases of those in which all progressive vigour is beyond recall, but whose picturesque and gnarled trunks or hollow stems, from historical associations or traditional legends attaching to them, it may be desirable to use every possible means to preserve. The appliances in such cases are mainly mechanical. Painting the shattered wound caused by the livid thunderbolt, so as to exclude the destructive ravages of the wind and rain; roofing over with zinc or lead the hollow decaying stem of some historical memorial; girding with iron hoop or rod to its parent stem some giant limb, whose swaying form the hurricane has well-nigh wrenched from the old trunk, are remedies too well known and generally practised to call for further notice.—*Scottish Arboricultural Society's Transactions.*

Variegated Oak tree.—Like the Fulham, Lucombe, and other hybrid Oaks, grafting is the only sure mode of increasing this variegated form, for although in most cases acorns are produced abundantly, the seedlings are found to sport or vary so much that they cannot be relied upon.

Grafts take freely upon healthy stocks of the common Oak. The scions should be taken from the tree before or about the time the sap commences to rise in spring, and inserted in moist earth or sand in a shady position. The stock will be all the better if cut over about the same time. Judging from the description given by "E. B." of his variegated Oak, it is certainly uncommon and well worth the trouble of perpetuating.—A. D. WEBSTER, *Penrhyn Castle, North Wales.*

Propagating Mistletoe.—The best method is first to take the skin and part of the viscous matter away from the seed, then to place the latter on the ball of the thumb, lay it on the smooth bark, and gently move the thumb backwards and forwards until it is felt that the seed is firmly fixed in its place. Nothing more is required except protection from birds, &c. I have grown bushes 2 feet in diameter on Apple trees in the course of fifteen years. Though ornamental, it is not desirable to have Mistletoe in an orchard, as when once established it is difficult to eradicate it. I have an old Apple tree on which it was placed some twenty-six years ago, and though cut off at different times, the tree still continues to produce young plants in an apparently spontaneous manner.—J. G. N.

Spiræa flagelliformis.—I have admired the fine illustration of this *Spiræa*, given in THE GARDEN (p. 81), and have perused with much pleasure the account of the shrub which accompanied it. On looking at the illustration it occurred to me that I had seen a shrub somewhere which very much resembled it, and on referring to my notes, I find that on the 25th of June, 1879, I attended a meeting of the Berwickshire Naturalists' Club, held at Kelso and Morebattle, and in the course of our day's rambles we visited Marlefield, in the parish of Eckford, Roxburghshire, formerly the residence of Sir William Bennet, of Grubbert, the well-known patron of Allan Ramsay, and of whose hospitable mansion, Thomson, the author of "The Seasons," is said to have frequently been an inmate. The public road passes near Marlefield House, and in the hedge along the west side of the road we found growing a number of flowering shrubs, which were said to have been planted by Sir William Bennet, and which seemed to have become naturalised. Amongst these there was one which particularly attracted our attention. This was a profuse flowering slender-stalked shrubby *Spiræa*, the small branches of which were wreathed with beautiful white flowers like the illustration. Mr. James Hardy, of Oldcumbus, our secretary, in the report of the meetings of the Berwickshire Naturalists' Club for 1879, mentions that the *Spiræa* which we found at Marlefield "has obovate wedge-shaped leaves, which have an apiculus, and are slightly puberulent, and the racemes of white blossoms, which are very delicate and graceful, are sessile. The twigs bend readily, as if adapted to form a garland, and of this the name "*Spiræa*" is said to be significant. The species appears to be *S. acutifolia*—*S. hypericifolia* var. *acutifolia* of De Candolle.—GEORGE MUIRHEAD, *Paxton, Berwickshire.*

Planting waste land in Ireland.—Mr. D. S. Scott, writing in the *Journal of Forestry*, says: "The most discouraging feature in planting is the expense of enclosing the ground. Certainly this incurs expense when the piece of ground is of elongated shape, with two parallel fences. To obviate this latter difficulty, the ground should be as broad as possible. A slight addition to the breadth forms a considerable acquisition to the area enclosed, and, of course, diminishes the expense. This is an important point to study when laying off a plantation. In this county (Tipperary) sod ditches are very common, and if Furze seed is sown on the top, this fence in two years will make excellent protection. The cost of erection ranges from 2s. 6d. to 6s. per pole of 21 feet. Draining comes next to fencing. Nothing excels open drains, 26 inches wide at the top and 18 inches deep, sloped on both sides to 9 inches wide at the bottom. Unless on cold, sour, wet

flats, catch water drains, slanting diagonally, are most economical, and usually effective. Estimate of cost, 2d. to 3d. per pole. For ground covered with stubby heath or waste land generally, I recommend two-year-old plants, notched in with the spade. Scotch Fir and Larch are the most profitable of all our timber trees. The hitherto promiscuous mixing of all sorts of trees in general planting ought to be abandoned, and a system more in accordance with practical arboricultural science adopted. The following table may be taken as an approximate estimate of the cost of planting:—

2000 Larch, one year seedling	£	s.	d.
2000 Scotch, two year do.	0	7	0
Carriage of plants per rail	0	12	0
Planting in home nursery	0	2	6
Weeding and cleaning	0	2	0
Removing at planting season	0	4	0
Three men and one boy	0	2	0
Draining 60 p. on average per acre ..	0	6	0
Fencing, 4s. 6d. per pole do.	1	0	0
Rent (many districts <i>nil</i>)	0	2	0
Rent of nursery	0	3	0
Rent of ground, 15 years	£1	10	0
Rates and taxes	0	5	0
	1	15	0
	£5	5	6
Allow for interest	2	14	6
	£8	0	0

As will be seen, nothing is allowed for replacing failures, but where such occur there is some mismanagement. I shall now leave owners of waste lands to judge for themselves what a plantation of Larch and Scotch Fir is worth at fifteen years' growth; also what it would be worth to the nation if the whole of the 4,253,400 acres of waste lands in Ireland were planted. The above estimate of cost refers to an acre. The cost, as will be seen, is, at fifteen years, £8. I can vouch for land not worth more than the keep of one snipe before being planted bringing a return of above 30s. per acre ground rent for fifty years after deducting all expenses.

QUESTIONS.

Tuberosee.—Can anyone give me full instructions how to treat these, which I have just procured? and which are best, African or Italian bulbs?—A. B.

Mertensia maritima, alias "the Oyster Plant."—Is this to be had at a reasonable price anywhere nearer than Zurich? and is it exclusively a maritime plant?—T. C. L.

Birds and Wellingtonias.—Its there any reason why birds should not build in the Wellingtonia? I have a fine specimen over 50 feet high and twenty-five years old, yet I never saw a bird's nest in it, though they build freely in other Conifers; nor do they seem to come to it much by day or roost in it at night. I should like to know whether this is the case elsewhere.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

Freeing orchards from Lichen.—Is there any plan known of freeing orchard trees from Lichen without the expense and trouble of scraping the branches? Probably someone may have tried a decoction that has proved successful. If there is a liquid that could be thrown over the trees with the garden engine and would prove effectual it would be a great boon to many of us who suffer from the rapid growth of this troublesome parasite. Advice that would recommend me to cleanse the trees annually and to cultivate the ground under them (the orchard is in Grass and well drained) would be useless to me, as I am one of those who have a large place to manage and not enough labour at command to do all that is essential as regards good cultivation; therefore, some things do not get the attention and labour bestowed on them that they require and what they would have under more favourable conditions.—CONSTANT READER.

* * Our readers will greatly oblige by replying, so far as their knowledge and observation permit, to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

BOOKS.

RATIONAL BEE-KEEPING.*

DR. DZIERZON has long been known as the author of various articles and books relating to apiculture published in Germany, but hitherto none of his works have been translated into English, and therefore they have not been read by the majority of bee masters in this country. Thanks, however, to the translators, Messrs. H. Dick and S. Stutterd, and the editor, Mr. C. N. Abbott, the last work by Dr. Dzierzon has been published in English, in a small octavo form, well printed, and illustrated with woodcuts wherever necessary; these woodcuts are very coarse, but they serve the purpose for which they are intended. "Rational Bee-keeping" expresses fully the views of those who manage their bees according to the German system, and anyone who is interested in the welfare of bees has now a good opportunity of learning how apiculturists manage their favourites in Germany, and we feel certain that all who read this book will derive both pleasure and instruction from it, and that it will be much appreciated by those for whom it is written. In this work is given in the fullest manner every detail of how each operation that has to be carried out is effected, and the reason why it should be performed. If, however, all the author's instructions and suggestions are followed, anyone possessing many hives will find their time during the greater part of the year quite occupied. Some one hundred pages are devoted to descriptions of the various hives in use in Germany, and to directions for making them before discussing the merits of the different hives. The author says at page 41: The spot where the hives are placed, and which is generally in the garden attached to the house, is called

A bee garden, bee stand (apiary), or bee house, the latter name being given to it if the hives are placed in a separate building, which, however, is not necessary or desirable. He then mentions various reasons why hives are better placed apart; yet at page 124 he recommends what he terms a pavilion, which may contain as many as sixteen hives, and is formed by placing four piles of rectangular hives in such a manner that their backs form the sides of a hollow square (so that if one faces north the others will face south-east and west respectively), and then roofing and casing the whole. Why this has not the disadvantages of the other apiaries already condemned we cannot discover. After describing the various forms of hives, some of which are very different from those generally used in this country, different methods of bee culture are discussed, and the various operations connected therewith fully described. Whether bees communicate with one another by sounds or not is not at present clearly proved, but it seems most probable at any rate that they cannot hear sounds which are audible to us. Sir John Lubbock, who has made many experiments to solve this question, says, "I have never succeeded in satisfying myself that my ants, bees, or wasps heard any of the sounds with which I tried them. I have over and over again tested them with the loudest and shrillest noises I could make, using a penny pipe, dog whistle, and violin, as well as the most piercing noises I could produce with my voice, but all without effect." Linnæus and Bonnet were of the opinion that bees could not hear, and Huber thought that if bees possessed the sense of hearing it differed from the same sense among the higher animals. But Dr. Dzierzon is very positive on this point. Speaking of the meeting of the queens and drones, he says: "It is certainly the sound which both emit in their flight and which may be even distinguished by the human ear, whereby they communicate with one another, and by which they are attracted." We wish the author had given some proofs of the correctness of this statement. He also mentions the well-known distinct notes of the queen as expressive of jealousy and

anxiety; and, again, speaking of a queenless stock, that, "when smoked, or even without this provocation, the bees raise a continuous wail, a genuine cry of distress, that can be heard at some distance from the hive." How can the author know what meaning the bees attach to these sounds? when the bees are smoked, why should not the sounds if more than mechanical and unintentional on the bees' part mean anger or pleasure? A chapter is devoted to

The diseases of bees, in speaking of foul brood and the great difficulty of eradicating it from hives when once infected is alluded to, and leaving the hives empty in the fresh air for two years is mentioned as the only certain method of preventing the re-appearance of the disease. This plan, surely, as Mr. Abbott points out, is very likely to contaminate other hives, unless all bees are denied access to the infected hives. The author states that even boiling the hive is of no use. This must be a mistake, for we believe that all organisms are killed by the heat of boiling water. Following a chapter describing the various implements used in apiculture is a bee calendar, from which it is easy to find out in what months certain operations should be performed. A very full index concludes the volume. Mr. Abbott's notes will be found very useful, explaining what might otherwise be misunderstood, and pointing out where the German practice differs from the English. G. S. S.

CATALOGUES RECEIVED.

- H. Cannell & Son's (Swanley) Floral Guide.
- W. Bull's (Chelsea) Retail List of Select Flower and Vegetable Seeds.
- W. Brotherton's (Leeds) Vegetable, Flower, and Farm Seeds.
- W. Smith & Son's (Aberdeen) Descriptive Spring Catalogue.
- W. M. Pillinger & Co.'s (Chepstow) Descriptive List of Vegetable and Flower Seeds.
- W. Dawson's (Coventry) Vegetable, Flower, and Farm Seeds.
- Wood & Ingram's (Huntingdon) Vegetable and Flower Seeds.
- S. Brown's (Weston-super-Mare) Seed Catalogue.
- J. & T. M'Hattie's (Chester) Vegetable and Flower Seeds.
- J. Smith's (Windsor) Garden and Flower Seeds.
- Collins & Gabriel's (Waterloo Road, S.E.) Descriptive Flower and Vegetable Seeds, Bulbs, &c.
- Hooper & Co.'s (Covent Garden) Spring Catalogue.
- Daniels Bros.' (Norwich) Amateur Gardener's Guide.
- R. W. Proctor's (Chesterfield) Flower and Kitchen Garden Seeds.
- Civil Service Seed Stores' (York Road, S.E.) Descriptive Catalogue of Flower and Vegetable Seeds.
- T. S. Ware's (Tottenham) Choice Hardy Perennials and Dahlias.
- P. M. Fay & Co.'s (Dublin) Select Catalogue and Amateur's Guide.
- W. Wells's (Earlswood, Redhill) Vegetable and Flower Seeds.
- V. Lemoine's (Nancy) Choice New Plants.
- J. Wilson's (Whitehaven) Vegetable and Flower Seeds.
- J. T. Rolfe's (Enfield) Descriptive Spring Catalogue of Seeds.
- W. Thompson's (Ipswich) Descriptive Catalogue.
- W. P. Laird & Sinclair's (Dundee) Vegetable and Flower Seeds.
- J. Parker's (Brixton Road) Descriptive Catalogue of Kitchen, Flower Seeds, &c.
- H. Middlehurst's (Liverpool) Vegetable and Flower Seeds.
- Hogg & Wood's (Coldstream) Vegetable and Flower Seeds.
- T. Woodford's (Atherstone) Garden Seeds.
- C. Pocock's (Wincanton) Garden Seeds.
- W. Ford's (Pamper) Select List of Garden Seeds.
- Munro Bros.' (Inverness) Garden Seeds.
- R. Pennell & Son's (Lincoln) Spring Seed Catalogue.
- J. Green's (Thorpe, Norwich) New, Rare, and Beautiful Plants.
- J. Cocker & Sons' (Aberdeen) Vegetable and Flower Seeds.
- J. & R. Thynne's (Glasgow) Illustrated List of Garden Seeds.
- Canon & Reid's (Aberdeen) Garden and Flower Seeds and Implements.
- Barr & Sons' (Covent Garden) Spring Catalogue.
- C. Cooper's (Plymouth) Amateur's Manual for the Garden and Farm.

* "Dzierzon's Rational Bee-keeping." Edited and revised by Charles Nash Abbott, editor of the "British Bee Journal." Houlston and Sons, Paternoster Row, London.

NOTES OF THE WEEK.

THE APPLE CROP must have been poor in America, for very little is coming now to Covent Garden from that country. A good many Apples have lately come from Bordeaux.

STREET TREES IN CARLISLE.—The trees presented to this city by Messrs. Little & Ballantyne, Knowfield Nurseries, are now being planted in Warwick Road. Sycamores and black Italian Poplars are being planted alternately along both sides of the road at distances of eleven yards apart; and at corners of streets Limes will be planted. Messrs. Little & Ballantyne have also presented trees to be planted in Earl Street.

"THE MINISTER'S GARDEN."—"A. C." writes thus to the *Times*: "It may interest some to know that the original studies for Mr. Cecil Lawson's great picture of 'The Minister's Garden' were taken from the curate's cottage at Sandhurst, in Berkshire. The foreground of the picture represents the cottage garden; in the middle distance, below the spectator, lies the village of Sandhurst, indicated, however (if I rightly remember), by a single cottage roof; and beyond the landscape extends over the Blackwater Valley to Aldershot Camp and Farnham."

STREPTOSOLEN JAMESONI.—M. Lemoine, of Nancy, sends us a coloured plate of this new plant which he intends to put in commerce during the ensuing spring. The illustration shows a branched stem about 8 inches high, each twig being terminated by a dense cluster of blossoms. These resemble those of a *Browallia*, being about 1 inch long, tubular, with an expanding corolla. The tube is represented as bright yellow, while the limb is a rich red. This variety of colouring and the profusion in which the flowers are borne render it a showy and welcome greenhouse plant.

SOUTHAMPTON HORTICULTURAL SOCIETY.—The annual report just issued by this society shows it to be in a flourishing condition. The proposal to establish horticultural gardens having collapsed, the committee, feeling that the existence of the society depends upon some place being secured for the society's shows, have entered into a provisional agreement to rent 10 acres of Westwood Park for the purpose on a lease for fourteen years. It is proposed, in addition to holding the shows on this ground, to make provision for lawn tennis, athletic clubs, football, cricket, &c. The site possesses great advantage as to position, and is one of considerable beauty, being well wooded. It is also proposed, as far as the means placed at the committee's disposal will allow, to add to the ornamental appearance of the park.

THE ARNOLD ARBORETUM.—Mr. C. S. Sargent, the director of this arboretum, which is attached to the Harvard University, Cambridge, Mass., has issued his annual report concerning it. From this we learn that arrangements are in progress to open the arboretum as a public park under certain restrictions. This, the director states, will not interfere with the scientific aims of the arboretum. Pending this arrangement all permanent planting is in abeyance. The report further says that—"Various experiments in book-keeping have been tried from time to time, with the view of preserving an accurate record of every plant in the collection; they have not, however, hitherto been satisfactory, and have been abandoned, as either too complicated or too expensive for practical working. The future value of the arboretum would, however, be greatly increased if the history of each tree could be preserved as a record of the hardiness and rate of growth of the species or of different individuals of the same species raised under different conditions or descended from ancestors long subjected to different climatic conditions. An attempt, which promises to be successful, to preserve such records by means of a card catalogue similar to that now in general use in public libraries has been made during the year, and a complete catalogue of the collection has been prepared. A numbered card represents each species in the col-

lection; and a card with the same number with an additional sub-number represents each distinct lot of plants of the species raised at different times or obtained in a different manner from the lot represented by the first card. The card contains the name of the species, the source from which the plant is derived, and, if raised in the arboretum, the date at which the seed was sown, space being left for correcting the name when necessary, and for future records, such as the date of final planting, or any notes upon the rate of growth, hardiness, &c., of the species, which may seem desirable. This plan offers many advantages, and it is hoped that it will bear the test of continuous use. The collection is now represented by some 2250 cards."

EPHING FOREST.—At a meeting of the Essex Field Club, held on January 27, the following resolution, condemning the proposed extension of the Great Eastern Railway from Chingford to High Beach, was passed: "That this society, on behalf of the large section of the population of London interested in the pursuit of natural history, desires to record an emphatic protest against the proposal of the Great Eastern Railway Company to carry a line across a part of Epping Forest, believing that it is wholly unnecessary for the railway to take the route projected, and that it would not fail to prejudicially affect the advantages secured by the Epping Forest Act, which directs that the forest is to be preserved as far as possible in its natural aspect, and the society hereby authorises the council to petition Parliament against the project."

FLOWERS BY POST.—A correspondent writes: "Having frequently observed paragraphs in THE GARDEN respecting the difficulty of sending flower safely by post, I am sure I ought no longer to keep to myself the knowledge and use of Mr. Salter's (of Hemel Hempstead) excellent wicker baskets for this purpose. They are about 10 inches or 12 inches long, and 4 inches high or wide. In June, 1881, I received nine of these baskets in excellent order, five of which were given away and four have done duty ever since, constantly to and fro to Dublin, filled with choice flowers of all kinds, and once I sent Grapes in the same way. When filled with Grapes the postage was 4½d.; with flowers almost always 3½d. The baskets get a little crushed in returning, but still they are useable, and with a damp, small-sized old pocket-handkerchief to protect the flowers, they go as fresh as possible and last for days."

PLANT LABELS.—An extensive assortment of these reaches us from Mr. H. Bradley's Saw Mills, Southwell. They are made of various kinds of wood and are of different shapes and sizes, from the ordinary flat peg to the elaborated mounted tablets for trees. Most of the superior kinds are made of Pear wood, which has been found to be the best of all ordinary woods for this purpose, and Beech the next best. Boxwood, though good, is difficult to manipulate and liable to become discoloured unless well varnished. The collection includes some neat little tablets of Pear wood steeped in oil for suspending to Rose bushes, the name being stamped deeply in the wood. The same form is made also in Beech, Lancelwood, Apple wood, Ash, Box, steamed Beech, and Maple, all of which have the appearance of being very durable. Oak and Spanish Chestnut have been found good enough for all ordinary purposes. For printed labels, for pots, and borders, when anything extremely durable is required, Yew, Acacia, and several foreign durable woods are used. A capital flat peg label is made out of Quebec Pine, covered with two coats of paint. The best white Pine well painted also makes a good label, said to last from five years to seven years. Pitch Pine is not recommended for being painted to be written upon. The wood is too hard to absorb sufficient of any composition to render the writing legible and durable. White Willow makes a good peg label, and is written upon with ease. Oak pegs steeped in oil make a capital label for Orchids and other plants in hot moist stoves. The larger labels are T shaped, the standards being made of Oak, Yew, Acacia, and other durable woods, as well as galvanised iron, while the tablets

are made of the hard woods, such as Pear, Apple, and Box. It will thus be seen that Mr. Bradley has tested every available kind of wood thought to be suitable for plant labels, and that he has succeeded in proved by the many who have adopted his labels, which have been in existence for the last thirty years.

NEW CLEMATISES.—M. Lemoine sends us a coloured plate of three new varieties of Clematis which he has raised in his nursery at Nancy. They all have affinity with *C. Viticella*, and are named as varieties of that species. No. 1, *hermesina*, has blooms measuring 2½ inches across, with four broad sepals of a rich carmine-crimson, a colour we have never seen in a Clematis. No. 2, *venosa violacea*, is about a third larger than the preceding. The six sepals, about 1½ inches long, are violet, with three longitudinal bars of deep purple; the whole surface is netted with deep hues, and the margins are much deeper than the other parts. No. 3, *grandiflora*, has flowers over 4 inches across, with six broad sepals of a deep mauve-purple barred and netted with a deeper hue. These fine varieties will be sent out by M. Lemoine in spring.

Lawn weeds.—There can be no doubt that the Daisy killer is a powerful agent in the destruction of Daisies. But it must be remembered that besides the plants operated on seeds shed by them are continually coming up; therefore anyone who has once allowed weeds to get ahead must be prepared for a little trouble in getting rid of them, whether he adopts the plan of burying the turf or burning it, or of making one or two applications of the Daisy and weed destroyer.—JAMES CARTER & CO.

Dipping mixture for green-fly.—In cultivating Cinerarias, Calceolarias, Pelargoniums, and hosts of other things subject to green-fly, constant care has to be exercised in order to keep that pest off if possible, sometimes not an easy matter, especially in winter, when fire-heat has to be so often used to battle with frost and damp. Fumigating is a good preventive, but when once settled under the large leaves of Cinerarias or Calceolarias, the enemy is difficult to dislodge, and fumigating has to be repeated week after week until the Tobacco paper bill becomes really more than the worth of the plants, leaving the labour required in attending to them out of the question. The most effective and cheapest way I know of in regard to dealing with aphides is dipping the plants in a solution of hot water with which is mixed a little soft soap and Tobacco juice. This not only kills them altogether, but leaves the foliage distasteful to them afterwards. With a good tub and two men—one to hold the plant and see that it is put carefully in the water, and another to hold the pot—it is wonderful how quick a few hundred plants can be dipped. Plants that cannot be operated on in this way may be syringed with the mixture with equally good results.—A. MACKIE, Woodlands, Darlington.

Single Dahlias (A.).—Try Messrs. Cannell, Swanley, Kent, or Mr. Ware, Tottenham.

Names of plants.—*Nemo*.—*Cœlogyne cristata*.—*Ferns*.—1, *Asplenium marinum imbricatum*; 2, *A. marinum*; 3, *Polystichum lentum*.—*G. S.*—*Allium neapolitanum*.—*W. H. W.*—1, *Sempervivum* (species); 2, *Veronica elliptica*; 3, apparently a *Euonymus*; send better specimens; also of No. 4, which is a *Gasteria*.—*J. M.*—*Senecio Ghiesbreghtii*.—*O. R.*—*Cœlogyne cristata*.—*A. T. H.*—*Rhododendron davuricum*.—*O. R.*—*Cœlogyne cristata*.—*A. J. H.*—*Rhododendron davuricum*.—*Beta*.—*Sparmannia africana*.—*O. V.*—*Eupatorium riparium*.—*L. B.*—Send better specimens later in the season.—*J. C. K.*—1, *Santolina incana*; 2, *Cotoneaster Simonsi*.—*A. Widdowson*.—*Gasteria verrucosa*.—*E. A. V.*—Species of *Iberis*.—*A. S. Little*.—The large bulb is a kind of *Narcissus*.

COMMUNICATIONS RECEIVED.

T. C. L.—T. C. W.—A. H.—Delta (next week).—B.—W. E. G.—J. G.—S. D.—J. W. B.—J. C. C.—G. H.—A. V.—H. D. H. (next week).—X.—D. T. F.—R. D.—A. D.—J. R. E. H.—E. W.—G. S. S.—P. & A.—J. W.—T. R.—A. M.—T. G.—Scot.—T.—Berkshire (next week).

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

FRUIT GARDEN.

PEACHES AND NECTARINES.

THESE are rightly becoming more popular, proprietors of comparatively small gardens especially becoming alive to the fact that these delicious fruits can be both easily and profitably grown. It is a general complaint that mid-season Grapes have of late years greatly decreased in value, and that those who have been in the habit of selling their superfluous bunches find a material falling off in the income thus derived. On the other hand, Peaches and Nectarines, whether they ripen early, mid-season, or late, still realise remunerative prices—at least such is my experience, and that, too, in a provincial town; a few trees may, therefore, well replace some of the Grape Vines where these are grown to excess. It will be found they may be grown with or without fire heat, in any shape and in almost any form of house. They will succeed trained to the back walls of lean-to and half-span houses, while more may be trained to semi-circular trellises in the front of the house; or a trellis may be dispensed with and the trees grown as standards or bush-shaped. They will thrive admirably and ripen fruit in abundance when trained to trellises fixed at right angles with the front or across the house, and are equally satisfactory grown under widely planted Grape Vines; in fact, I should say, and I do not speak without experience, that the most profitable fruit house would be a combination of vinery and Peach house. At the same time too much must not be expected of them, and a little judgment should be exercised when planting. I was recently consulted as to what was the matter with some Peach and Nectarine trees on the back wall of a vinery, and I had to insist upon the necessity of growing fewer Vines, or the growth of the Peaches could not possibly ripen. Strong rods furnished with spurs about 6 inches apart and disposed 3 feet asunder are too close even for Grapes alone, but by thinning out the rods and the spurs so as to bring the former about 5 feet apart the weight of Grapes grown need not be greatly diminished, while the quality would be much improved, and a good crop of Peaches and Nectarines might thus be easily secured.

Planting Peaches and Nectarines in houses at present, unless exclusively devoted to them, is not advisable, especially if the trees have to be purchased. We usually plant the young trees when first received against an open south wall, and encourage them by mulching, syringing, and watering, as required, to form handsome trees well furnished with bearing wood. They are transplanted into the houses in autumn when in full leaf. At this time root action is most vigorous, and moving, when carefully performed, only interrupts this for a time. Our trees are thus well established before the fall of the leaf, while the growth ripens thoroughly under glass. Young trees brought in from the open walls last autumn are now in full bloom, and we shall crop them rather heavily, or they will grow more luxuriantly than is required. If I wished to rapidly cover a wall or trellis in a heated house I should unhesitatingly lay in the requisite amount of lateral growth which the strong early shoots inevitably develop, as these would ripen and fruit freely the following season. Houses have been filled in an extraordinarily short time by simply avoiding the use of the knife.

Artificial fertilisation, in the case of early and second early Peaches and Nectarines, I have always thought advisable, and since the introduction of the new and very early large-flowered varieties, such as Early Beatrice,

Hale's Early, and Early Alexander Peaches, and Lord Napier and Pine-apple Nectarines it has become absolutely necessary. Botanists rightly inform us that the more showy the bloom the greater the certainty of indifferent fructification, and that is really the case with regard to large-flowering Peaches and Nectarines which under glass must be artificially assisted, and where at this time of year is assistance to come from if not from those to whose care the trees are entrusted? Such good old varieties as Royal George, Violette Hâtive, and Bellegarde Peaches and Elruge, Balgovan, and Downton Nectarines, with their closely-packed and pollen-laden stamens, might be set by means of the air circulated by the heated pipes or a breath of wind, and probably a smart tap of the branches is oftentimes sufficient to secure a set; but the case is different where the stamens are widely apart, as in the large-flowered kinds. Even, however, with the free setters we ought always to feel assured of a good even set, and if the result is great quantities of small fruit to remove, that is better than an insufficiency or perhaps a sufficiency disposed in inconvenient positions. A worse season than this for setting early Peaches and Nectarines we could not have, yet I find we have abundance of fruit swelling on all the above-mentioned large-flowering varieties. This was effected by simply passing a rabbit's tail, tied to a stick, lightly over all the fully expanded blossoms about the middle of each day. By fully expanded blossoms I mean those with anthers covered with golden pollen, and this, being in a dry state, is easily passed on to the moist stigma of the pistil. Varieties deficient in pollen are fertilised with that of those abundantly laden, and by these means a generally good set is secured. I am aware that the use of the rabbit's tail is not original, but of the many methods which I have tried, including the introduction of a hive of bees, it proves the simplest, and on the whole the most satisfactory way of doing what is desired. A camel's-hair brush was at one time preferred for the purpose, but though sure in effect, it is slow in operation. As a rule we only fertilise those flowers that are placed in a position favourable for the production of large-sized highly-coloured fruit. All other flowers are rubbed off. I am an advocate of and practise

Disbudding early, and follow this up carefully in order to dispense with the knife as much as possible. To defer disbudding till the fruits are as large as Peas I consider altogether a mistake. Peaches and Nectarines break freely throughout any length of young growth, and by disbudding early, leaving those buds only where we require a shoot to lay in for fruiting next season, and those where a fruit is to swell we naturally insure for ourselves a good start. The latter I term "fruit swellers," and they are stopped early, leaving about six good leaves. When disbudding, should the fruiting wood be weakly, with probably a wood bud at each extremity, the growth from the latter is allowed to extend for a short time, when it is stopped at about the fourth joint, and this is sufficient to swell the fruit, while the stopping strengthens the otherwise weakly shoot starting from the base. In the case of medium-sized and well ripened growth, this being shortened to about 12 inches and at a triple bud, the leading shoot is allowed to extend, while another is preserved at the base and eventually laid in. Long, well ripened shoots we frequently lay in to a length of 30 inches, and these are disbudded so as to have three branches to lay in—one at each end and one in the middle. It will be seen we do not lay in much growth—in fact, crowding is avoided—nothing, to say the least, being gained by it. Most of our young growth is laid in on the upper side of the main branches, thus much simplifying the training, but occasionally it is advisable to depart from this rule rather than have a blank. Hard and fast rules, as regards training, are not now-a-days so strictly observed as they used to be. What little pruning we find necessary is completed in the autumn, and before the foliage is off.

FRUIT GROWER.

SHELTER FOR FRUIT TREES.

MR. GROOM (p. 74) does well in calling attention to the importance of having plenty of shelter for fruit trees, as we seldom get a season without much cold frosty wind, which cuts off or destroys blossoms wholesale. This was seen everywhere last year after the storm of April the 29th. The trees, however, recovered in a marvellous manner, and at this moment are looking perhaps all the better for being relieved of their burden. Having nothing to carry, they were able to repair the mischief done, and now they are crowded with flower-buds. Although it is too late to plant Apples and Pears at this season, it is not too late to partly surround orchards with shelter trees; the best for the purpose are quick growing Firs, such as Spruce, Scotch, and Pinus Laricio, all of which are very hardy, and run up in a few years to a height that will keep off the wind and make many degrees' difference in the warmth of the air over the land they partly surround. The belt or plantation should face the north, east, and west, but should be well away from the fruit trees, so as not to overshadow or rob the ground. Evergreen Oaks, where they succeed, are capital shelter plants, and come in admirably for inner lines, as they are dense and clothe well down to the ground, and break up and smother a storm. The secret at starting is to break up the soil well where the trees are to go, and to plant thickly, as then they act as nurses to each other, and as soon as they begin to crowd it is an easy matter to cut out and thin, when the stems will come in for posts or rails and pay well for the growing. Before planting it is as well to get the March winds over, as sometimes they are very searching and exceedingly trying to fresh moved Firs, out of which drying blasts take the sap, and leave them to wither and die. April showers keep them plump and fresh, and under their influence they start quickly, and soon get fresh hold of the ground, when if this suits them they make vigorous shoots, varying from 2 feet to 3 feet in length. S. D.

Fruits in season.—The table given last week under this heading is an example of a worse than useless kind of table which would be clever people are apt to indulge in. It tells in a round-about way, troublesome to both teller and learner, what could be told more simply in words, such as "Brazil Nuts, May to December." It is, moreover, inexact in several of its items.—J. H.

Pear tree in bloom.—As an instance of the mildness of the season I may mention that a pyramid Pear (Fondante d'Automne) which I moved in 1881 had some flowers all but out early in December. There are now three or four flowers out on it, and the tree will be well in flower in a few days should this weather continue. Also another rather singular thing—a Laburnum, which I moved at the same time, and which almost died, broke out into leaf at the middle or end of October, and has retained such foliage as it made up to the present.—E. H. EYLES, *Enfield*.

Fruit prospects and retarding the flowers.—Notwithstanding the gale of the 29th of April, 1882, which swept with devastating force over the whole of the country and stripped many trees of most of their leaves, the promise of fruit this year is nevertheless great, Apples, Pears, Plums, and Cherries being, wherever I have seen them, well set with bud. This augurs well for the forthcoming summer, but what is to be feared is that the plump fat buds, now so abundant, will get too forward, as they are fast swelling, and a continuance of the present mild weather, if accompanied by sunshine, will bring them more rapidly on. Unfortunately, there is not much help for this, although it has been stated that they may be retarded by a certain system of pruning, a fallacious statement, as may be proved by leaving half a tree unpruned, when it will be seen that the flowers on that part will be open quite as soon as those on the other. In a small way trees may be retarded by keeping the sun off them, which may be done by tying evergreen branches or mats to stakes placed on the south sides, where a screen

so formed by keeping the solar rays from the branches and ground may be made to lower the temperature. Although this shading cannot be carried out to any great extent with Pears and Apples, it may be made to render good service to trees on walls, especially Peaches and Nectarines, or Apricots, which are so quickly excited. With canvas blinds or anything of that kind in front, the fruit trees just named may be kept back a week or two.—S. D.

Josephine de Malines Pear.—I find by referring to memoranda that this really excellent Pear ripened with me for three years in the early part of December, once in January, and three times in November, but that was always after very warm dry Septembers. The tree is planted on the north side of a wall and trained over the coping on the south side. I had a tree of this variety on an east wall, but in cold, wet seasons the fruits were comparatively worthless; not so, however, on the south wall. There they always ripened, and being planted in a cold, wet north border, they never became mealy. There is no doubt that a tree of this Pear planted against a south wall will answer the purpose and pay much better than Peaches or Nectarines, or even Apricots.—E. SENDALL, *Thorpe Hamlet, Norwich.*

QUESTIONS

Begonia Froebell.—Will someone kindly say when this Begonia should be potted to grow in a cold frame for exhibition about the end of August? what sized pot and what sort of soil should be used?—BEGINNER.

Enothera eximia.—Will any reader of THE GARDEN kindly tell me where I can obtain a plant of this Enothera? I lost mine some four years ago, and have not been able to meet with it since.—E. H. EYLES, *Enfield.*

Budding Roses.—Being desirous of budding some Briers this season with a special Rose, grown by a friend at a distance, I wish to know if buds posted to me for that purpose will "take" two days after removal from the trees, or whether the time taken between cutting and budding will prevent growth.—R.

Vegetables for exhibition.—Will some one kindly tell me when to sow the following to come in for exhibition about the end of August, viz., Peas, Broad Beans, French Beans, Cos and Cabbage Lettuces, Autumn Giant Cauliflower, and early Cabbage?—the two last named can be sown in a frame.—BEGINNER.

Woodlice.—Can any of the readers of THE GARDEN advise me as to the best plan of getting rid of woodlice in a Mushroom house? They have kept their ground in it for many years in spite of all endeavours to dislodge them, and they have now got so numerous that they devour almost the whole of the Mushrooms as soon as they appear.—C. F.

Perle des Jardins.—Will some of your readers who have grown this Rose kindly answer the following questions: 1. Have they ever known it to have an orange centre with a slight purplish tinge on the back of the outer petals? 2. My catalogue says that it is a deep canary yellow. Would open-air culture change it to the colour stated in question No. 1? 3. Would not a Rose of that description be Perle de Lyon?—DISPUTE.

Japanese plants.—A young Scotchman, a clever professor, is leaving Japan next autumn, and I have the chance of asking him to bring plants home. Can any of your correspondents tell me what deciduous trees (such as the Maples) and shrubs there are, natives of Japan and not yet common in English nurseries, which it would be worth while to ask my friend to bring home? Would the evergreen and deciduous Oaks live here? Fortune speaks of seeing fine Oaks of both kinds. I suppose Messrs. Veitch would know best what plants have been acclimatized and could be safely brought to England? Will they assist me? I live on loamy clay in Bucks, but the Retinosporas and Acer polymorphum do fairly well.—E. H.

*** Our readers will greatly oblige by replying so far as their knowledge and observation permit, to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

GARDEN IN THE HOUSE.

CEPHALOTUS FOLLICULARIS AS A WINDOW PLANT.

AMONG the small gems of the vegetable kingdom few are more attractive or interesting than this little Australian Pitcher plant. If it cannot vie with many other plants during their flowering period, it at least has this advantage over them that its beauty never fades throughout the year. At this dull season it is just at its best; all the pitchers are fully developed and in their brightest stage of colouring. It is a plant seldom seen in private gardens, unless the proprietor has a more than usual knowledge of and admiration for singular rather than beautiful plants. My object, however, in writing thus concerning its merits is not to recommend it for greenhouse culture, but to the many who are on the look out for plants out of the ordinary type suitable for room decoration. Anyone possessing a sunny window may grow it as successfully as in the best appointed greenhouse; and as it requires to be always covered with a bell-glass, it is independent of gas fumes, dust, and other exhalations that make such havoc among plants generally used for that purpose. Those who are accustomed to grow Filmy Ferns will have no difficulty in growing this Pitcher plant; it requires to be kept very moist at the root at all seasons of the year, and the case or bell-glass in which it must be grown need never be opened except for the purpose of watering it. The soil most suitable to grow it in is a compost consisting of equal parts fibry peat and Sphagnum Moss, with the addition of a very little fibry loam and silver sand. The pot must be well drained to prevent the water from stagnating about the roots. When well established it will not require repotting oftener than every other year, and care must be taken never to give a larger shift than is really necessary; in transferring it from one pot to another the roots should never be mutilated. A good plant of it can be purchased for 5s., and those who succeed in growing it are sure to be pleased with it. J. R. G.

FOLIAGE FOR INDOOR DECORATION.

WE have been experimenting of late with different varieties of foliage for various kinds of indoor decoration, finding that Maiden-hair Fern is not in many cases so satisfactory as we could desire. In a cut state it fades quickly in rooms kept somewhat unusually warm by fire heat, likewise where a considerable quantity of gas is burnt, and a sharp draught is also detrimental to it. I am aware that hard growth increases its lasting properties, but this cannot always be obtained, surrounding circumstances not being favourable to such growth. The house in which it is grown may be either too warm or too moist to develop a lasting growth for cut purposes. Under such circumstances fronds of a deeper shade as regards colour and with larger pinnae would be obtained, but fronds of this description do not keep well. To produce fronds of good lasting quality, the plants should have an abundance of light during the spring, autumn, and winter months, with a fair amount of air, and a cool stove temperature. Growth made by plants in baskets we have found to last well when cut, a circumstance doubtless attributable to the large amount of air to which they are subjected. But to our subject. We have of late tried fronds of *Gleichenia flabellata* cut from a plant in luxuriant health and too large for the position it occupies. In a cut state this Fern has given us every satisfaction, lasting well for ten days at a time in most cases. The pleasing colour of its fronds, and their distinct growth and character, have given us quite a change of greenery. We have also tried *Gleichenia Mendelli*, but this did not give satisfaction, quickly drying up and looking as if it had been cut many days. This variety belongs to a section of the *Gleichenia* family, quite different from that to which the first named kind belongs. I have no doubt that *G. dichotoma* would keep well, this being nearer

to *G. flabellata*, both being members of the *Mertensia* group. Another useful Fern for cutting from at this time of the year is *Davallia Tyermani*, the deep green fronds of which keep good a long time. Having a tall stem of *Aralia Veitchi gracillima* which we eventually intended to cut hard down, it occurred to me that the foliage in a cut form might be useful. We have found it to last fresh an unusually long time, and when used in association with other foliage and appropriate flowers the result was very effective. The leaves of *A. elegantissima* would no doubt be as durable as those of this kind. Growth of *Pandanus graminifolius* have also done good service on several occasions. This *Pandan* can be grown under the shade of other stove plants, and will prove useful for what is called furnishing. The plant, however, that has given us the greatest amount of satisfaction in a cut state for some time past is the newly introduced *Asparagus plumosus nanus*. If ever the Maiden-hair Fern has a rival, this, in my opinion, is the plant that will be it. For button-hole bouquets, for sprays for the hair or the dress, it is simply first-rate, keeping fresh out of water almost as well as in it. It is an accepted favourite here, and will be so in many places when better known. Our plant of it is growing away most freely under ordinary stove treatment. Some time back we cut some of the smallest growths, and new shoots have now, to our surprise, pushed again from the joint just below the cut, whilst young ones from the base are breaking away in quantity. I can with confidence recommend this useful addition to our ornamental foliage plants; whosoever may take it in hand for decorative work will, I feel sure, be pleased with it. Other kinds, such as *A. tenuissimus* and *A. virgatus* are likewise useful, but to my mind the palm must be given to *A. plumosus nanus*. JAMES HUDSON.

Gunnorsbury House, Acton.

BOUQUET OF EVERLASTING FLOWERS.

DURING winter when blossoms in a fresh state are scarce, dried flowers, or Everlastings as they are generally called, form a good substitute, and are very acceptable for room decoration. If they lack the brisk sweetness of newly gathered flowers they have the advantage of being permanent, and when tastefully arranged amongst Grasses and Fern fronds have a really pretty effect—better by far than tawdry imitation flowers of unnatural shape and colour now made so largely to take the place of fresh flowers. Our Continental neighbours seem to have a wider appreciation of dried flowers than we have, and, besides, they appear to have a better way as regards manipulating them, especially in Germany. Moreover, they do not confine themselves to Everlastings in the general sense of the term, but extend the drying process to plants which we never hear of being dried for ornament, a fact fully represented in the annexed illustration. Those shown in this case are mostly all mountain flowers. At the top is *Astrantia minor*, an umbelliferous plant with pinkish bracts. Below it is *Gnaphalium margaritaceum* in company with its ally the Edelweiss (*Leontopodium alpinum*), which, as every alpine tourist knows, dries capitally. The other flowers in the bouquet are the alpine *Eryngium*, of which the big flower in the centre is a good illustration. The Cornflower-like bloom appears to be *Centaurea montana*, and that immediately below it *Senecio Balbisianus*; while the lowest flower of all is a little mountain Milfoil (*Achillea*). To many these flowers would appear to be very unlikely subjects to select for Everlastings, but such indeed they are if carefully dried.

Garrya elliptica.—This is certainly one of the most ornamental as well as curious shrubs sent home by Douglas. When in bloom it presents a striking and beautiful appearance, with its delicate, pendulous catkins, many of which are from 8 inches to 12 inches in length. It is a capital wall plant, of easy culture, and readily increased by layers or cuttings.—A. D. WEBSTER.

FEB. 10, 1883



BOUQUET OF EVERLASTING FLOWERS.

TREES AND SHRUBS.

TREES AND SHRUBS FOR TOWN GARDENS.

HAVING lately been desired to prepare a list of trees and wall shrubs suitable for a town garden, it has occurred to me to submit it to the readers of *THE GARDEN*, some of whom may throw further light on the matter and thus benefit myself and others. The garden, or rather small park, in question is in a mild locality near the sea. Although quite a variety of things is recommended in this list, the most reliance will be placed on Hollies, Aucubas, Ivies, and Yuccas, in bold beds and masses. Low Ivy edgings will also be employed near the grass verges with advantage. What is especially desired is the use of perfectly hardy, free-growing plants, which when once well planted will give but little further trouble as to keeping, and increase in effect year by year. To this end good bold beds and groups or masses of Yuccas, Ivies, Hollies, Aucubas, &c., are recommended rather than mixed beds or borders of shrubs of the usual kind, in which all things do not grow well alike, and the stronger eventually overcome the weaker. It is proposed to cover existing dead tree trunks each with some one distinct kind of green or golden Ivy. Bare walls are likewise to be covered with Ivies of various kinds—Cotoneasters, golden winter Jasmine, and Ampelopsis Veitchi, the more sunny and sheltered nooks being reserved for a Magnolia or two, Wistaria, Aristolochia Siphon, Clematis, Almonds, Cydonia japonica, Colletias, common Passion Flower, and other wall shrubs and plants.

Ephemeral floral effects, being most costly in all ways and least satisfying, are not desired. It is particularly recommended that the plants be selected from some bleak, cold northern nursery, as experience proves that those grown in warm, sheltered country places in the best of soil and climate rarely grow well, even if they exist, when brought into town gardens; reared in adverse circumstances, they acquire a robust constitution, which enables them to hold their own amid town smoke and dust.

In shrub culture one must ever bear in mind that by their permanently occupying the same spot for years the principle of crop rotation is suspended, so that manure is often needful, especially when the plant has to contend with smoke and dust. A good top-dressing of well-rotted manure and burnt rubbish—better still leaf-mould—is beneficial applied in autumn. This forms a substitute for Nature's own leaf-dressing in their native woods. During hot summer weather also all newly planted shrubs and trees are the better for a mulching of rotten manure or leaf-soil over their roots. This serves a double purpose; the rains wash down its manurial elements, and it mechanically acts as a wet blanket, thus preventing the evaporation of earth moisture.

Lime dressings (not magnesian) are beneficial to all newly dug ground, that is unplanted, especially in towns. It may be crushed and applied to bare ground fresh from the kiln and at once dug in. Apart from its direct manurial value it also aids in the liberation of organic matter, which lies crude and useless in old plots of uncultivated soil. Old mortar and lime rubbish mixed with calcined rubbish of all kinds and a small proportion of agricultural salt form a valuable manure, and easily prepared. A broadcast sprinkling of freshly burnt lime, applied at night or on wet evenings, is death to all slugs on which it falls. On plots occupied by shrubs or flowers the plan is to slake the lime, applying it when cool after pulverisation.

Shrubs for walls.—Ivy in variety.—There are about twenty good distinct varieties of Ivy of the green-leaved type invaluable for bare walls in town gardens. *Hedera algeriensis*, *H. palmata*, *H. cordata*, *H. pedata*, *H. canariensis*, *H. Helix aurea* (golden Ivy), *H. digitata*, *H. Rægnieriana*, *H. dentata*, *H. nepalensis*. The common Irish Ivy (*H. canariensis*) makes very nice low edgings on grass near walks, and is often so used with good

effect in the public gardens of Paris. After the common golden few variegated kinds are effective in towns. *Magnolia grandiflora* (Exmouth variety) is in sheltered places a noble wall shrub, even if so be that it does not bloom. The Exmouth variety, known by the under surface of its leaves, being densely covered with red tomentum, is the best. *Wistaria sinensis*.—Deciduous, but still a noble wall shrub effective from April until November. *Ampelopsis Veitchi* (Japan Creeper).—Deciduous; during summer and autumn one of the neatest and most effective of wall plants. A great advantage it possesses over the Virginian Creeper is that it requires no nailing, clinging lightly and flatly to the wall surface by its own tendrils. Good for bare walls and sunny gables. *A. hederacea* (Virginian Creeper) is good for walls in summer and autumn, when it becomes highly coloured. *Jasminum nudiflorum* (golden Japan, or Winter Jasmine), on walls near Ivies, or near the red-berried *Cotoneaster Simonsi*, produces its golden flowers through the winter months, one of the best and brightest of all winter blooming shrubs, and it does well in towns if well planted in good rich soil. *Cydonia japonica* (Japan Quince) on a sunny wall bears a profusion of scarlet flowers during winter and spring. It is nearly evergreen. *Colletia cruciata* and *C. ferox* are singular hardy wall shrubs worth trial. *Pyracantha japonica* (Fire Thorn).—This species and also its variety, *P. crenulata*, from the Himalayas, are red-berried evergreen shrubs, well suited for bare walls in town gardens. *Escallonia macrantha*.—Bright and cheerful in winter, dark glossy leaves, and clusters of red flowers. Although perfectly hardy in exposed places near the sea, it well deserves wall shelter in town. *Aristolochia Siphon*.—Large cordate leaves, effective foliage on a wall. *Cotoneaster microphylla* is a good wall shrub, evergreen, with white flowers and red berries. *Clematis Jackmani* (purple Clematis).—For sunny walls a good hardy free-blooming variety. Poultry netting of galvanised wire nailed to the wall affords a ready base on which to train and tie its growing shoots. *C. montana* is a white flowered species, blooming in spring.

Evergreen shrubs.—Hollies, green, gold, and silver variegated.—Of all town shrubs these are the hardiest and best, and by no means slow growing if manured with rotten leaf earth every year, as they soon exhaust the ground near their boles. *Aucuba japonica*, one of the most cheerful of all town shrubs in winter. Apart from the glossy foliage, if male plants be planted here and there among the common female kinds, their red berries are an additional attraction. *Euonymus japonicus*, *E. j. var. aureus*, *E. j. latifolius*.—All fresh glossy-leaved shrubs of dense habit. Of town shrubs they are of the best. *Garrya elliptica*, a grey-green shrub bearing catkins during the winter months, well worth trial in a sheltered position, or even the protection of a wall. *Portugal Laurel*, gloomy leafage. Common Holly, far more bright and effective. *Quercus Ilex* (Evergreen Oak).—Good for shelter belts or as isolated specimens. *Laurustinus*.—The best form is a shining-leaved variety, with pure white flowers. 30° of frost kills this. *Berberis fascicularis* hybrida. Good *Berberis* for walls in sheltered positions.

Yuccas.—Most distinct and effective in leafage and blossom. These plants make handsome clumps on the turf in sheltered positions, or as isolated specimens near angles or corners of grass plots. Perhaps they show best, however, massed together in large beds or groups in sheltered positions on grass. *Y. gloriosa* and *Y. recurva* are both noble large growing kinds. *Y. flaccida* is a dwarf, but extremely free blooming species. *Rhododendrons*, planted in peat and leaf mould, are effective, but they often require renewal in town gardens.

Deciduous shrubs, &c.—*Clematis Vitalba* (the common Traveller's Joy) may well be used for draping tree trunks, fences, railings, &c., and is a rampant grower. *Pyrus floribunda*, a free-flowering species, bearing rosy clusters of Apple blossoms in spring. *Crataegus Oxyacantha* var.

Paul's Crimson (double red Thorn).—Both this and the common Hawthorn flower well in towns. *Almond*.—The white, blush, pink, and rosy varieties of the common Almond are perhaps the best and most satisfactory of all early blooming town trees. *Cherry*.—The double-blossomed Cherry is also well worth a place. *Lilac* (*Syringa vulgaris*).—A showy flowering bush in spring. Its bare and dark-coloured wintry aspect is a drawback. *Laburnum* (*Cytisus Laburnum*).—The Scotch variety is the best and flowers well in open town spaces. *Beech*.—The purple or copper-leaved varieties may well be planted, their young leaves contrasting well with the Laburnum when it is in bloom. *Forsythia suspensa* and *F. viridissima*.—Yellow flowered wall shrubs, deciduous. *Magnolia conspicua* and *M. Lenné*.—Two showy species, apt to suffer from late spring frosts, but very effective in mild seasons, and worth the shelter of a wall. *Sambucus niger* var. *aureus* (golden-leaved Elder).—Quick growing golden-leaved bush, producing bright effects during summer. Contrasts well with dark Hollies. *Buddleia globosa*.—A distinct and effective deciduous flowering shrub, sometimes called the Orange Bush from its golden ball-like flower-heads. *Willows*.—Some kinds do well, especially the silver-leaved; the golden shoots also of the golden Willow are most effective in winter sunshine, and there is a variety with crimson tinted shoots which is far more striking than the common Dogwood as a plant for winter colour effect. *Salisburia adiantifolia* (Ginkgo or Maiden-hair Tree); either as a standard tree on the turf or on a wall, this plant is most effective and distinct from anything else, leaves like those of a gigantic Maiden-hair Fern. A good specimen has existed for many years in the Chelsea Botanic Gardens. W. F. B.

RED-BERRIED MISTLETOE.

INFORMATION is asked (p. 75) respecting "a red-berried variety of Mistletoe, mentioned by Loudon as occurring in the vicinity of Jerusalem." Of such a variety I know nothing, but I have found a lovely red flowered parasite, *Loranthus indicus*, growing in profusion in Nubk trees (*Zizyphus Lotus*), near the fountain Ain Sultân, in the plain of Riha, the ancient Jericho, and I think this must be the plant to which your correspondent alludes. Canon Tristram says ("Land of Israel," p. 202): "The most conspicuous was a beautiful parasite, *Loranthus indicus*, with graceful red blossoms studding its branches as it climbed up the topmost boughs of the Thorn trees." This plant is one of a genus closely allied to *Viscum*, and its propagation is thus described by Mr. Griffith (Linn. Transactions, vol. xviii., p. 71): "In *Loranthus* the ripe seeds adhere firmly to the substance on which they are applied by means of their viscid coating, which hardens into a transparent glue. In two or three days after application, the radicle curves towards its support, and as soon as it reaches it, becomes enlarged and flattened. By degrees a union is formed between the woody system of the parasite and the stock." Unlike our English *Viscum*, however, the *Loranthus* has the power of attaching itself to the branches of the tree on which it grows by means of suckers proceeding from its own shoots. It has been suggested that *Loranthus europæus* was once a native of Great Britain, but that all vestiges of their religion having been extirpated with the Druids, the *Loranthus* has disappeared wherever that religion formerly held its sway. R. MILNE-REDHEAD.

Tree planting on the Northern Pacific.

—A railway running along hundreds of miles between rows of shade trees will soon be one of the novel characteristics of the Northern Pacific. This extensive tree planting is being carried out to protect the line from storms and snowdrifts. In addition to having a large force of men engaged at this work between Fargo and Bismarck and Dakota, the officers of the company have distributed large quantities of seedlings and cuttings to cultivators settled on the land, and have offered prizes for skill in forestry.—T. C. W.

Flowering shrubs.—It has often occurred to me that more descriptions of that hitherto neglected class of plants, viz., flowering shrubs, accompanied by coloured illustrations, would be most acceptable to readers of THE GARDEN. I constantly now hear persons inquiring about them, and think that the tide of opinion is setting in that way. There is no book that I know of which treats on them thoroughly. Mongredien's book is out of print, and Hemsley generally dismisses them by not describing any of the rarer kinds, and by saying that it is unnecessary to speak further, as "they are very uncommon in gardens," which seems to me to be the very best reason for describing them fully. No doubt many of the so-called tender shrubs will be found hardy enough to withstand our winters, at all events against a wall, and if you would give us illustrations and descriptions of some of the best and rarer kinds it would, I am sure, be a great boon to all lovers of what I consider the best kind of gardening. At present it is very difficult to procure the rarer kinds from nurserymen, or at least I cannot find any nurseryman who supplies them; but if once a demand was created the supply would soon follow, and we should be relieved from the eternal monotony to be seen everywhere in the modern shrubbery.—OXON. [We have figured many beautiful shrubs, and hope to do many more.—ED.]

FERNS.

BEST CULTIVATED SORTS.

Anemia.—This genus is composed of mostly dwarf growing Ferns forming part of a section which is commonly known under the denomination of "Flowering Ferns," on account of their fertile segments being wholly contacted, a peculiarity which gives them the appearance of flower-spikes. Although several interesting species have been at different times introduced from tropical countries, a few only have survived the ordeal of acclimatisation, or the effects of the treatment first received after their importation. Provided heat and plenty of light are at the disposal of the cultivator, they are not difficult to manage, and will be found to do best in a mixture of two parts of good fibrous peat to one of sharp silver sand, the plants being either kept on a shelf if in a spacious house, or near the glass if in a warm pit or low house. Watering overhead is very injurious to them. They prefer being grown in small pots to being planted out in the fernery, and although they are not what may be thought the ideal of decorative Ferns, as they cannot be used for general purposes on account of their vegetation being too slow, still, when Anemias and Anemidictyons are grouped together, they present a very striking appearance.

A. adiantifolia.—A pretty little species from Jamaica, rarely exceeding 12 inches to 15 inches high. The fronds, produced from a succulent crown, are bipinnate when sterile and triangular in shape; from the base of the sterile pinnæ come the fertile segments, generally produced in pairs; these grow to the height of 6 inches to 8 inches, and are completely covered with sporangia. Stove.

A. cheilanthoides (tomentosa).—This Brazilian species, perhaps the most elegantly cut of the genus, bears beautiful fronds of about 12 inches high; they are tripinnatifid with pinnæ finely cut, but closely set, and of a dark green colour, their stalks and rachis covered with ferruginous brown short hairs. The fertile segments, also of the same reddish brown colour, are produced in pairs from the base of the lower pinnæ, and grow about 8 inches high. Stove.

A. mandioccana.—A comparatively strong growing Brazilian species, producing fronds 15 inches high, the sterile part of which is pinnate and acuminate; the pinnæ, auriculate at their base, are about 1½ inches long and entire; the fertile segments, in pairs and bipartite, grow to about 6 inches; the stalks and rachis are densely clothed with long hairs of a reddish brown colour. Stove.

A. Phyllitidis (Anemidictyon Phyllitidis).—This species and its several varieties form a separate section of the genus *Anemia*, from which they are readily distinguished by having their veins reticulated; they are besides stronger growers than any of the above described species. *A. phyllitidis* produces fronds often reaching 30 inches high, and borne on green stout stalks; the sterile part is pinnate, with pinnæ entire, somewhat distant, of which each frond bears about ten pairs besides the terminal one; they are about 4 inches long, 1 inch in breadth, of a bright green, and of a tolerably tough texture. The fertile parts of the fronds, as in *Anemia* proper, are bipartite, dense, and wholly covered with sporangia. Stove.

A. Phyllitidis fraxinifolia (Anemidictyon fraxinifolium).—This species, from Tropical America, is very distinct; the fronds grow to about 18 inches in height; their sterile part is pinnate and made up of nine pairs of pinnæ besides the terminal one; these are entire, ovate in shape, about 2½ inches long and 1 inch in breadth and closely set together; the fertile segments, produced in pairs from the base of the lower pinnæ, grow to about 9 inches high, and are very dense, green in their young stage, turning light brown when mature. Stove.

A. Phyllitidis tessellata.—This peculiar and handsome variety is distinct from all the others on account of its fronds, which grow to about 18 inches high, having the pinnæ of a dark green ground mottled with transparent greenish yellow blotches and veins on the upper surface, which marking and netting gives the fronds all the appearance of a charmingly attractive piece of mosaic. As in the parent plant, from which it is issue, the pinnæ are produced in nine or ten pairs besides the terminal one, but smaller in dimension, and measuring only 2 inches long by hardly 1 inch in width. Another peculiarity of this variety is its tendency to often produce from the base of the lower pinnæ three fertile segments instead of a pair. Stove.

Angiopteris evecta.—This, I believe the only species comprised in the genus, is closely related to the *Marattias*, and belongs to a family of gigantic growing Ferns, which are totally deprived of stems, and which are altogether very unlike Ferns in general appearance. Its immensely large fronds, reaching 18 feet high by 10 feet in width, and which give to a fernery of sufficient size to accommodate them a noble and tropical appearance, are produced from a thick fleshy crown, rising a little above the surface of the ground, and are borne on stout blackish, fleshy stalks, clubbed at their base, where they often measure 8 inches in circumference. They are bipinnate with pinnules of a coriaceous texture and bright shining green in colour; they are generally from 4 inches to 5 inches long and about 2 inches wide. Being found in swampy places all over Ceylon, Java, and the Pacific Islands, this Fern will grow luxuriantly if potted in a compost of two parts fibrous loam, two parts rough peat, and one part chopped Sphagnum, and kept partially in water in the stove fernery, although it will also do very well in an intermediate house. There exists also a very pretty variety found in Java resembling the species in general appearance, but with pinnules rather larger and of a fine glaucous colour on the underside, and bearing the name of *A. pruinosa*.

Aspidium.—Most of the plants in this genus are strong, erect-growing, highly ornamental Ferns, having broad, massive fronds with netted veins. Although very accommodating plants and of easy growth, they are not so well adapted for pot culture as for planting in the rock fernery, where they will prove most effective, their bold foliage being shown off to much advantage by the finer cut nature of the other kinds surrounding them. A mixture of two parts of peat, one of loam, and one of silver sand will suit them very well. They will also benefit by being now and then syringed overhead.

A. conifolium.—This Asiatic species produces from a thick underground rhizome and in

great abundance beautiful tripinnatifid fronds almost triangular in shape, of a dark glossy green colour, and of very leathery texture; the pinnules, which are overlapping each other, have their edges rather rough and slightly ciliated. Greenhouse.

A. coadnutum.—A very fine East Indian species of large dimensions, with fronds from 3 feet to 4 feet high, and light green in colour; they are subpinnatifid, and the pinnæ very broad. It is one of the easiest to grow, and most distinct in habit. Greenhouse.

A. lepidocaulon.—An interesting Japanese species of drooping habit, particularly adapted for basket, bracket, or suspension of any kind, in which it thrives well and shows itself off to advantage. Its fronds grow from 18 inches to 24 inches long; they are pinnate, dark shining green, and of a very coriaceous texture. The most remarkable peculiarity of this plant is that the upper part of the frond is naked, and, being totally unprovided with pinnæ, it terminates in a long tail-like process, producing at the far end a bulbil, developing into a young plant later on. Greenhouse.

A. macrophyllum.—This grand and most distinct species from Tropical America requires a great deal of space to develop properly its beautiful pinnate fronds, which grow to about 4 feet high; the basal pair of pinnæ are auriculate on the lower margin, whereas the terminal pair are broad and decurrent; the whole plant of a light green colour. Stove.

A. trifoliatum (A. heracleifolium).—A very free-growing Brazilian Fern of very peculiar appearance. Its fronds, produced from a succulent crown, are trifoliate, the lower pair of pinnæ lobed on their margins, and all deeply crenate; they are of a bright green colour, and grow from 12 inches to 18 inches long. Although it will do fairly well in a greenhouse, it grows finer in a stove.

PELLÉE.

BOOKS.

VINES AT LONGLEAT.*

THE author of this treatise professes to take the reader "into his confidence" and to relate his "failures and successes" with equal candour, but from one end of the book to the other an assumption of superiority and originality, not borne out by the contents, is plainly visible. It is amusing to read of the "punishments" the author has had to endure "for venturing on originality," which "originality" consisted, so far as one can make out, in attempting to grow his Vines in a soil destitute of lime. While he was yet only young and a learner he was quite ahead, by his own account, of authors of mature age and experience. At that time a treatise on Vine culture "was placed in his hands, and when he had time to open its pages he saw the contents did not agree with what he had found out for himself, and, well—he closed the book again." To sustain the claim to originality of thought and practice, we are told, not far from the beginning, that the author "had never yet read an essay on Vine culture." That his system of culture "is something like the plan we should probably follow if we had never heard of any other, and perhaps that will account for his following it." In short, Mr. Taylor is anxious to persuade the reader that he has had a "revelation" on the subject of Vine culture, but as we proceed we discover that he has been very faithfully guided in the path which others have trodden before him, while no doubt those conversant with Vine literature will rise from a perusal of the book with the conviction that its author has been a more than usually diligent student of the writings and practice of other authors. For example, the following passage betrays a wonderfully accurate knowledge of "the old school of Grape growers" (p 42), a term which appears to include all who have written before Mr. Taylor:

* "Vines at Longleat: their History and Management." By Wm. Taylor, 171, Fleet Street.

"He makes up his mixture everywhere in the same way—so much turf, so much manure, so many bones, so much lime rubbish, and special quantities of certain other ingredients, &c." Passages like this and references to what "many of our teachers" say, the practices "followed by most of our leading men of the present day," "the rules laid down by many of our acknowledged teachers," and similar sentences and coincidences of expression scattered broadcast throughout the book tell in plain language of the author's familiarity with other essays and writings. Practices in Vine culture which have been rung in the ears of gardeners till they are nearly tired of hearing them are, in the book before us, explained and discussed with an affectation of unconsciousness and originality that is truly entertaining. In fact, the author appears to be an expert at sifting the records of other people's experiences, as the following remarkably candid piece of advice to *such people as are capable of doing it* will show (p. 45): In reading "controverted questions" and discussions on Vine culture, they are told to *weed out all superfluous verbiage, get at the points made by each side, balance them, and work out the proofs for themselves*. Evidently our author is "capable" of doing this to some purpose. Our remarks on these matters are made in no carping spirit. If Mr. Taylor did not choose to acknowledge his indebtedness to other writers—so transparent in his book—he need not have repudiated by anticipation, and so ostentatiously, the suspicions of his readers on that point. No fault whatever is found with Mr. Taylor, or anyone else, for utilising to the utmost the recorded experiences of others; but when, as in the present instance, an author has been benefited by the writings of one and all who have preceded him, something better than a studied attempt at ignoring them might be expected in return.

The main features of Mr. Taylor's essay are his advocacy of the "extension system" and low night temperature. He appears to have successfully and accurately carried out extension on the spur principle, as described and figured in *THE GARDEN* of January 16, 1875, and put in practice by Mr. Taylor the year following when he found his Vines to need more room. On the subject of temperature he quite rightly condemns running to extremes, but few have diverged further or more successfully from the beaten track than himself in respect of temperatures. For Vines in flower he recommends a night temperature from 15° to 18° lower than the high temperature advocates recommend, and a lower day temperature than any other authority on Vine culture we know. None, so far as we are aware, have ever recommended so low a temperature by sun heat as from 75° to 80° for Muscats in flower. A large portion of the book treats on matters unconnected with the Vines at Longleat, and some very doubtful vegetable physiology is advanced and questionable theories and opinions. Every subject connected with Vine culture is, however, touched upon, but the value of the record of the author's experiences, whether the system be his own or other people's, rests on the fact that Mr. Taylor is a successful cultivator of the Grape. His crops of Grapes have, lately at least, been quite first class, we believe, and that portion of his essay devoted to his practice at Longleat cannot fail to be of value to all who seek information on Vine culture. He has proved in the most conclusive fashion that first class Grapes can be grown on the "cool temperature system," as it is called, and about which there has been so much discussion, and done much to set that point at rest and lessen our coal bills. Many matters connected with ventilation, borders, training, watering, &c., are treated very fully, and points discussed which writers are too often apt to overlook, but which learners want to know all about. Mr. Taylor has forgotten nothing, in short.

Should another edition be called for, the author will do well to alter the headings of some of the chapters, which savour more of the "Salvation Army" vocabulary than that of the gardener. For example, "Under a Cloud" is a rather unintelligible title for a chapter on the character of soil for

a Vine border, and a "Gleam of Light" does not forecast the author's discovery of a deficiency of lime in his Vine borders, while such phrases tend to make the reader think Mr. Taylor is himself one of those "enthusiasts" against whom he cautions his readers in one part of his book.

J. S. W.

NOTES.

Cornus Mas.—One of the prettiest of hardy shrubs now in bloom is *Cornus Mas*, the Cornel tree, so commonly found in the vicinity of old religious buildings. Report hath it that its fruits were eaten long ago as a substitute for the imported green Almonds of our own day. Its fresh, golden green flowers brighten up its dark twigs, and even make some pleasant effect in the sunshine. It is not showy, but then the colour is unique, and one may look a long time at a Cornel bush at this dull season without tiring of it.

***Narcissus monophyllus*.**—We must ask Mr. Peter Barr to let us into the little secret which he seems to possess as to the best way of blooming this "gem of all the Daffodils." Mr. Ferme, of



Flower of Narcissus monophyllus.

Haddington, must also have the secret at his fingers' ends, for does he not bloom it with two flowers on a scape? This fact betokens much vigour, albeit that pot or frame culture is resorted to. The Rev. Mr. Rawson when at Bromley was one of the first of cultivators who in recent years bloomed it satisfactorily, although, as Mr. W. Dod says, Parkinson described it in his "Paradisus," p. 106, two centuries and a half ago. Then, after his time, in 1588, "a Master Nicholas Belson, some time of ye Kinge's College, Cambridge," cultivated it, as noted by Gerard, and hence comes the name of *Corbularia cantabrica*. Mrs. Loudon, in her "Bulbous Plants," says it is a native of Biscay, and is found in great abundance among the mountain passes of the Pyrenees, a statement sufficiently vague. That there are sulphur (citrinus) and pale, if not white, forms of Hooped Petticoat Daffodil (*N. Graellsii*) found in Europe, I was well aware, but is *N. monophyllus* really found at Bayonne, or in Europe? One of its names, *C. Clusi*, would seem to point to its having been at some time supposed to be European, even if not actually known to be so. A botanist who

has travelled in Europe and in Algeria, and who knows plants well in both continents, doubts the statement, although of course he is open to conviction on the point. No matter where it may be found, it is a little gem of a flower, and its headquarters, according to the late Mr. Munby, is in Algeria, particularly near Oran, and at Baghar, on the borders of the desert to the south of Algiers.

Bulbs on Grass.—Some of my friends write to say that they have failed to naturalise bulbs on the grass of their lawns and pleasure grounds in the way they had hoped to do. This is disappointing, and the failure may result from the wrong bulbous plants having been selected for the purpose, or from some error in the planting. Snowdrops of all kinds rarely fail; so too *Crocus biflorus* and all the Daffodils. *Eranthis hyemalis* rarely fails under trees, or where the grass is thin and spare; so also Bluebells; and where the grass is mossy in the shade Primroses do well. Then *Anemone apennina* roots chopped up into mince-meat about July or August and dibbled into the turf especially where it is just a little thin on the top as under trees rarely fail. This

Dibbling plan is generally successful, but the best way is to plant the bulbs thoroughly well at the time lawns are being made or renovated, as the case may be. Another plan is to dig out holes a foot or more in diameter and plant the bulbs, adding good rich compost for them, after which inoculate the bare patches with bits of turf only, or sow them with new lawn grass seeds, which is even better. The Snowdrops are turf-piercers as well as snow-piercers; so too the Daffodils "gin to peer" oblivious of any resistance which a dense mat of grass roots may offer.

Snowdrops on Grass.—The other day I went to see a garden which belongeth to a "learned clerk" who had told me of the beauty of his Snowdrops on the grass, fancying, indeed, that they came larger as they certainly retain their fresh purity and pearly beauty longer when so grown. On dry grassy knolls around the boles of some large trees—Ash, I fancy they were—Cyclamens of the *hederæfolium* or Ivy-leaved section were quite "at home," their marbled leaves nestling very cosily in the withered grass, and adding quite a fresh charm to the wintry herbage. On dry grass-covered banks facing the sun even the "miffy" (a gardener's word for delicate or hard to grow) *Narcissus Bulbocodium* (yellow Hooped Petticoat) will often establish itself permanently. Not very long ago, indeed, I was speaking to a gentleman who had dug up roots of this plant, and also of the sulphur variety of Hooped Petticoat Daffodil from near the lighthouse at Biarritz, and, he informed me, he was quite surprised at the network of grass and shrub roots which enveloped the little black-coated bulbs. As the terrestrial Orchids object to the bareness of earth around them, so too, many bulbous plants seem to like a little root-fellowship or society of their own kind down below the ground-line. Speaking on the subject of

***Lilium auratum* failures** one day with an old cultivator, he suggested "planting them in amongst Rose bushes" (a wedding of the Roses with the Lilies is an idea I beg to recommend to the author of a "Book about Roses"), "or even," continued this old prophet, "put them in at the foot of a Privet hedge, and on the sunny side." Perhaps he is right. In such a place the bulbs would never be too wet, since the hedge—be it of

Privet or of Roses—would shelter their bulbs from the direct action of rain and sun alike. I sometimes think that the idea that every plant must have a separate plot of ground all to itself is mistaken kindness on our part. Perhaps, after all, genial society is best for plants sometimes, as well as for those who grow them. Those articles in *THE GARDEN* the other day on

Mistletoe propagation would interest many people. I think that April or May is the best time to sow the berries on the smooth, clean branches of either Apples, Pears, or Limes, as they are then thoroughly ripened, and begin to germinate promptly. We all know that the plant is rarely found on the Oak—how rarely the following extract will show: "In our Christmas stories and fancies the Mistletoe is often connected with the

The blossoms are of snowy whiteness, and exhale a delicious perfume similar to that of *J. Sambac*. It is exceedingly floriferous, bearing clusters of blossoms the whole length of its slender branches, which droop very gracefully on all sides. In addition to these good qualities, it continues to flower throughout the winter, a circumstance which cannot fail to render it popular and invaluable, particularly for cutting. Why are the really

Hardy Bamboos so seldom seen, even in good gardens? As fresh and graceful foliaged plants they have few equals in their own elegant, reed-like way. *B. Metake* is one of the safest to plant largely, and as I write I am looking at a graceful cluster of wand-like stems 8 feet high, of an ash or pale straw colour, with deep green leafage daintily poised up towards their tips in a really

Other good kinds are *B. nigra*, with black stems arching over gracefully, and 4 feet or 5 feet in height. *B. Mazelli* is likewise good. Then *B. viridi-glaucescens* resists frost well likewise, and of the dwarf kinds which are fresh and green in winter, one of the most effective is *Arundinaria bambusoides*, and *B. Ragamowski*, of similarly dwarf spreading habit, is equally good in its way. For sheltered nooks, or among natural rocks in low-lying places, these are very effective and distinct. Dry winds seem to injure them more than actual frost, but planted in sheltered places on grass, or in deep, rich earth under the lee of walls or buildings, they succeed well. A plant with much of a Bamboo-like grace about it, and even more than a Bamboo-like freshness and glossiness of leafage is

Ruscus racemosus, which by some is supposed to be the Victor's Laurel of Mount Olympus. Be that as it may, those may be accounted "gainers of a good thing" who, having well planted it, have induced it to luxuriate in their gardens. For cutting its shining-leaved stems are unique amongst foliage plants, hardy and otherwise. I saw some wand-like sprays of it the other day sent from Shankhill Castle, Ireland, and alone in large vases nothing could have been finer in a decorative way. Of the four or five species of *Ruscus* in cultivation all are hardy, if we except the greater Alexandrian Laurel (*R. androgynus*), which groweth rampant up a lofty pillar at the Crystal Palace, likewise groweth gracefully near a stair in the great temperate house at Kew. All the hardy kinds enjoy shelter; a wood or plantation on deep, rich well-drained soil suits them admirably. I hope there are plenty of Bamboos and *Ruscus racemosus* also in that classical wood at Wistley? Lovers of

Rock and wall gardens will enjoy this peep at a few of the plants which at one time grew on and near the Colosseum at Rome. "And what be the shrubs and kinds of flowers that act the part of the robins in the 'Babes of the Wood?'" Shiny-leaved *Laurustinus*, Ivy, Cypress, *Acanthus*—looking more beautiful than ever I saw it; it makes a glorious old wall plant. Then Wallflowers, a beautiful purple *Anemone*, and a great variety of smaller plants, many unknown to me. But I have omitted one of which there is a great abundance under the arches—*Adiantum Capillus-veneris*—which makes a most lovely drapery. With such softening as these plants give to the decayed walls, the unsightliness of ruin completely vanishes, and one heartily subscribes to Byron's idea of "ruinous perfection."

Orchids at home.—We can never know too much of the precise conditions under which Orchids are found luxuriating at home in their native wilds; so I make the following extract from a letter written from Cape Town to Mr. N. B. Ward (inventor of Wardian cases) by the late Prof. W. H. Harvey, the celebrated algologist, relating to the natural conditions under which he found *Disa grandiflora* growing on Table Mountain at the Cape: "First, as all the world knows, it grows on the summit of Table Mountain, and nowhere else. This summit is very frequently enveloped in mist, especially at the season when the *Disa* blossoms, but it is very cold also, and the mist comes accompanied by a strong south-east wind. After this succeeds the scorching sun of latitude 33°. So much for general circumstances. The particular ones are, that the plant



Jasminum gracillimum.

Oak, but its connection with the Oak is a common error; it is more rarely found upon that tree than any other. There are only twelve known Mistletoe Oaks in England and Wales. The following is a list of them: Oak at Eastnor, Herefordshire; Oak at Tedstone Delamere, Herefordshire, discovered in 1851; Oak at Sunbury Park, near Chepstow; Oak at Dunsfold, Surrey; Oak in Hackwood Park, near Basingstoke; Oak near Plymouth, on the South Devon Railway; Oak at Frampton Severn, Gloucestershire; Oak at Haven, Herefordshire, first known in 1869; Oak at Plas Newydd, Anglesea; Oak at Llangattock Lingoed, Monmouthshire, discovered in 1870; Oak at Predwardine, Herefordshire, discovered in 1871; Oak near Knightwick Church, Gloucestershire. Can any of our friends extend this little list of Mistletoe Oaks? Among winter flowering stove plants few are so white or so fragrant as

Jasminum gracillimum.—This is an excellent plant sent out by Messrs. Veitch & Sons last year. The clusters are larger than here shown.

pretty way. In a good clump or mass these wands are of all heights, and so the plant has not a bare or naked appearance at the base. I like to see them rising fresh and fair from bronze-leaved Brambles, or from a breadth of common Brake Fern, itself now a pretty object, warm and dry looking, and tinted like dead Beech leaves.

The golden winter or Japan Jasmine, with its bending wreaths of golden buds and yellow blossoms, is very showy. When newly planted it embroiders old walls very effectively, and when older and well established it hangs like a thick golden fleece upon them in the cold January days; 25° of frost, with a bitter blast blowing—a frost that has in many places cut down *Euonymus japonicus*—has been insufficient to stay the flowering of this Jasmine. Alone on a sunny wall it is very effective, still more so when peeping out and drooping from a mass of fresh green Ivy, or when its golden buds are contrasted with the coral red berries of Simon's *Cotoneaster*.

only grows along the steep, boggy, spongy margins of a stream which has water in it at all seasons, but which in winter must be so swollen as to cover the plant. Here the margin is completely clothed with the Disa to the exclusion of other plants, but immediately beyond the Disa is a margin of *Restias*, which, growing taller than the Disa and bending over the stream, afford considerable shade to the roots and leaves, at the same time that they leave the flower-stalks room to peep out at the sun and exhibit their large blossoms. All these, except the cold wind, can be easily managed in a Wardian case, and I should hope that our plant will have the good taste to forgive us that part. The shade, moist atmosphere, and soil seem the chief things to provide."

White Tiger flower (*Tigridia Pavonia alba*) must be a lovely plant in its own deliciously fugitive way, reminding one of those pearl-toothed Eastern beauties, who laugh at you one moment and then closely veil their faces the next, as if blushing repentant of so bold a sin. "Creamy white, marked with chestnut-red, on a yellowish ground;" yes, that sounds pretty enough, and having obtained a few of its bulbs, I am on the tip-toe of expectancy, seeing that its congeners are so strikingly lovely in the summer's sun. It would be a great pleasure to see those rapidly extending

Flower farms in New Jersey, where *Tigridias*, *Tuberoses*, *Ixias*, *Sparaxis*, and many other beautiful bulbous flowers are grown by the acre. Who knows but that those Pine barrens of the sunny west will not one day be a very paradise of bulb and seed farming. Already American capitalists have done much in this way; and to-day I hear whispers that American amateurs have mastered that little secret of saving *Chrysanthemum* seed, so that we may expect them to rival France and the Channel Isles in the way of new seedling *Chrysanthemums* as well as in bulb and fruit culture. *Vive l'Amérique!* Speaking of

The Chrysanthemum reminds me of "F. W. B.'s" papers on its history and culture now appearing in *THE GARDEN*. Lest they should escape him, here are a few extracts which may be of interest. Mr. Fortune told us long ago that the Chinese made life-sized images of their blossoms, but who would suspect the "moon-faced celestial" of liquor. And yet we are told that "in China a liquor is distilled from the flowers of the *Chrysanthemum*, which is regarded as an elixir-vite, and in the Chinese pharmacopœa a powder of the flowers or florets dried is prescribed as a cure for drunkenness." Can anyone tell us more of the history of the *Chrysanthemum* here alluded to? It would seem to be an uncommon and highly interesting species. "One of the most singular of all the species of *Chrysanthemum* is *C. ancitatum*, a perfectly hardy succulent species, which looks not unlike a delicate mass of green coral. Its leaves are like fleshy hooks (*ancia*), and give the plant a unique appearance. It is a good rock plant."

Grafting two or three varieties of *Chrysanthemum* which bloom simultaneously on one stock, if not as yet a general practice, is sufficiently so to warrant some notice. In 1876 and 1877 Mr. Charles Turner adopted this mode of culture, and in the latter year (as we learn from *THE GARDEN*, Vol. XII., p. 175) he had over 200 fine plants worked as standards on 3 feet high stems, several sorts which bloom at the same time being

grafted into one head. At Oxford also this grafting practice is pretty general, as we learn from a visitor at the *Chrysanthemum* show recently held in that city. Long ago, indeed, Mr. Fortune found Chinese gardeners employing *Artemisia indica* as a stock on which they engrafted their *Chrysanthemums*.

The General Index for the first twenty volumes of *THE GARDEN* may be called "a good idea well carried out," and it will be a boon to all those who have wisely filed and bound up their copies, thus forming a complete and valuable series in more senses than one. Much labour and worry will now be saved in making references to the volumes by the use of this handy index. The convenience now experienced makes one wonder how we did without such an index so long. This index, moreover, is one of those "good examples" which the "copy book" headings of long ago used to say were "better than precept." So the author of "*Proserpine*" has again been elected to the

Sladian Professorship of Fine Arts at Oxford. He is a remarkable man in many ways is this John Ruskin, who, while criticising pictures severely betimes, has ever preached the great gospel of plant beauty to us all. "When all other service is vain from plant and tree, the soft Moss and grey Lichen take up their watch by the headstone. The woods, the blossoms, the gift-bearing Grasses have done their work for a time, but these do service for ever. Trees for the builder's yard, flowers for the bride's chamber, corn for the granary, Moss for the grave—Kismet!"

VERONICA.

THE CHRYSANTHEMUM AND ITS CULTURE.

Chrysanthemums for small green-houses.—Anyone who has a greenhouse, a well-lighted porch, or even a large bay window or two should grow a few *Chrysanthemums* in pots outside during the summer, as they may be well bloomed even in a window if moved inside after the buds show colour and before sharp frosts set in in October. In country places every artisan or intelligent labourer might build a rough greenhouse with a few old lights for the roof, five shillings' worth of timber for supports, and some pieces of canvas or bast mats for the front and sides. No flower is better worth attention, and amateur growers should encourage garden-loving workmen by giving them spare plants or cuttings. The following directions from *Gardening Illustrated* are specially suitable for beginners.

There are three distinct objects for which *Chrysanthemums* are grown, viz.: First, specimen plants in which the beauty of the individual flower is subordinated to the training of the plant to some particular shape; second, for conservatory decoration where the object is to get a brilliant mass of colour, irrespective of individual flowers or shape of plant; and third, for the beauty of individual flowers only, without regard to number of flowers or shape of plant. Each of these ends requires a distinct system of culture, and the great number of failures in growing *Chrysanthemums* are probably owing to mixing all three systems together and keeping no definite object in view. In small greenhouses there is neither room nor need for specimen plants and great masses of colour, so we shall confine our remarks to the culture for individual flowers, which is by far the most interesting of the three.

Propagating.—Cuttings should be put in round the edge of the pots in the usual way during the last week of January, not sooner, for we do not wish the plants to be drawn up under glass before we can venture them outside. The pots of cuttings should be put near the glass on a shelf in the greenhouse; there is no need for

either bell-glasses or bottom-heat; indeed, both are hurtful.

Potting.—When the cuttings are rooted put them into 4-inch pots, keeping them still near the glass. When the roots come through the soil to the side of the pot shift into 6-inch pots, and as soon thereafter as the weather will permit stand them outside, tying each plant to a light stick to prevent its being broken by the wind. From the time the cuttings are put in until now, and, indeed, to the end of the chapter, never pinch; let the plants grow up to one single stem. Place the pots on slates to prevent the ingress of worms, in such a situation that they may get sun the most of the day. Do not plunge the pots, nor protect them from sunshine in any way; this, doubtless, entails far more labour in watering, but it will be amply repaid by a dwarf plant, well-ripened wood, and consequently fine flowers. When the roots come through to the sides of the 6-inch pots, probably about the end of May, give a final shift into 9-inch ones.

Staking.—When the plants are 1 foot high put a light stake 4 feet long in the centre of each pot, and tie the stems to this as they lengthen out. Towards the end of September we may expect gales of wind, so put three more light stakes at equal distances apart round the pot, bend them over, and tie all the points to the centre stake; this will be found far more effective than one thick stake.

Watering.—While the plants are in the open air water them frequently over head through a fine rose, as well as attend to watering at the roots. If you have a command of hot water, make the water, for both purposes, perceptibly warm to the hand; this greatly tends to keep the plants in health, and takes but little extra time.

Insects.—Towards the end of summer two insects will probably give some trouble, viz., earwigs and green-fly. The former show themselves by the leaves being eaten at the edges. Insert small rolls of paper between the stem and the stake and examine them in the morning, destroying the intruders. The green-fly will be found to attack the points of the shoots; choose a dry, still evening, and thickly dust them over with Tobacco powder, washing it off with the rose or syringe the following day. All shoots which spring from the roots must be carefully rubbed off until flowering is over.

Feeding.—By the beginning of October the flower buds will form; then you must feed with manure; up till now you have not done so, and turn a deaf ear to those who advise you so to continue. Any good manure will do, but one of the many made-up ones, now in the market, will be the easiest applied. Standen's is as good as any; a small dessert-spoonful, sprinkled over and stirred into the top soil, constitutes a feed; let a week intervene between the first two feeds, after that fortnight between each, until the flowers are past.

Best varieties: INCURVED.—Mrs. G. Rundle, white; Mr. G. Glenny, sulphur; Mrs. Dixon, yellow; Lady Hardinge, rose; Peach Venus, peach; Jardin des Plantes, golden; General Bainbridge, bronze; Empress of India, white.

POMPONES.—Bob, crimson; General Canrobert, yellow; Cedo Nulli, white, lilac, and yellow and brown forms; Madame Marthé, white and golden yellow.

JAPANESE.—Elaine, white; Ethel, late white; Fair Maid of Guernsey, late white; Peter the Great, yellow; Fulton, gold; Cossack, brown; Tokio, red; James Salter, lilac.

ANEMONE-FLOWERED.—Large: Fleur de Marie, white; Glück, yellow; King of Anemones, purple; Princess Louise, lilac. Small: Madame Montels, silvery lilac; Calliope, red; Dick Turpin, red and yellow.

MISCELLANEOUS OR REFLEXED.—Progne, crimson-purple; Crimson Velvet, velvety crimson; Annie Salter, yellow; Dr. Sharpe, magenta-red.

Disbudding.—When the buds are quite set and standing apart from each other is the time to

disbud; this can usually be done at the time of housing for the winter. Leave only one bud to each shoot. If any green-fly be found round the base of the bud left, remove it with a small brush dipped in water; there will probably be no further annoyance from these pests.

Housing.—Choose a dry day for housing, and the plants may be put close together, leaving only as much room as will keep the shoots from touching each other. About the time the flowers are expanding mildew will probably make its appearance on the foliage. This is the result of a number of plants being housed in a small space, and the temperature kept at 45° or thereabouts, for the sake of the other inmates of the house. Nothing need be done; the flowers will win the race and then the plants can be cut back.

Treatment after blooming.—When the flowers are over, cut back the main stem, so as only to leave one or two of the small side-shoots which have now formed; these are left to keep the sap flowing until shoots spring from the roots. These shoots from the base of the plant form the cuttings, which should be taken at the end of January, as directed at the commencement of this article. When you cut back the stems do not remove the stakes, for the pots by this time are so crammed with roots there is a danger of all the water running through the holes left and the plant perishing from want of it. You need not be very choice as to soil; perhaps the best is two parts rotted turf to one of well-decayed manure, mixed with a good deal of sand, riddled for the first potting, and rough for the other two. Under this system of

Single stem culture, leaving one bloom to each shoot, you will only get from three to nine blooms on each plant, but then they will all be good. Now suppose you pinch until you have ten stems round a 9-inch pot, the writer's experience is that if you have to flower your plants in a small house you will only have one or two good blooms on each plant, and these one or two will not compare either in size or finish with those on the single stem. Then you can easily house half as many again plants with single stems as you can those with ten. When we say that all the blooms on the single stem system are good; of course we do not mean that all are up to the exhibition standard, but simply that they are of good size and form. With fair luck about one bloom out of twenty should be fit for the exhibition table; it is the old story that under the same culture the man with 100 plants can beat him who has only ten. Another advantage of single stem culture is that you can successfully flower the incurved varieties with long petals. As for what varieties to choose for a small house, the only limit is that none should be chosen that do not set their flower-buds by the time you have to house them, for under the confinement of a small house there is a danger of the plants making new wood and never forming flower-buds.

For those who have not time for this careful treatment, there is a simpler style of single stem culture, which gives fair results. Put in cuttings and treat them as directed above, but keep them in the 4-inch pots till you can trust them outside. Select a sunny border; the soil should be in fair heart, but not enriched with fresh manure; turn the plants out of the pots and plant them 2 feet apart. Attend to staking, watering overhead, and at the roots if the weather is very dry, rubbing off shoots from the roots, and keep a lookout for earwigs and green-fly. Nothing more is needed until the flower-buds are set, then lift the plants and pot into 7-inch pots. Use light soil passed through a fine riddle. Keep the foliage damp, and shade the pots by placing them on the floor of the greenhouse. In a week or ten days the pots may be lifted on to the stage, disbudding attended to, and liberal feeds of manure given. The blooms will come deficient in size, but well shaped and finished, and very much better than the average Chrysanthemums seen in small houses.

Open-air culture.—The introduction of early blooming races of the Chrysanthemum must

of necessity give a great impetus to its culture in the open air. Some of the more hardy of the kinds long ago introduced, such as the quilled yellow and old tasseled purple, flowered fairly well on sunny walls during mild Novembers. I have seen the cottage fronts and little gardens in the suburbs of London quite gay with these old kinds during mild seasons, but as a rule the Chrysanthemum was scarcely into flower before the severe frosts of November cut them off. Now all this is changed, and there are two distinct and satisfactory ways of growing the Chrysanthemum in the open air. The easiest way is to grow the modern kinds now known as summer bloomers, which begin to bloom early in August, and continue quite floriferous and gay until the frosts cut them down. Another highly satisfactory plan when large blooms are desired is to plant out strong rooted cuttings in March in a well prepared bed or border at the foot of a sunny wall. Of course the cuttings if struck in heat must have been carefully established in pots and hardened off gradually before planting. As nights and mornings in March are often very frosty some slight protective covering must be given to the young plants until fully established. After the end of April this will be unnecessary. Plant 15 inches to 18 inches apart, and as soon as they are established stop them for the first time, merely nipping out the point of the shoot. If a Chrysanthemum be stopped by breaking back a shoot to the hard or hardening wood, it is fatal to its ever producing a good bloom. Shoots so stopped, or broken off accidentally, are better removed at once, as they always break weakly and badly afterwards. After stopping, leave the two strongest growths that make their appearance, and lead these up straight, nailing them to the wall at intervals, as may be necessary for safety. Carefully pick out all other growths as they appear. After-treatment is simply that recommended as applicable when large blooms are desired from pot plants. Keep off green-fly and red-spider by frequent syringing, and in all cases remove lateral growths and damaged or weakly growths. Even although planted out in a deep rich border, occasional soakings with soot water or liquid manure will greatly assist growth and future flowers if given during the hot, dry weather. Take off the "July bud" and thin out blooming laterals in August or September, as recommended for pot plants, and very fine flowers will be the result. In the beginning of October run up a light timber framework, being careful to allow sufficient head-room for the plants when in bloom. This may be roofed with any odd spare lights or sashes, and the sides and ends may be closed up on cold nights with either strong canvas or bast mats. This protection will be sufficient to ensure the safe development of the flowers. During fine sunny days abundance of air should be admitted, closing up early if symptoms of frosty nights appear. Even plants grown in pots especially for large flowers—or for decorative uses may be protected in this way should no other convenience for housing them exist. The fine show Chrysanthemums inaugurated at the Inner Temple Gardens by the late Mr. Samuel Broome were protected with old lights and matting supported on a rough timber framework as above described. It is precisely this capacity for growth and floral perfection under difficulties that makes the Chrysanthemum above all others the winter flower for cultivators of all descriptions.

Early flowering Chrysanthemums.—These early blooming Pompones or summer liliuputian varieties are a great gain; even under ordinary hardy herbaceous plant culture in the open border they are invaluable for cut flowers or outdoor decorative uses. They are yearly being more and more improved in size and in colour and have a great future before them. No garden, however small, should be without a few of the best varieties. "A good mode of culture is as follows: Four cuttings are inserted in a 3-inch pot in a compost of Cocoa fibre, a little light soil, and plenty of silver sand. I always use plenty of fibre in my cutting pots, as I find that the cuttings root

in it quickly. The pots are then watered with a fine rose and plunged up to their rims in Cocoa fibre in a cold frame and kept shut up close, which keeps them from flagging. In the time of frost the frames are banked up outside with short litter, and the glass is covered with matting. When the plants are rooted they are potted singly in 3-inch pots in soil made up of a mixture of loam and leaf-mould, instead of the Cocoa fibre, with enough silver sand to keep the whole porous. When the plants are about 5 inches or 6 inches high the extreme point is taken off; this will cause them to throw out some shoots, which in their turn must be pinched when about 4 inches long. As soon as the roots feel the sides of the pots they should be potted into 4½-inch pots, and when established in these pots they should be again pinched. As to the time for final potting and the size of pot for flowering the plants in, all depends upon the size of plant required and also the time when they are wanted in bloom. If the plants are wanted in bloom about the end of June, they should be finally potted not later than the beginning of May, and 6-inch pots will suffice, but of course the plants will not be so large as those that are potted into 8-inch or 9-inch pots, and kept pinched till the end of June. In the spring, after all danger of frost is past, the plants should be placed in an open situation out-of-doors, and carefully attended to as to watering, for if they are allowed to get too dry and flag, they will lose their foliage and look unsightly. After the bloom buds appear, an occasional watering with liquid manure will be of benefit. Care should be taken to keep the plants free from insects, and they should be syringed overhead in the summer at least twice a day. Good plants for window or conservatory decoration can be obtained from cuttings struck from February till April, and grown on as above described. Madame C. Desgrange, sulphur and white, and La Petite Marie, dwarf white, should be grown, both being distinct and good. The following will be found a good collection: Adrastris, reddish purple; Casey, rosy lilac; Chromatella, orange tipped red; Delphine Caboché, reddish mauve; Durham, yellow; Frederick Pelé, bronze red; Golden Button, small, canary yellow; Golden Madame Damage, golden yellow; Hendersoni, yellow; Illustration, fine light pink changing to white; Jardin des Plantes, white; Jardin des Plantes, yellow; Little Bob, maroon-red; Mme. Pecaul, fine deep rose; Nanum, creamy blush; Précocité, orange-yellow; Souvenir d'un Ami, fine large white, and the different varieties of Cedo Nulli.*

Late blooming Chrysanthemums.—Early blooming varieties of Pompones are a great gain, but scarcely more so than are certain of the large flowered and Japanese Chrysanthemums which bloom any time after Christmas. Special culture and late pinching may alike be made to favour late blooming, but it is necessary to select the varieties best and most naturally fitted for producing a supply of flowers during January, when flowers, as a rule, are scarce, and so more highly to be prized. If once practical cultivators and those who rear seedling varieties will but turn their attention to the production [and special culture of varieties for the purpose here indicated, I see no reason why the season of Chrysanthemums should not last from the end of July until the end of March, even if we do not succeed in engirdling the year with their favourite blossoms.

Among the kinds which have been especially alluded to as suitable for late flowering are the following: Nelly, Bouquet Parfait, Princess Teck, Incurved white; Mr. Gladstone, dark red; Ethel, white Japanese; Saul, The Czar, Julia Lagravère, dark red-brown. Splendens [may be had good up to February. Hero of Stoke Newington, a pink sport from Princess Teck; Grandiflorum, yellow Japanese; Virginalis is a good late white Anemone; and old Fleur de Marie is also good; Meg Merrilies is a lemon yellow or straw-coloured Japanese variety having long tubular florets gashed open at their apices; this variety gives

* An article by Mr. W. E. Boyce, of Holloway, in "Gardening Illustrated."

enormous flowers when well grown, and only opens its blooms about the middle of January; even the small flowers are nice and fringing bits of colour for bouquet work or for vases. Harlequin and Lady Margaret, the former nankeen-yellow, and the latter, a white-flowered Anemone flowered variety, are both of considerable merit for late bloom. Miss Marechaux, a pure white Incurved variety, with thick, waxy-looking petals, is to be recommended as a January blooming kind. So also Khedive and Lamia and Late Duchess, the latter an intermediate form between the Anemone flowered and the Pomponne sections, having pure white flowers, suffused with lemon-yellow in the centre. Grandiflorum, a bright canary-coloured Japanese variety, carries on the flowering season well into February. Mrs. Charles Carey, a variety sent out by Cannell in 1880-1, is an excellent late white, somewhat after the style of James Salter. It is most valuable as a Christmas flower.

Late propagation is one way of obtaining late flowers. Cuttings may be rooted in March, April, or even in May. These may be either planted out on the Celery trench system of culture, or arranged outside in pots in May or June. If decorative flowers only are desired, pinching or stopping may go on every two or three weeks until the end of July. As soon as the flower-buds are formed, feed liberally and mulch with rotten manure. By placing them in a north aspect in October and November (protecting from frost with canvas or mats), and so keeping them outside until the buds actually show colour, they may be much retarded. After the blooms actually open, a little fire-heat with plenty of ventilation night and day preserves the flowers for a much longer period than does subjecting them to cold treatment indoors, which often induces mildew or damping off.

F. W. B.

AURICULAS AND POLYANTHUSES.

THE annual meeting of the northern section of the National Auricula Society was held at Manchester on the 31st ult. There was a large attendance, Mr. Barlow being in the chair, and the Rev. F. D. Horner, secretary. The finances of the society are in a sound position, but a few new subscribers are needed to supply the vacancies by death, and to furnish some additional prizes for the present year. The proceedings were of much interest, showing the favour in which these flowers are still held in Lancashire and Yorkshire. The officers remain the same as last year, with the exception of three new names added to the committee.

The prize list is also the same as for 1882, with the exception of the prizes for alpine Auriculas. These are to be divided into two classes, shaded and unshaded, the latter for the first time being acknowledged as a class. The funds for the extra prizes for unshaded alpine are to be raised by special subscription.

A warm discussion took place upon Rule 11, which has hitherto been as follows: "All plants to have been the *bona-fide* property of the exhibitor for two months;" it was shown that in this form the rule admitted of plants being exhibited which had neither been grown by the exhibitor nor in his possession; in fact, that plants might be purchased and left with others to be grown for the exhibitions. A strong feeling was expressed that all plants shown should not only be *bona-fide* the property of the exhibitor, but that they must also be of his own growing, and have been in his possession for two months. The rule was amended accordingly.

It transpired in the discussion that there is no rule whatever on this point at the London shows, and that an exhibitor may show there any plants he can borrow for the purpose—a most mistaken license, and not calculated to foster honourable competition. It is to be hoped that the southern section will amend this rule and insist upon its observance for the future.

The Manchester Auricula Show is fixed for May 1, and that for Rochdale the day following.

It is unfortunate that these shows and that for Newcastle-on-Tyne all come upon the same days this year.

WM. BROCKBANK.

GARDEN FLORA.

PLATE CCCLXXV.

DR. PATERSON'S VANDA.

(VANDA TRICOLOR PATERSONI.*)

THE artist has not given one a fair chance of displaying any descriptive ability in regard to this Vanda. The oldest of all writing, we are told now, was simply rude drawing; and, verily, in our own time the brush is in some ways more potent



Vanda tricolor, showing habit of growth.

in its powers of teaching than the pen. *Vanda tricolor* is one of the most common of all of what are popularly known as East Indian Orchids, and its variations are many, but in beauty none surpasses this one, which years ago was called *V. Patersoni* by the genial Provost of Falkirk, the late Mr. Russel, himself one of the most thorough and skilful of all the Orchid-growing amateurs of our day; indeed, Provost Russel was generally

* Drawn from a specimen kindly sent to us by Dr. Paterson from his collection at Fernfield, Bridge of Allan, N.B.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.

allowed to have been the "Rucker of Scotland," so rich was his collection and so well cultivated withal. For the "true, full, and particular" account of this beautiful *Vanda* I am indebted to Dr. Paterson himself, he having kindly given me the following history of it at my own request:—

"*Vanda tricolor Patersoni* was imported by me from Singapore about fifteen years ago along with other good things, including *Aerides Reichenbachianum*, *A. suavisissimum* (original varieties, according to Reichenbach), and I understand that my plants are the only ones in this country of this beautiful and most fragrant Orchid. My warmest house during the last two months (October and November) has averaged 50° in the morning, and sometimes 45°, and I find that *Vandas*, *Aerides*, *Saccolabiums*, &c., grow and flower splendidly, and *Phalænopsis Schilleriana* and *P. Luddemanniana* do well with the same treatment. Whenever the outside temperature is at 50° I always give plenty of air. At all times the air of an Orchid house should be fresh and sweet, not stuffy, dry, and burning, as we too often find it in many places; such an unnatural atmosphere offers facilities to all sorts of insect pests and disease, and in the end kills many valuable and rare plants."

The good effects of this treatment is corroborated by all who have had the privilege of inspecting Dr. Paterson's now famous collection, for all agree that his plants are unsurpassed in health, vigour, and floriferous tendencies. Another fact not so generally known is, that this success is due to the personal care of the worthy doctor and his son Mr. Charles Paterson, with the aid of a lady assistant. So much for Dr. Paterson's superb *Vanda*, of which he may well be proud. There will henceforth be no great difficulty in determining exactly what *Vanda Patersoni* really is; we have only to compare flowers with this coloured plate and trust to the evidence of our own eyes. But at my elbow sits an old Orchid grower, who asks all sorts of pertinent questions, and now he has perplexed me a little by asking me what the type

V. tricolor really is. This is not easy to define at once; it is not very clear indeed where *V. suavis* ends or where *V. tricolor* begins. Here, again, mere descriptions fail us, and we must trust to the pencil rather than to the pen. Let us look at the plate in the "Botanical Register" for the year 1847; that, I think, no doubt represents what Lindley meant for *V. tricolor* pure and simple; but I fancy no one seriously imagines that *V. suavis* and *V. tricolor* are really distinct except in colour, for even Mr. Bateman acknowledges as much in his "Second Century of Orchidaceous Plants" (t. 125), where in describing *V. suavis*, he says: "*V. suavis* is an extremely lovely Orchid, the flowers richly blotched and spotted with blood purple on a pure white ground so clear and distinct that they look as if made of porcelain. There are innumerable varieties, some of which have a good deal of brownish yellow in their sepals and petals, and to these the name of *V. tricolor* is usually given." A reference to the many figures published of these two quondam species will show the most marked variety, but for all practical purposes it is convenient to retain the specific names, *V. suavis* being pure white in the ground colour of the sepals and petals, and *V. tricolor* yellow instead of white. As Bateman truly says, the varieties are innumerable. Mr. Rand, in his "Orchid Book," p. 407, says he knows of fifteen varieties of *V. tricolor* all well defined, and specially mentions



V. tricolor Conringiana, Dodgsoniana, insignis, Russeliana, and multiflora. Then of

Vanda suavis have we not Veitchi, Rollisoni, the superb Dalkeith form, and our own beautiful Dublin variety, to say nothing of many others?

When at Clovenfords some years ago I saw a noble variety with, I believe, over twenty fine blooms on a stout spike nearly as long as one's arm. It seems as if the pure brisk air from the northern hills suits these Javanese Vandas admirably. I not long ago received a set of some nine or ten distinct varieties of our old friend *Cypripedium insigne* from Mr. Wm. Thomson, jun., and in the letter which accompanied them he remarks on the great variety to be found now in these and nearly all other plants, adding, "of *Vanda tricolor* we have also some very fine varieties; I should think we have eight or nine quite distinct, and about six of *V. suavis*." All this variety in habit, form, and colour, so bewildering to the "descriptive" botanist, is so much added joy to the cultivator, and especially so to the artist. Variety is to them the one great thing hoped for, and we are glad of importations of old Orchids from new localities mainly because, until they bloom, we are, like the respected Mr. Micawber, on the tip-toe of expectancy, anxiously looking out for something new to "turn up."

Then, again, we were told in old text-books of botany that colour, like the round O of our cricketing days, "stood for nothing," but Darwin and Lubbock and Mr. Grant Allan have taught us that colour is as potent in the history of all vegetable life as is structure even, if not the direct cause of all the variety of form observable in the wild plants of the "great wild garden." In the coming by-and-by we shall doubtless become learned enough to go back to first principles, and then scent and flavour will become "characters" as important in determining those "shifting indices" we call "species" as structure and colour are in this our own time. F. W. B.

SEASONABLE WORK.

FLORAL DECORATIONS.

CAMELLIAS in varied colours will now give an abundant supply of bloom, by means of which many distinct arrangements may be made. Unless the plants are very large, a great length of stem cannot consistently be cut with these showy and beautiful flowers, or the plants will be deprived of valuable growth. Stems a few inches in length may, in many cases, be secured without doing much injury to the plants if due regard is paid to cut only those growths that can be spared, selecting such as may be straggling or any that are taking the lead in strength of wood to the detriment of weaker shoots. Camellia flowers always look best when at least two or three leaves are retained. Wiring should only be resorted to in cases of necessity—not adopted as a general rule. Florist's gum (liquid gum arabic) is always useful in the case of these flowers; a little of this placed around the base of the blooms will oftentimes hold them together longer than they otherwise would be. A somewhat flat receptacle is the best in which to arrange them, or one with a trumpet arising from its centre. Sand well moistened and covered over with either good green common moss or some tufts of *Lycopodium* would give a very good base on which to arrange the blooms. This keeps them better in position than water. A few small seedling Ferns might be dotted here and there to relieve the otherwise somewhat formal look of the Camellias. Where a trumpet-shaped glass rises from the centre a piece or two of *Myrsiphyllum* twined around the stem look well. A spray or two of *Chorozema Chandleri*, in blossom now, might also be used in conjunction with or independently of the *Myrsiphyllum*. This is a good lasting flower in a cut state. As a finish to the top, white Roman Hyacinths or *Spiræa japonica* would be useful with a few pieces of *Epacris*, or even the latter by themselves would be sufficient, using two or three distinct colours. The sweet-scented Carnation Miss Joliffe is one of the best of its class at this season as a cut flower. Small spikes of Paper-white Narcissus are also extremely useful for the same purpose. Lily of the Valley will also be valuable in this direction, and can now be better depended on than earlier in the year, the spikes being altogether stouter and more lasting.

FLOWER GARDEN.

Aralias, at least some half-a-dozen of them, are in every way well suited for summer decoration out-of-doors, and two have proved to be perfectly hardy, having stood unprotected in the open ground in Hants during the two last winters; these are *A. Sieboldi* and *A. Sieboldi variegata*, both of them introductions from Japan, and presumably therefore natives of that country. The large bright glossy-green and finely-cut foliage of *Sieboldi* stands out conspicuously at any season of the year, but particularly so in winter when deciduous trees are leafless, and if this were its only merit it would be ample to justify the recommendation of it to extended culture, but it is also one of our most effective summer-flowering plants, being especially well suited for lawns, either as a centre or terminal plant, or to break up the formality of stiff geometrical arrangements of bedding plants. The variegated kind, alternated with the green, makes a fine bed, but they should not be planted closer together than 4 feet; therefore the bed should be large and preferably round in shape, and an appropriate undergrowth for the same is *Salvia argentea* or *Gnaphalium lanatum*, and for winter *Sedum glaucum*. The other varieties that do well for summer planting only are *A. papyrifera*, *A. heterophylla*, *A. macrophylla*, and *A. sambucifolia*, all of which are well adapted for use as single specimens, the foliage being displayed to best advantage when so used. If whole beds of these are planted they should be at such a distance apart that the foliage of each plant stands clear of that of its neighbour; of course this long distance planting necessitates the ground being furnished

with low-growing plants of suitable kinds, of which there is no lack. The varieties here named propagate readily from cuttings made of ripened wood, taken off with a "heel," inserted in sandy loam, and placed in heat. *A. Sieboldi* we have propagated by cutting up the stems as vines are propagated. Plunged in a bottom heat of 70° and covered with a bell-glass, they strike root as quickly and successfully as Vines.

Bedding succulents.—The uses to which these have been lately put in our flower gardens have undoubtedly contributed to the refinement of taste that has taken place in that department, and by a judicious selection of varieties, and using them in reasonable proportion to other kinds of bedding plants, there can be no doubt that they will long continue to exercise the same favourable influence. The kinds that are most valued here are those that produce the best effects and are the easiest wintered and propagated, as, for instance, *Agave americana variegata*, propagated by root suckers which are thrown up freely when planted out; *Echeverias*, many varieties, the best being *secunda glauca*, *glauca metallica*, *pumila*, and *sanguinea*, all of which produce offsets freely, which quickly root in any dry atmosphere and in any temperature short of actual frost. *Echeveria metallica*, *E. farinosa*, and *E. Peacocki* are extra choice kinds which, though somewhat tender, cannot be dispensed with; these varieties are most readily increased by seeds. *Kleinia repens* and *K. tomentosa* are invaluable for marginal lines in succulent arrangements; they are propagated by division of the roots in spring, and may be wintered safely in a cold pit. Several kinds of *Mesembryanthemum* are indispensable for clothing the ground beneath the taller succulents, by far the best being *M. cordifolium variegatum*; other good kinds are *cordifolium*, *caulescens*, and *incladens*, all easily propagated by cuttings in warmth. *Pachyphytum bracteatum* and *P. pulverulentum* are amongst the most curious of succulents, and being of small growth are well suited for dotting over the outer lines of beds; they are propagated by offsets and cuttings. Of *Sempervivums* the best for edgings and groundwork are *calcareum*, *montanum*, and *arachnoideum*, all hardy, producing offsets freely. *S. canariense*, *Donkelaari*, and *cuneatum* are three very fine low, dense growing kinds, propagated by offsets and seeds. *S. arboreum*, *arboreum variegatum*, and *arboreum atropurpureum* are generally termed Tree *Sempervivums*; they are of a branching habit of growth and attain a height of from 18 inches to 2 feet. They are propagated by cuttings. Perhaps *Sedums* and *Saxifrages* should not be classed as succulents; but as many of the low-growing varieties of these are seen to best advantage when serving as a cushion or setting for many of the succulents just mentioned, I name them, not their least recommendation being that they are quite hardy, and that they continue effective the year round. This latter advantage has tended to strengthen our partiality for succulent bedding, seeing that the only thing to be done when winter approaches is simply to remove the tender and half hardy succulents and substitute small shrubs, and the beds are at once furnished for the winter. Those who wish to adopt this kind of bedding in the coming summer should now set about the preparation of the plants by one or other of the ways indicated. On how to arrange them to the best advantage suggestions will be offered as the planting-out season approaches.

Sowing.—A first sowing of Sweet Peas should now be made, and to ensure continuous flowering a rich, deep soil is essential. Some make the earliest sowings in pots, and place them in warmth to germinate, transplanting to the open ground when the young plants are 2 inches high, but our experience is that the check caused by such transplantation is greater than any advantages gained by thus sowing them; we therefore prefer to sow them at once in their permanent positions. The following may also now be sown for cutting purposes in any warm nook in the open ground, viz., *Mignonette*, *Clarkias*, *Collinsias*, and *Larkspurs*. As soon as they are well through the

Hybrid Orchids and their culture.—So much is often said and written as to the supposed difficulties of Orchid culture, that anything on the other side seems worth recording. It is barely five years since I bought my first lot of about a score of Orchids, principally *Cypripedes*; neither I nor my gardener had had any previous experience of Orchids in any way, much less of growing them, yet we are now flowering the first batch of our own hybrids (two different crops). In addition to these we have many hundreds of a number of different crosses in earlier stages of development. Our latest addition is a fine lot of *Odontoglossums*, of which the pollen parent is one of the finest varieties of *crispum* (var. *Chester-toni*) ever seen; the seedparent is either *gloriosum* or *Uro-Skinneri* (extra fine variety), which we are not yet sure, but one or other it is for certain. As our first purchase of Orchids (from Messrs. Veitch) did well they were rapidly increased, till now I have over three houses full. Plenty of light, air, pure rain water, with stages well up to the glass, combined with an extra amount of hot-water pipes (to avoid forcing), makes success comparatively easy; but all this would be useless without the attention such as only one whose heart is in his work constantly gives, and I am of opinion our want of experience in our early start was an advantage, inasmuch as we escaped many of the prejudices of old-fashioned orchidists. I have certain reverses, e.g., I cannot grow *Cypripedium Fairrieanum* well; in fact, it only exists with me. Can anyone tell me how to grow it?—N. C. C., Oakwood, Wyham-on-Tyne.

ground they will need guarding against the attacks of slugs, but besides thinning out this is about all the attention which they will require. Every kind of sub-tropical annual that it is intended to use this season should now be sown in warmth. Castor-oil plants suffer so much through transplantation from seed pans, that it is best to sow the seeds singly in small pots. The same remark applies to Maize. Of Cannas, put two seeds in a pot. Solanums, Wigandias, Ferulas, and all other kinds do quite well when sown under ordinary conditions, *i.e.*, in pans placed on a gentle bottom-heat, and covered with glass till germination takes place. After that and till the seedlings have got a firm hold of the soil water must be sparingly applied, or damping off will be the result. All stock plants of whatever kind kept over from last year ought now to be potted. Dahlias, Salvias, Cannas, and Marvel of Peru are among the more important of the kinds alluded to.

General work.—Prune Roses, shrubs, and trees, and complete any planting of these that has yet to be done, tying up or placing supports to the same. Dig and manure all vacant beds and borders. Cut back and nail in climbers. Keep spring flowers well firmed in the ground, protect them from vermin, and the tender and more highly prized kinds when necessary from injury by frost by covering the beds with tiffany or mats resting on hooped sticks. Turn gravel walks, mend Box edgings, roll lawns, and prepare any new additions to the same for sowing with Grass seeds by working the soil fine and level. A rich soil is not desirable, but if very poor a dressing of soot, or wood ashes, or both mixed, will be found to be an excellent manure.

INDOOR PLANTS.

Potting.—Preparations should now be made for potting stove plants. Plants grown in heat need warm soil, and on no account should potting be carried out with soil that is in an over-moist condition. When so used it becomes a close, compact mass, wholly unsuited to the healthy formation of roots. It is, however, possible to err in the opposite direction, the result of which is that in watering afterwards the whole does not get equally moistened. The best way is to keep all potting soils in the open air, getting as much as is likely to be required under cover a sufficient time before it is used to admit of its getting in proper condition. Therefore, enough loam, peat, leaf-mould, and rotten manure to meet the demand for the general potting of stove plants should now be placed where it will be secure from wet, yet exposed to the air. In order to warm it sufficiently for use it may be spread out on the brickwork over a boiler or on a flue; where it is inconvenient to do that, it may be warmed in the baskets set on the pipes in the house wherein are grown the plants to be potted. The time for the general spring potting will to some extent be ruled in the case of stove plants by the amount of heat kept up. The advantage of being able to use a brisk heat early in the season is that many plants of an almost continuous blooming habit, such as Gardenias, Allamandas, Ixoras, Dipladenias, Anthuriums, Scutellaria mocciniana, and others can be regularly brought on to give a lengthened succession. In this way Clerodendrons, Stephanotis, Bougainvilleas, and Eucharis can be had quite double the length of time in bloom that is possible where only a low temperature is maintained, the season being far advanced before such plants can come into flower.

Pitcher plants.—Unless there is a brisk heat at command it is useless to attempt the cultivation of Nephentes; but where they are grown whatever they require in the way of additional pot room should be given at once before active growth commences. Nephentes are spare rooters, and the roots, being brittle and black in colour, are easily hurt unseen. In potting, even so much as removing the drainage material is as well avoided, but if the soil has got into a decomposed, pasty condition it should be washed from the roots

by syringing it with warm water. If this is done carefully, the old material can be got rid of without so much as a root being broken; a 2-inch shift is usually enough for plants that are in vigorous health. Fill the pots half full of drainage, using nothing but the fibrous matter from good Orchid peat with all the earth removed, and an equal portion of chopped Sphagnum, with a few crocks intermixed; pot lightly and soak with tepid water immediately. In the case of Sarracenias, it is important that they should have the whole of the soil removed every year, as from the quantity of water which they require, it is certain to get unfit for the roots, which are not so brittle as those of the Nephentes. They should be potted without delay, as if not done before growth commences the destruction of the roots is certain to cause the young pitchers that are coming on to be deformed. We have found this time of the year to be the best for potting all Sarracenias, except *S. Drummondii* and its varieties, which should be done about July or August. One-half good fibrous Orchid peat to an equal part of chopped living Sphagnum, with a liberal addition of sand and some crocks, is the material these plants require, and plenty of water to saturate the soil at once. This condition must also be regularly maintained afterwards, as they are true swamp plants, and dislike their roots being dry. Sarracenias increase readily by division of the crowns, and in the case of the taller growers that form rhizome-like stems, the latter may be cut into pieces 1 inch or 2 inches long. These will form crowns and in time make good plants, but it is not well to make these stem cuttings too small, or they will take several years afterwards to acquire their full strength. See that the plants are free from brown scale before potting; sponging with clean water is the best plan we have met with for removing the scale. *Cephalotus follicularis* succeeds best in a warm greenhouse temperature. Like most other plants that grow in continuously moist places, it cannot bear to be dry at the roots. It thrives in equal parts of fibrous peat and Sphagnum, with the addition of sand and crocks broken fine, filling the pots half full of drainage. It requires a bell-glass over it in order to grow it well.

Alocasias.—These should be potted before growth begins, especially if any division of the crowns is to be made. They bear dividing freely, the extent to which this is to be carried depending on the size of the plants required. Single crowns are very useful, the distinct form and colour of such kinds as *A. metallica*, *A. Veitchii*, *A. Lowi*, *A. intermedia*, and others of like character having a good effect when dispersed amongst the other occupants of the stove. Most of the species when strong produce young bulb-like offsets that should at the time of potting be taken off and placed singly in small pots. They mostly require soil similar to that which is used for Orchids, *viz.*, fibrous peat, Sphagnum, crocks, and in addition some sand. They are surface rooters; consequently the pots may be filled from one-third to one-half with crocks, according to the size of pots used.

Myosotis dissitiflora.—This Forget-me-not makes a pretty pot plant, and will bear a little warmth without becoming drawn. Even if the plants were not potted in autumn they may be taken up now. Seedlings that have had plenty of room to enable their getting strong may be put singly in 4-inch or 5-inch pots, securing good balls of earth so that their roots are not much broken in removal. Give them plenty of water and a light position.

Ferns.—The more compact growing species of *Adiantum*, including *A. cuneatum*, *A. assimile*, *A. gracillimum*, and for large baskets *A. farleyense* along with some of the *Davallias*, such as *D. bullata*, *D. elegans*, and most of the tasselled varieties of *Pteris serrulata*, all make excellent basket plants, and where employed alternately with flowering subjects have a much better effect than is obtainable by the use of blooming plants alone.

Hyacinths, Narcissi, and Tulips.—More of these should be placed in heat to come in late; they will now require little forcing, and

usually flower the best through coming in nearer their natural time. Still keep such plants near the glass, as by this means only can the leaves be prevented from attaining an undue length, in which state they never look well.

Zonal Pelargoniums.—Easily managed as these are, they are often seen in indifferent condition in winter, producing much more leaf than flower. If the plants have been well prepared, they will bear a temperature of 58° or 60° in the night if located in a light house and kept close to the glass. Some of the double varieties, such as Wonderful, scarlet, and Madame Thibaut, pink, are the most durable, but they do not open freely with less heat than that just named.

Achimenes.—When well grown Achimenes are second to none for the dense masses of colour which they present. In hanging baskets suspended over the paths in a cool stove or intermediate house there are no flowering subjects equal to them, and in no way can the often bare, unfurnished appearance of the roof of a plant house be so well altered for the better and with a minimum of interference with the growth of the plants underneath as by the use of such baskets. But when employed a little forethought should be exercised so as to see that the size of the baskets bears some proportion to the dimensions of the house in which they are to be used. Large baskets are very effective when well filled, but they look out of character in a small structure. Baskets to be so used should be made of either copper or galvanised wire; if the latter be painted it improves their appearance, and the wires should not be too far apart, or the Moss with which they need to be lined protrudes in a way that looks untidy. Green Moss, such as is to be met with on the ground in woods, we have found to be the best. A couple of inches of this should be used, as less will not keep the soil within from washing through when water is given. After the baskets are thus well lined, they want filling with ordinary potting soil, moderately light, and the plants should be dibbled in about 2 inches or three inches apart over the whole surface bottom as well as top. Previous to this the roots ought to be started by putting them closely in shallow pans in a mixture of sandy loam and leaf-mould, giving them ordinary stove treatment; after the shoots are about 2 inches high they should be placed in the baskets as above, keeping them well up to the glass and in not too moist an atmosphere, for upon their making close, compact growth will depend their after appearance. A portion of the roots for pot culture should now be similarly started, with others kept dormant for a time yet, so as to give a succession of bloom.

PROPAGATING.

THIS is a good time for propagating *Dracænas*, both by means of roots and stems, where required in quantity; if struck now they will be sufficiently advanced for the bright sunny weather of the summer months to assist in colouring the foliage, which will not be the case if struck late, as then it will be necessary to push growth on as rapidly as possible to get fair sized plants before winter. For propagating purposes choose plants that have grown tall and leggy—the taller, indeed, the better, as the stem will then cut up into a greater number of pieces. In the first place cut off the top of the plant, and put it in as an ordinary cutting, leaving sufficient stem attached to it to form a base, and do not remove too many leaves, or when rooted it will have to be grown on for some time before it becomes effective; whereas if struck with as many leaves as possible as soon as it is potted it becomes a good dwarf plant. The tops should be put in small, well drained pots in a soil composed of sandy peat, with just a slight amount of loam well mixed up together. It will be necessary to stake any of them that may be top-heavy. After potting they should be kept in a close case in the stove and plunged in a bottom heat of from 80° to 85°, in which they will soon root. After that they should be hardened off without delay and shifted into larger pots.

Another way, and one often followed, is to put new Cocoa-nut fibre in the case, and in it insert the cuttings instead of putting them in pots, but where this is done they should be kept close for a few days after being rooted and potted, just to give the roots a start in the new compost. When the tops are taken off they should be thoroughly cleaned before putting them in the case, as if there be but a few insects on them in the confined atmosphere in the case, they will increase rapidly. Cuttings of the stem may be put either in a close case or in a house without any extra covering, provided a good growing atmosphere and a bottom-heat of about 85° are maintained. In either case the same principle is carried out, viz., to cut the stems up into lengths of about 3 inches or 4 inches, and the thick fleshy roots into pieces about half that length; this done, lay them in rows in Cocoa-nut fibre, leaving about half an inch between each row of stems, and when so placed cover them to a depth of 1 inch with fibre, levelling it down, when all will be finished. Except in a very dry place, no water need be given, as excess of moisture causes many of the pieces to rot. The young plants will soon push up freely from every joint, and when they have made four or five leaves they should be removed from the parent stems. Most of them root quite independently of the old stem, and if cut off carefully can be at once potted, when if kept close for a few days they soon become established. The old stems can be laid in again as before, when they will push into growth, but only weakly and irregularly compared with the first effort.

Stem cuttings of *Dracæna Goldieana* will not grow, but it may be propagated in this way: When the plant has attained a sufficient height, take off the top and put it in as a cutting; after a time the old plant will push out another shoot from the bud immediately below the cut part, which when strong enough may be taken off and treated as the top. The rate of increase by this method is slow compared with stem propagation, but is useful in the case of kinds that grow, but with difficulty, from eyes, such as *D. congesta*, *gracilis*, *excelsa*, &c. Where a plant has a fine crown of leaves, and it is desired to strike the top with as little risk as possible of losing them, two or three incisions should be made in the stem at the height required, and some Moss should be bound around, which must always be kept moist. If done in this way, the top need not be separated from the parent plant till it pushes roots into the Moss, when it should be taken off and potted.

FRUIT.

Peaches.—After the fruit is all set in the early house, the daily syringing of the trees may be resumed on fine mornings when the temperature begins to rise, and again after the house is closed for the day. If the inside borders have not been watered since the trees were started, a good supply of diluted liquid a few degrees warmer than the mean temperature of the house will be beneficial, and old trees which invariably set more fruit than they can carry may have a light mulching of good rotten manure placed over the roots at the earliest convenience. When the young fruit has been relieved of the remains of the decaying flowers, all the small and least promising may be removed as disbudding is proceeded with, but these operations will require great care and judgment, as anything approaching severity, particularly where the trees are weak, may produce a check which will affect the size if it does not cause the fruit to drop. The best and safest plan is to commence with the upper parts of the most vigorous trees, by taking off the foreright shoots first, and pinching others for spurs or ultimate removal, as space is wanted, and to work gradually down to the horizontal branches through which the sap flows less freely. Airing will now require constant attention, as sudden changes from a high temperature to cutting draughts often do much injury. In bright sunny weather it will be well to shut off fire heat early in the day and to close a little earlier in the afternoon when 70°

to 75° from solar heat alone will be quite safe, and the pipes being cold, a night temperature of 50° to 55° will be secured with gentle firing, and a chink of air on the front ventilators.

Succession houses.—Keep these well syringed and give just enough fire heat to admit of forcing with a circulation of air by night and day. Aim at a minimum temperature of 45° to 50° and a day temperature of 55° to 60° when artificial heat is required, and 5° more when the weather is bright or very mild. Fumigate with tobacco paper before the first blossoms open. Thin the latter where thickly placed by drawing the finger down the undersides of the shoots, and impregnate with a brush when in flower. By this time all late houses should be cleansed, tied in, and ready for syringing when the blossoms can be no longer kept back. Owing to the mildness of the season the buds are getting very forward, and unless we have a change the trees will be much earlier than they were last year, but much may be done by judicious retarding up to a certain stage, when a different course must be followed.

Figs.—The last few days being bright and warm early trees have made considerable progress, and many of the most forward Figs have reached a size which will not increase until the flowering process is complete, but this apparent stand need not cause alarm, as very important work is going on inwardly, and hard forcing will not help them. If the weather continues favourable a steady night temperature of 60°, with a rise of 10° by day and 5° more after shutting up will be quite high enough for a considerable time, but in the event of a change to wintry weather, 5° lower will form a safe working standard. Pay particular attention to the maintenance of a steady bottom-heat of 70° to 75°, and keep the roots well supplied with tepid liquid and guano water alternately, as the Fig when in growth is a gross feeder, and soon resents a falling off in quantity or quality. Be careful to keep the young growths and foliage firm and stout by means of liberal ventilation and clean by a vigorous use of the syringe, particularly when the house is closed for the day, with plenty of solar heat. Guard against overcrowding by pinching side shoots to form spurs, and remove weak growths entirely where there is not room for full development of the foliage and exposure of the fruit when it begins to ripen. Repeat former directions in the management of the succession house, always bearing in mind that a steady supply of heat, air, and moisture, combined with liberal feeding to well ripened trees which are not over-cropped, are cardinal points in the production of high-class fruit worth eating. Get trees in late houses pruned or thinned, washed and tied in as opportunity offers, as the time is near at hand when a multitude of pressing matters will require prompt attention.

Grape room.—Now all the late keeping Grapes are in their places, and doubtful berries have been removed, it will be necessary to keep the room dark, dry, and well ventilated. A temperature of 40° to 45° is quite high enough for Lady Downes, still the best and most profitable kind for keeping until new Hamburgs are ripe; and as the above figures can be maintained without the aid of fire-heat, all that is needed is just sufficient warmth on fine mornings to expel moisture. If Lady Downes are started early, perfectly fertilised, and well ripened early in the autumn, they will keep fresh and plump until May, but all stoneless berries which show signs of shrivelling after the leaves fall invariably shrink and perish first; hence the importance of taking time by the forelock in the spring, and the removal of all doubtful berries in the autumn before the bunches are removed from the Vines. To insure the perfect keeping of Muscats for any length of time after Christmas they should be quite ripe by the end of August, and slightly shaded from the autumn sun until the time arrives for cutting. To preserve their rich colour the Grape room should be kept at a temperature of 50° to 55°.

Melons.—To maintain a steady supply of Melons throughout the season another sowing should at once be made to succeed the first batch

now coming into rough leaf. If the bed intended for these is not ready, give them a small shift and replunge in bottom heat near the glass. Meantime prepare the fruiting pots, and plunge them where they are to remain until the fruit is ripe. Prepare the soil (stiff calcareous loam, which has been stacked for some months in an open shed) by breaking it up with the hand. Place it loosely in the pots, to admit of the heat passing freely through it, then ram firmly and turn out the young plants before they become pot-bound. If the soil is poor add a 6-in. potful of bone dust, or twice that quantity of dry rotten cow manure to a bushel of loam. Mix thoroughly some time before it is wanted, and see that a few of the roughest lumps are placed over the drainage. Give water sparingly until the roots reach the sides of the pots, and defer feeding until the fruit begins to swell, when the highest culture that can be given will be needful. If planting out on hills or ridges is preferred, make them small at first, using thin sods of turf, Grass side downwards, for a foundation. Turn out the plants, a pair on each hill, and 2 feet apart on continuous ridges, water sparingly, and then train to sticks when they begin to grow. Prolific kinds, now too numerous to mention, from which the earliest fruit is to be cut, may run over two-thirds of the trellis before the points are pinched out. The first set of side shoots will then show and set freely, and the plants being clean and vigorous they will finish Melons of the finest size and quality. For growing over paths in Pine stoves and other places where the pots cannot be plunged, free-bearing scarlet-fleshed kinds like Turner's Gem, Read's and Blenheim Orange are well adapted, and often succeed over dry hot-water pipes where the green-fleshed varieties fail, or become badly infested with red spider. We generally get plants of the above kinds established in the fruiting pots ready to succeed winter Cucumbers. They take up but little room, and the rapidity with which the superfluous moisture can be forced out of the soil without lowering the temperature when the Melons begin to ripen prevents cracking, and gives them a flavour they do not often attain when planted out on hills, when the roots are not so completely under control. Where pit or frame culture is contemplated and fermenting material is plentiful, the latter must be well worked and fermented to be ready for making up a bed early in February. Plants for this kind of culture are usually pinched at the third or fourth leaf.

Vines.—Follow up disbudding and tying down in the early house. Stop the shoots at the second or third joint beyond the bunches, and lay in the first set of laterals where there is trellis room for extension. Direct syringing may be considerably lightened in dark, dull weather, but the daily application of tepid water to strong stems, walls, and floors must be followed up until the bunches come into flower, and even then a soft atmosphere with a free circulation of air will be preferable to extreme aridity. From this time forward airing will require careful attention, particularly in cold, windy weather; but so important is a constant change, that steady firing must be pursued every morning until a little air can be admitted at the apex of the house. Close early at 75°, and run up to 80° for a short time on bright afternoons. When the bunches come into flower maintain a steady night heat of 60° to 65° for Hamburgs and 70° for Muscats and shy-setting kinds. Run up 10° after closing, and re-open the ventilators, if only half an inch, from the close of day until the following morning. Fertilisation is, of course, an important matter, and almost every grower has [a method of his own, from a dash with the syringe to a draw over with the hand; but this rough usage being often injurious to the delicate organs, a camel's-hair brush well charged with Hamburgh pollen will best perform this operation.

Late houses now ready for starting may be well watered with cold water from the tanks to bring the inside borders into a growing state, and to fill up the buds before forcing is commenced. If the Vines carry heavy crops annually, and the Grapes are kept hanging until Christmas, a good

surfacing of rotten manure may be laid on forthwith and well washed in with tepid liquid, as late hanging is quite as severe a tax as early forcing. Get all pruning and cutting down finished for the season, and dress the wounds with styptic, as there is now danger of bleeding; also put on grafts when the sap in the stocks begins to swell up the buds. An excellent kind for the late house will be found in Mrs. Pearson, as it is a good grower, and is greatly improved by being allowed to hang after the leaves fall; moreover, it can be grown and finished in a much shorter time than its fickle sister, the second-rate Golden Queen.

KITCHEN GARDEN.

WE commenced the other day to stick our early border of Peas, and we may hear remark that we like new stakes in preference to old ones, always thinking the Peas take to them more kindly; we shall not at present use any Fir tops to protect them, the weather being so mild. But all will be in readiness for the cutting March winds, which do them far more harm than frost. Take advantage of all fine dry, open weather to run the hoe through all growing crops, Lettuces, Cabbages, &c. Although no advocate for earthing up the latter, still the firmer the soil is round the neck the better. In windy weather Cabbages often blow about and get loose at the neck, which is anything but a good condition. Planting out Tripoli Onions between rows of young Strawberries is a system which we always adopt, and generally they turn out fine bulbs, doing the young Strawberries no harm whatever; also planting a quarter of Hawke's Champion Rhubarb. We use Rhubarb in quantity for forcing purposes, and also for preserving. Turning over our store of Potatoes has occupied a long time, but is now drawing to a close. They are in capital condition, the eyes in most of them being now visible; the greater part are stored in a good dry room on shelves. Gardeners will now begin to order their seeds—nothing like being in time in this matter. Young Tomato plants should now be in 3-inch pots, singly. Keep them close to the glass in order to get them stubby and robust. In February we plant ours out in not too rich soil. Winter Tomatoes have done well with us, having had a full supply all through the autumn and winter. The best forcing varieties are Criterion and a selection of Hathaway's of our own. None of these are giants in size, but queens in flavour.

KITCHEN GARDEN.

SPRING TREATMENT OF AUTUMN-SOWN ONIONS.

WHERE new Onions are wanted earlier in spring than can be had from seed sown now or during the next two months, there is no better way of securing them than by sowing seed in the autumn, getting a good batch of young plants up then and cultivating them well in spring. It is the Tripoli and Rocca varieties which we prefer for this work. The seed is sown early in September, the plants are about 3 inches or 4 inches in height in November, and they do not grow much more until now. We have had them larger than the sizes just named at this time, but we do not like them too tall, as if we have a mild winter and spring and the plants very forward, many of them are almost sure to run to flower, and that spoils the bulbs. When of medium size the weather has no influence on them; they transplant well, start off in a free growing state, and not five per cent. of them will fail to produce fine bulbs. The white ones always bulb first, then the yellow ones, and lastly the red ones. While sowing in autumn we always study to do so in good, well manured soil, and as we sow in rows we allow one plant to remain every 10 inches or so apart, and lift all the others for transplanting at this time. Those that are undisturbed bulb first as a rule, but those which are taken up and replanted make the finest specimens. For this reason I would always transplant those

intended for exhibition, or any which I wanted to be of an extra large size.

Deeply dug, well manured land is the only kind which will produce a really fine crop. Liquid manure or other artificial feeding may be given when the bulbs are forming, and this assists their development, but properly prepared land is the main secret of success, and as this should be seen to before any planting takes place, it will be understood that this is an important operation in connection with Onion culture at the present time. The best autumn-sown Onions I have ever seen were grown on a piece of ground which was trenched 2 feet deep in January, and just before planting early in February another trench was taken out at one end. This was 18 inches wide and 8 inches deep. Into this a quantity of manure was emptied and spread out in a solid layer 6 inches deep. The soil from the next trench was thrown on the top of this, levelled and trodden down, and the whole piece was gone over in the same way, when it was ready for planting, and the crop was an unusually heavy one. It may be remarked that the manure came from a closet, and was mixed up previously to being dug in with a quantity of old Mushroom bed manure. This mixture suits Onions admirably, and all anxious to excel with their Onion crop should use it. Probably it might not be convenient to treat all the Onion ground in this way, but part of it for any special purpose might be done so.

Another way which applies to all Onion ground at this time is to have it trenched as before, and then dig in a heavy coating of manure in the ordinary way. A dressing of soot may also be given at the same time to kill or ward off worms, but lime and manure should never be put on together. Salt is useful for the same purpose, and I often put a thin sprinkling of it over the manure before turning it on to the Onion ground. It is a bad plan to dig the soil when very wet, and it is a still worse practice to plant under such conditions. A dry day, and when the soil will not adhere to the feet, are the best conditions for getting in Onions. The ground being ready, the next thing is to plant. No drills or anything should be drawn for this crop; on the contrary, the plants should be merely put in on the level surface. Fifteen inches between the rows and 10 inches between the plants is a suitable distance at which to put them in. In taking the plants up from the seed rows they should be very carefully drawn out, and if this cannot be done without breaking the small roots, especially those close to the base, a fork should be used for easing them out of the soil. In planting we use a dibble, and the roots are let well into the ground, but the bottom of the plant is not covered more than 1 inch with soil. This is made very firm to prevent shaking, and planting is completed. Under favourable weather growth soon recommences, and the Dutch hoe is run through them from time to time. If planted now many of the bulbs will be of fair size by May, and then the worst of them may be drawn up for use, allowing the strongest and best formed to remain for later use or exhibition. Where the latter object is in view large quantities of liquid manure should be given during drought, and if the weather is too wet to apply this, a little guano may be put round each bulb, to be washed to the roots by the rain. Altogether the autumn-sown Onion crop is a most profitable one in spring.

CAMBRIAN.

SHODDY MANURE.—WOOL V. COTTON.

A PORTION of Mr. Wood's remarks on this subject (p. 72) is, I think, somewhat misleading. He says, "The extracting process consists in soaking the rags in oil of vitriol, diluted of course. That destroys the vegetable fibre, which falls to dust when passing through the machinery," adding, "and so shoddy is made." Yes, but which is the shoddy? Surely not the burnt cotton dust which falls in the process, as Mr. Wood's assertion would, I think, lead us to infer, but the wool thus extracted, which, unless one is mistaken, is sent to the mill to be again worked up with other wool or cotton

into yarn and cloth. Quite a distinct article this from that sold as "woollen shoddy manure," of which large quantities have been for many years, and still are, sent to the farming districts from Yorkshire. That which I use comes almost entirely from the woollen mills, where it drops under the machinery. Most of it being heavily saturated with oil, is then sent to the oil extractor, who, by hydraulic pressure, and with the aid of boiling water only, extracts the oil, which he refines. The residue is then sold as "shoddy manure," being chiefly woollen refuse, with a small percentage of cotton, which is so often worked in with woollen goods. Good wool shoddy contains say 7 to 8½ per cent. of nitrate of ammonia, this being its test of value. I know nothing of cotton shoddy, but doubt from its nature whether it possesses any ammonia worth naming. If some user of it who has taken an analysis would give us the result it would be interesting. X.

DECIDUOUS FLOWERING WALL PLANTS.

Magnolia conspicua.—When trained to walls on any other but a north aspect this Magnolia is quite hardy, and when a plant of it has attained a good age and covers a large space, I know of nothing that is so striking, flowering as



Magnolia conspicua.

it does in a most profuse manner. It is the earliest to flower of all hardy wall plants. With us it flowers generally about the beginning of April. Before the leaves appear more than 3000 flowers have been counted, more or less open at one time, on a fine specimen which we have here trained to a wall with an east aspect. All that it requires is a good deep soil, and it is not very particular as to its character, provided it is strong and holding. Our tree has reached to the top of a wall 14 feet high, and the branches have extended to a proportionate width. Fan training appears to suit it best if the branches are trained from 12 inches to 20 inches apart; flowering spurs are formed in just the same way as in the case of a Pear tree, and these spurs will go on almost an indefinite time, producing a crop of flowers every year. The regularity with which these spurs are distributed over the branches is not the least of its many valuable qualities, as they not only furnish flowers regularly every year, but they are so placed that when the tree is in blossom it presents quite a sheet of bloom. We have to secure the branches to the wall by means of long nails and strong tar cord. In order to do this work well it must be done during the winter when the leaves are down. This and the cutting away of a stray shoot now and then is all the trouble it gives us, and for this we get regularly every year a grand display of flowers.

Chimonanthus fragrans and grandiflorus.—I do not claim for these any effective features further than when in leaf they have a very pleasing appearance, and that they will grow

well in any position and in almost any kind of soil, but we must not altogether ignore their curiously formed and fragrant flowers that appear in the dead of winter, for their flowers alone make them favourites, and if a garden is to be interesting at all times of the year, these plants should find a home in it. In a good soil these *Chimonanthus* grow freely, and are not at all difficult subjects to train against a wall. The proper time to prune them is in the end of February when out of flower. If pruned in autumn there is danger of cutting away some of the growths that, if left untouched, would flower. Strong plants in good soil will in a few years reach to a height of 12 feet.

Large yellow-flowered *Jasminum*.—This very vigorous-growing plant will often reach a height of from 12 feet to 14 feet. In mild winters it sometimes retains a portion of its foliage. In a warm position it commences to flower in June, and continues in that condition until the autumn. The flowers are clear yellow in colour, and larger than those of other hardy *Jasmines*. The white, sweet-scented *Jasmine* is so well known that I need only say it should always be planted where hardy creepers are required.

***Aristolochia Sipho*.**—This is in many respects a distinct form of climber; the foliage is striking and the flowers different in form and colour from those of any other hardy creeper. It is also a rapid grower, and in a good soil with plenty of space for its roots it is capable of covering a large area of wall; for clothing the fronts of dwelling-houses it is admirably adapted, but it requires time and space to show it off to the best advantage. I once saw the front of a large house covered with it, and when in full flower it made an impression which I shall not soon forget. It requires more attention when growing fast than some other subjects, or the young growth soon gets entangled, but when the space has once been covered it does not grow so unruly. The pruning should be done in the winter time or early in spring, and when judiciously done it will flower from the spurs formed by cutting away the shoots that grow outwards from the large branches. Sometimes it is desirable to thin out a few of the old branches to make room for the young growths in order to keep up a supply of flowering wood.

***Buddleia globosa*.**—As this plant does not always retain its foliage in winter, it may be admissible in this list, but it is not recommended as a choice wall plant. Anyone who may have a high wall to cover or the gable end of a building may, however, plant it with every prospect of its covering a large space as quickly as any plant that I know. When practicable, a sheltered situation should be selected for it, as rough winds are liable to injure the young growth, which is easily broken. It will thrive in any moderately light soil, and, as regards the roots, when once established they will take care of themselves, but the branches require more attention; they must be firmly secured to the wall by strong shreds or ties. Let the leading shoots be secured close to the wall, and a good portion of the lateral growth should be tied in to hide the naked branches. It flowers on the young wood during the summer months, and its globular-shaped, dark yellow blossoms are both curious and handsome. What pruning it requires should be done in February or March.

***Calycanthus floridus* (Alspice tree).**—This is only suitable for walls of medium height. With us it is quite hardy in the form of a shrub in the open borders, but in colder districts it may require the shelter of a wall, where it will grow and flower freely. It is not a striking plant, being more curious than beautiful, but its highly aromatic flowers are much esteemed by some. A rather light soil is necessary for it, and it needs very little pruning.

***Wistaria sinensis*.**—This is so well known that any lengthy notice of it is unnecessary. I may, however, mention that where there are large spaces to cover, the *Wistaria* will cover them sooner than any other flowering plant of equal merit.

***Jasminum nudiflorum*.**—This is another winter flowering plant, no doubt well known, but as it is quite hardy and grows freely in any kind of soil, it deserves a place wherever there is room for it. It begins to open its blossoms in November, and in mild winters will keep flowering for several weeks. As it grows fast during the early



Jasminum nudiflorum.

summer months, it requires some attention during that time to keep it in good order. When overcrowded some of the old exhausted wood should be cut out early in March to make room for young shoots, for it is on these the largest flowers are produced. The blossoms being bright in colour, a few twigs thickly studded with them are acceptable in January to mix with other flowers, and a reasonable amount of cutting does not injure the tree.

Honeysuckles.—Of these there are several that are fast growing and thoroughly hardy. The common Dutch variety is perhaps as useful as any, but for the choicest positions the variety known as *flava*, which has, as its name implies, yellow flowers, and the scarlet trumpet kind are very suitable plants. The sorts here named will grow from 10 feet to 15 feet high. A good deep soil, careful training, and judicious pruning during winter are the principal details needing attention. On the merits of Honeysuckles as fragrant flowers I need not dwell, that being a feature they are widely known to possess.

***Bignonia radicans*.**—This is a vigorous and somewhat unruly subject, its greatest value being that in a suitable climate it will cover a large



Bignonia radicans.

space in a few years. In the west of England it may be seen sometimes in good condition, its large trumpet-shaped flowers, pretty freely produced on a vigorous plant, being very handsome in the late summer months.

Double-flowered *Kerria*.—This is better known as *Corchorus japonicus*, and although not now grown so much as in times past, it is not

without merit; it is thoroughly hardy and will grow in any kind of soil. The neglected condition in which it is generally found gives one no conception of its true value when properly managed. It is just the plant to cultivate where more tender subjects fail. In a good soil it will reach a height of 10 feet. To get it to flower freely it should have some of the old wood cut out of it early in spring, and the young growths must be nailed into the wall, especially the strong growing shoots, for it is these that furnish the principal flowering wood. It commences to open its blossoms in June, and a vigorous plant will continue flowering all the summer. There is a single kind as well as a variegated form with single flowers, but in my opinion as a wall plant the double-flowered variety is the best.

***Weigela rosea*.**—As a fast growing, free flowering plant this can be highly recommended for walls or trellises from 6 feet to 10 feet high. The profuse manner in which it flowers is sufficient to recommend it for positions where a hardy plant is required.

Clematises.—Although many of the new sorts of *Clematis* are very beautiful when in blossom, there are not many of them that can be recommended for the covering of walls, &c., unless the cultivator is prepared to devote a good deal of time to training them when in active growth. I shall, therefore, only name a few, selecting them from the different types, and mentioning only the most suitable that will thrive with ordinary attention. To produce a mass of white flowers over a large space there is not one to beat *montana*, the blossoms of which put one in mind of those of the *Wood Anemone*. This is an old variety, and well known to thrive in any position. The *patens* type consists principally of spring bloomers, with medium sized flowers borne in clusters on the old or ripened wood; *Standishi* has light purple flowers, and is one of the oldest of this section; *Stella* is a very distinct sort, with pale violet flowers; *Miss Bateman* is a well-known white kind, and well worthy of any extra care that may be devoted to training it; the *lanuginosa* type contains large-flowered summer and autumn bloomers, flowering principally on short, summer shoots; they require but little pruning. The best are *Lady Caroline Neville* (French white) and *lanuginosa* (lavender). The *Jackmani* type is probably the best of the whole family, containing, as it does, plants that grow vigorously and flower in the most profuse manner for several weeks continuously towards the end of the summer. In its particular line of colour *Jackmani* is undoubtedly the best, and *Prince of Wales*, also a deep purple, grows and flowers well from August to September. The old and familiar sweet-scented variety named *Flammula* is probably the best white flowered sort in this section, as it thrives in any kind of soil and position. All in this section flower on the wood of the current year; therefore all the old wood should be reduced considerably at the winter pruning. J. C. C.

Lawn weeds.—During the last thirty years I have tried every mode of eradicating these suggested by every published correspondence, and, taking the result and cost of time into consideration, I have come to the conclusion that the best method of proceeding is, after the first cutting in the spring, to put as much salt on each weed through the palm of the hand as will distinctly cover it. In two or three days, depending on the weather, they will turn brown. Those weeds that have escaped can be distinctly seen and the operation repeated. The weeds thus treated die, and in about three weeks the grass will have grown, and there will not be a vestige of disturbance left. Two years ago I converted a rough pasture into a tennis ground for six courts. Naturally, the turf was a mass of rough weeds. It took three days to salt them, and the result was curiously successful. I had one lawn with more Daisies than grass, and on Sept. 2, 1881, I took up the turf, scratched the ground, relaid the turf upside down, scratched this also, well seeded it,

sprinkled it with soil, and in one month it was green and hardly distinguishable from the other parts of the lawn. Similar trials had been made in each month from March, and as late as August 12, but the earth gaped or cracked.—BERKSHIRE.

FLOWER GARDEN.

THE GLADIOLUS FAILURE.

I AM very glad that this subject is being well ventilated, and hope that all growers of the flower will be as explicit in their statements as your two correspondents, "J. C. C." and "W. J. M." (although I am not over sanguine that any very practical results will accrue), for the first thing in arriving at any conclusion upon any given subject is to have a full and clear statement. How many a client has lost his cause from keeping back from his lawyer, through shame or some false motive or other, some material point in the history of it which has come out in court afterwards! Not long ago a friend of mine took up a case of a disputed property. His client made out a very clear statement, and he thought all would go well; but when the case came on it oozed out that there was another relative in the matter who was on the male side, my friend's client suing for the female side, a fact perfectly well known to the client, but which he concealed from his lawyer. I would be the very last person to discourage anyone from growing florist's flowers, and especially a flower from which I have had so much pleasure as the Gladiolus; but I think that it is only fair that the difficulties which surround its culture should be well known, and then persons entering on it may try their hand at overcoming its difficulties. In speaking plainly, of course, one is liable to the charge of damaging the sale of the roots, but if my ideas are as wrong as some would imagine, they cannot have much weight in influencing others. But even were it otherwise, a suppressed truth is often as much a falsehood as a direct misstatement, and one who writes for the benefit of others has no right to conceal what he knows on any given subject.

Your correspondent "J. C. C." claims to know something about the Gladiolus, and I do not dispute his claim. A grower of 2000 roots ought to know a good deal, unless he has entered on their cultivation with some preconceived theory which blinds his eyes. I know something also of the Gladiolus in the localities he alludes to. For the last dozen years or more I have had the pleasure of judging Mr. Dobree's Gladioli at Taunton, and exceedingly fine they have been, but of late years I have noticed that there are larger numbers of seedlings amongst his exhibits than there used to be taking the place of the named varieties, and I should not at all wonder if his experience very much coincided with that of another gentleman in the same county who possesses a garden known far and wide, and spares no expense in carrying out his cultures. I mean Mr. Marshall, of Belmont, Taunton. I once or twice saw his exhibits, and, knowing that he grew them, I wrote to ask him his opinion. I cannot, perhaps, do better than transcribe his words, as they bear so strongly on what I have always stated concerning the flower. "I shall be most willing," he says, "to give you my experience of the growing of the named Gladioli. I am sorry to say it is very unsatisfactory. I used to get from Messrs. Kelway their collection of new ones for the year. My luck was this: generally three bulbs out of the lot would not germinate at all. My gardener has just told me that I have underrated the number. Quite an equal number would grow, but would wither away and die before flowering; the others would flower, but the second year the flowers were not at all equal to the first, and the third year they were of no use at all, even if they lived. I then got quite tired of the failures and mixed all the bulbs I had to plant in clumps, but the result was the same. It is a great pity there is such a failure, for it is a most beautiful flower." This letter is most interesting on two points. It is often said that these failures are the result of ignorance. Well, here

that cannot apply; and secondly, Mr. Kelway asserts that this failure is occasioned by exhaustion; but surely his own seedlings are not exhausted. And yet what Mr. Marshall writes of are his best and newest varieties. Moreover, as he lives not more than twenty miles from Langport, his climate must be very nearly the same. With regard to Mr. Dobree, I think your correspondent is in error in saying that he has been a successful exhibitor at the Crystal Palace. I never recollect seeing his flowers there, and I think I have seen every exhibition at which Gladioli have been shown there. Since this was written I have received a letter from Mr. Dobree which entirely bears out my view. In it he says, "I fear my knowledge of Gladioli is too small to be of much use to you. I have, like others, experienced many losses. Out of £20 worth bought in 1881 I only flowered a few, and I have hardly any of that lot left." He speaks of it as on account of disease, and says "seedling bulbs are not free with me from the disease, and this year some beds which showed signs of it in September were half gone by November. I have now a large lot of mixed and numbered seedlings, and have not therefore been so anxious after new varieties." My statement as to the loss of 50,000 bulbs in two years may seem astounding, but is none the less a fact. As to the planting of Gladioli, I can only say that I have frequently planted at 6 inches in depth, but that I have found no advantage in so doing. I am somewhat astonished that "J. C. C." should say that Mr. Kelway uses no manure; whatever he may do now, I know that I have seen very heavy mulchings of rotten manure on his principal beds. I should not have called Mr. Kelway's soil alluvial, at least a considerable portion of it, nor do I see why Somerset should be more favourable for the growth of the flower than any other of the southern counties.

The observations of "W. J. M." of Clonmel, are to me very interesting, as everything horticultural in a country where my first gardening tastes were developed must be, and also because he has been somewhat confident of his methods of cultivation. I notice indeed in his last notes a somewhat less confident tone, a confession of failure which I do not recollect in his earlier communications on the subject, and a consciousness that there is a good deal of difference between cultivating highly-bred varieties and seedlings or the common varieties. He, too, seems to have been startled at my report of my friend Mr. Banks' failures, and seems rather to have misunderstood my statement as to seedlings. What I meant was that there was as little likelihood of retaining a good seedling as a good named variety and hence as little satisfaction in them, for surely in seedling raising of any flower, the prospect of retaining it as of one's own raising is a great inducement; and as to the question of seedling raising, which I have done myself for years, it is very pleasant doubtless, and the fondness of a parent will often see beauties of surpassing excellence in one's own progeny which a stranger fails to see; but, after all, one rarely sees, except with Mr. Kelway's seedlings, anything at all equal to the named varieties. I cannot say that I see the advantage of his plan of storing, even if one had room for it, for I do not find that the disease—for such I must call it—develops itself after the bulbs are raised, but if it is present at that time it goes on until the whole bulb is destroyed. As to not cutting the stems when they are green, I can only say that this is always done at Fontainebleau and elsewhere in France, the bulbs are dried off on shelves in the house, and the good condition in which these bulbs reach us over here is the admiration of all who grow Gladioli. A relative of mine who has just received a lot from France writes in glowing terms of them, and says how different they are from the bulbs of English growth bought last year.

Mr. Douglas says I have accepted at last the inevitable, but I have never differed from him as to the losses which I have from year to year deplored, although we entirely differ (perhaps more in words than anything else) as to the cause. He calls it degeneration; I call it disease. By dege-

neration, as I have frequently said, I understand the falling off of a variety—not of a bulb; and I maintain that by growing the spawn of any one of the named varieties you can get as good blooms of them as in the year in which they were first sent out, but that the individual bulb does not improve—rather the reverse—is, I think, undeniable, and it is in this direction that I can alone see any way out of the difficulty. Many of the most valuable kinds spawn freely, and by careful management of them one is able to keep up a stock of varieties which would otherwise perish. Some kinds on the other hand spawn very sparsely. Our other help is the diminished price of good varieties. I have before me a list which a friend of mine has just obtained from France of 100 bulbs in twenty-five varieties of the *crème de la crème* of the French varieties, and for which he had to pay less than £5.

I know not to what we are to attribute the fine condition of the French bulbs but to their drier autumns, and it will be curious to see what will be the character this year, for the incessant rains with which we have been visited have reached them also, and Messrs. Souillard & Brunelet inform me that they have had the greatest difficulty in securing their harvest.

Altogether, I fear the growing of named varieties is on the decrease; people do not like giving, as Mr. Dobree did, £20, or as a relative did £15, and then in two years to have none of them left. I have known almost every one in the south of England at any rate who has attempted their cultivation, and they are nowhere. For two years I was the only exhibitor amongst amateurs at the Crystal Palace, and at last they shut the amateur classes out altogether; and I fear, with Mr. Douglas, we shall never again see the exhibitions we used to see some years ago of this grand, but very disappointing flower. DELTA.

CHRISTMAS ROSES.

WE have all to thank the Rev. C. Wolley Dod for raising a discussion upon *Helleborus niger maximus*, as it has led some of us to a right nomenclature for the varieties we grow under the above name. "Veronica" (p. 49) calls the great white Christmas Rose *H. niger angustifolius*, and describes it as having pale green scapes and large snowy flowers covered by the glossy green leaflets borne aloft. I had omitted to notice this paragraph when my friend Mr. Wolley Dod drew my attention to it, as it accurately described the variety we grow here, and which I had sent him.

Through the kindness of the editor, who forwarded my request to "Veronica," I received a flower and leaf, and they proved to agree exactly with our variety, and so, I suppose, we may consider that point settled. It also agreed, I find, with Miss Hope's description of *H. niger angustifolius* ("Gardens and Woodlands," by the late Frances J. Hope, p. 26). I believe this to be by far the best Christmas Rose. It is also the most purely beautiful, the centre tuft of anthers being golden yellow, and it is also the most floriferous. We have lots of plants here which have yielded fifty flowers apiece from December to February. Truly a Christmas Rose. Next, as to *H. niger maximus*, "Veronica" makes Miss Hope call it also *H. altifolius*, but I cannot find this to be so. Miss Hope quotes the three synonyms, *H. niger major*, *maximus*, and *grandiflorus*, but I cannot find *altifolius* mentioned, nor do we need the name, as far as I know, although the plant is so called in florist catalogues. The true *H. niger maximus* is also accurately described by Miss Hope. It blooms two months earlier than *angustifolius*, and has its flower and leaf-stalks spotted with red, has a small tuft of pink in the centre of the flower on the tops of the pistils, and it is altogether a larger and more sturdy plant, easily distinguished by stalk, leaf, and flower. This variety I always look upon as Miss Hope's memorial; she discovered it in Aberdeenshire, where it abounds to this day, and whence all the true plants of it originate. I have again to thank Mr. Wolley Dod for putting me right on this point also, and for helping me to a

supply of the correct sort, which I thought I had already, but which I found I lacked when put to the proof.

I find Hellebores of all sorts thrive best with a west aspect. They like to be perched on a sloping bank, sheltered from every wind. Only last week during the cold westerly gales every leaf of Hellebores on the rocky that showed above the stones were withered up by the cold wind. They like a light soil with a large admixture of leaf-mould, and they are all the better for a liberal top-dressing of manure in August when the buds are setting. I buy a dozen large plants of *H. niger angustifolius* every autumn for flowering at Christmas in a cool fernery; these yield 50 or 60 flowers each, and are afterwards planted out, when, after a year's rest, they are as vigorous as ever.

WM. BROCKBANK.

Brockhurst, Didsbury.

WINTERING FLORISTS' FLOWERS.

SEVERE frosts and heavy snowstorms have prevailed in some districts, and disastrous floods in others. About London, however, we have had what may be termed an open winter, one that has been upon the whole favourable to florists' flowers. Nevertheless, let the winter be what it may, there are always some who cannot steer their collections of florists' flowers through it without heavy losses in the way of Auriculas, Pinks, Carnations, Pansies, and some other flowers. May I be allowed to state that we have scarcely any losses amongst our florists' flowers during winter? It may therefore be of service to those who cultivate these plants to know how we keep our collections intact.

THE AURICULA is still stated to be a difficult plant to keep through the winter, and difficult to manage even in summer. Nothing can be further from the truth. If the plants receive water when they ought to be dry, or suffer from lack of water when they require it, and withal are allowed to become a prey to green-fly they will die, as any other class of plants would do. During November, December, and January very little water is required. They should be placed in frames in an open, airy position early in October, but before placing them there, the frames and pots should be made clean, and air ought to be freely admitted both by night and day, unless very severe frosts should set in. Remove dead and decaying leaves once in ten days. Water merely to prevent the plants from becoming dust-dry, but never during frosty weather.

CARNATIONS AND PICOTEEES.—Of these we have wintered a large collection this year out of doors exposed to all the vicissitudes of the weather, but this is not the treatment which they ought to receive. All the choice varieties ought to be planted in small pots about the month of October, so that they may be wintered in cold frames and be freely exposed to the air like Auriculas. Here, again, cleanliness is a matter of vital importance. Green-fly does them much mischief, and if not destroyed will cripple them, so that they will not produce any full-sized well-marked blooms. We look over our plants about twice during the winter months to remove decayed leaves, and, if necessary, to stir up the soil in the pots. It is a good plan to fumigate them two or three times during winter whether there is green-fly on them or not. They require rather more water at the roots than Auriculas. Carnations and Picotees, I need scarcely say, are quite hardy during the severest frosts. We never cover the glass; keeping the frames close in winter, covering with mats during frost, and watering when the plants do not require any is the cause of disease and weak, spindly growths. The pots in which the plants are wintered had better be too small than too large.

PINKS.—In ordinary well drained garden soil these pretty sweet-scented flowers will stand the winter in the open ground, and require very little attention. They must, however, be well established before severe winter weather sets in; it is necessary, therefore, to plant them in September. I

generally prepare the ground early in that month by trenching it about 18 inches deep, and if the plants can be set out 6 inches apart from the middle to the end of the month they will succeed admirably. The beds should be raised, say, from 3 inches to 6 inches above the level of the paths. The plants root firmly into the ground before cold winter weather sets in, and they are not so easily thrown out by alternate frosts and thaws, as late planted ones are. Pinks are sometimes eaten off in winter, and one is sometimes puzzled whether it is rabbits or the leather-coated grub that does the mischief. Both feed after dark, and a few turns round at night with a good lamp will discover the depredators. Although the plants are comparatively safe in the open ground, a cautious florist will not trust all his plants there; and besides, some varieties are of a more delicate constitution than others. It is a good plan to pot one or two pairs of each variety. A single pair should occupy a 3 inch-pot, so that they may be wintered in a cold frame the same as Carnations. Those wintered in frames may be planted out in the open ground in March. I fancy, however, that those planted in autumn produce the most perfectly laced flowers.

PANSIES.—These require treatment very similar to that usually given to the Pink, but they do not seem to winter in the open borders quite so well, although the losses are unimportant if the plants are put out early; still, as a matter of precaution, it is best to place a plant or two of each variety in pots and winter them in frames. It is a good plan to cover the surface of the beds after the plants are established with dry, fine soil, to which a liberal portion of powdered charcoal has been added. Let this be spread thinly and evenly over the surface, and the plants should be pegged down to it to prevent their being injured by wind. Seedlings, in the shape of strong autumn plants, make a grand display, and not 1 per cent. of them are injured by severe winter weather. Wireworm will sometimes do much damage both to Pansies, Pinks, Carnations, and Picotees. The Pansy also likes rich soil, and prefers cow manure to all others.

HOLLYHOCKS.—It is earnestly to be hoped that this noble autumn-blooming plant may again be brought into prominence. The choicest varieties in some instances are not so easily propagated as Dahlias and Roses; but in general there is not a great deal of labour required to keep the collection intact. The plants should be potted into 6, 7, or 8-inch pots in autumn or be planted out in cold frames. The main thing is to protect them from too much wet. Early in February cuttings should be taken from the stools and potted in sandy soil, placing them in a gentle bottom heat in the forcing house. Autumn-struck cuttings ought to be wintered either in a cold frame or near the glass in a cool greenhouse, or in any house from which frost is excluded. They may be potted on into larger pots any time during this month. Strong seedlings planted in the open ground in September generally stand well during the winter in the open ground. If planted about 3 feet apart they will flower very strongly during the ensuing season.

J. DOUGLAS.

Loxford Hall, Ilford.

Shortia californica.—Owing to a misconception of the statements in the American paper from which the account was taken by M. Sisley, when writing to the *Révue Horticole* for January 16, the above named plant was said to be identical with *S. galacifolia*, which it seems is not correct, as the two plants are entirely distinct and different the one from the other; and as this error was unwittingly reproduced in the last issue of THE GARDEN (p. 100), I think it but right that it should now be corrected. The *Shortia galacifolia* is an excessively scarce plant, of, I should think, little, save botanical, interest, and closely allied to the family of Pyrola; a single plant of it growing in the garden of the Paris Museum of Natural History is believed to be the only one now in Europe. *Shortia californica* is a synonym for *Hymenoxys californica*, and is a composite allied to *Bæria chrysostoma*. It is of this plant the wood-

cut is given in the *Révue*, and of which seed is offered by Messrs. Vilmoren.—W. E. G.

SNOWDROPS AND RAIN.

THESE seem fairer and purer from the constant floodings to which they have been subjected this winter. The rains have neither washed the pearly whiteness out of the flowers, nor the pleasing and deep verdure out of the leaves. Some of the finest patches I have ever seen were clothing the surface of flooded lawns about the 20th of January. This shows that the Snowdrop is equally at home in hot soils and cold, heavy soils, and light, wet soils, and in dry. It often looks best and grows most vigorously contiguous to running or standing water. In early seasons it is sometimes practicable to have early Forget-me-not (*Myosotis dissitiflora*) in flower with the Snowdrop. But this is rarely the case, and the best companion plants are some of the earlier flowering blue Squills. But indeed the Snowdrop needs no support to render it the fairest and most pleasing flower of the spring. Its immunity from insect enemies and the attacks of rodents and birds, and the wonderful rapidity of its increasing alike by seeds and offsets if simply left alone, renders the Snowdrop the easiest and most desirable flower to grow by thousands and hundreds of thousands. And yet we seldom see a garden sufficiently full of Snowdrops. Even in those filled to repletion there is still room enough in wooded copse, shrubbery, lawn, mead, and hedgerow to hold myriads more Snowdrops are seldom seen in hedgerows, though no plant, not even excepting the Primrose, that claims and clothes these by right, looks more chaste and beautiful in such positions. In ferneries the Snowdrops look and do their best before the fresh fronds of the Ferns begin to creep forth at the bidding of warm weather. By the way, can anyone inform me what preys on the tiny roots of the golden Aconite when planted among Ferns as a companion plant to the Snowdrop? Having a taste for grouping plants in pairs, I thought the patches of gold in close proximity to drooping masses of silver would produce a charming effect, and therefore planted them pretty extensively. But the little Aconite has nearly disappeared, while the Snowdrops continue to spread and colonise among the Ferns. Possibly the situation is too shaded for the former, though I have seen great masses of gold even under the overhanging boughs of trees. One more question. Has anyone succeeded in having good Snowdrops at Christmas? and if so, will they kindly describe in THE GARDEN how they forced them?

D. T. FISH.

Hypericum empetrifolium.—"T. C. L." (p. 116) complains that this plant has died, and asks a question about the soil it ought to have. It is more likely that frost killed it than soil, as it is no more hardy than its near relation, *H. Coris*, though both of them are included in many catalogues of hardy plants; but it must be recollected that hardy is a relative term, and that different standards of hardiness apply to the climate of the Isle of Wight, and Kew, and Yorkshire. All the plants of *H. empetrifolium* were killed on my rockery by the frosts of the second week of December, but I had taken care to provide a stock for next year under glass. It is a pity that so many of the prettiest St. John's Words are tender, but the best of all the genus for rockeries, *H. reptans*, seems able to stand ordinary winters. If "T. C. L." will send me his address, I think I can give him *Mertensia maritima*, which does fairly without sea air, though it is troublesome to keep, but I rescued several seedlings from slugs last summer.—C. WOLLEY DOD.

The Oyster plant (*Mertensia maritima*) used to be grown for sale by Mr. Stark, of Edinburgh. I have seen the plant growing on the coast near Balbriggan, in flower. I believe it is exclusively a maritime plant in a wild state.—CHARLES McDONALD.

INDOOR GARDEN.

LACHENALIAS AND THEIR CULTURE.

THE annexed woodcut represents an unusually fine *Lachenalia* recently sent to THE GARDEN office by Mr. Smith, of the Caledonian Nursery, Guernsey, under whose care this and several other pretty kinds of *Lachenalia* are exceedingly well grown. No doubt the plant figured is what has been called *L. pendula* var. *splendens*, though I am inclined to think that good cultivation and not any distinct varietal character has given rise to the last mentioned name. *L. pendula* is the best of the known *Lachenalias*, though some of the varieties of *L. tricolor* are not far behind it either in richness of colour or size of bloom. The late Mr. Nelson produced what is really a handsome and quite distinct addition to cultivated kinds, viz., *L. Nelsoni*, a seedling, I believe, from *L. aurea* and *L. luteola*, both of which, according to Mr. Baker, are varieties of *L. tricolor*, as is also what is known in gardens as *L. quadricolor*. For garden purposes, however, they are all sufficiently distinct to warrant us in retaining the old names, names, too, which are specially serviceable in distinguishing the one from the other, as they are descriptive of the colours of each kind. *L. pallida* and some of its varieties, of which several rather attractive ones have lately been in flower at Kew, and *L. orchioides*, a prettily marked species, are others of the genus deserving of cultivation.

Like a good many bulbous plants from the Cape, *Lachenalias* are winter flowering. They are so easily grown and flowered, and require so little fire heat, that no one possessing a cool greenhouse or even a frame need hesitate to add a few of them to their collection. Grown in pots, they look well in the front row on a stage or on a shelf, while planted in suspended wire baskets they make effective objects when in flower for hanging in conservatories. In Vol. XIX., p. 286, a few notes on the requirements of these plants will be found which are sufficient to enable would-be cultivators to succeed with them. *Lachenalias* have not inaptly been compared to our own Bluebell (*Scilla nutans*)—they suggest such a comparison from their habit and time of flowering. Indeed, the Cape colonists look upon them with the same affection as we do on our woodland pet. *Scillas*, *Chionodoxas*, *Muscari*, *Hyacinthus*, and *Lachenalias* are all of them among the most choice of our small herbaceous Liliaceous plants. It would be interesting to try whether the improvement effected through attention and skill in the case of *Hyacinthus orientalis* could not be brought to bear on the *Lachenalias*. We know that our now magnificent garden *Hyacinths* have all been worked out of the comparatively insignificant little species just mentioned, a plant with a flower-spike 3 inches long and about half that across. Compare this with some of the giant *Hyacinths* which we now see at our exhibitions, such as Lord Macaulay, Gigantea, or Grand Lilas, and it will seem almost incredible that such great improvements should have been achieved. Of course we must remember that some plants do not yield so readily to the inducements of the cultivator and hybridiser, and “break” into something better as others do, but Mr. Nelson has proved that in the case of *Lachenalias*, at all events, better varieties may be obtained than those we now possess. It would be worth while trying to get better still. Does any reader of THE GARDEN, let me ask, know anything of *L. stolonifera*? It is a narrow, long-bulbed species with green leaves; the flowers I do not know. I have had it several years now, but cannot get it to bloom. Our plants came from Messrs. Henderson, Maida Vale, and probably Mr. O'Brien knows something of it. I may mention that Mr. Baker does not include the name in his monograph of Liliaceae. B.

In reference to *Lachenalias* generally, Mr. Smith says: “Were I growing a few of the most distinct for decorative purposes only, I should select the following, viz., *L. aurea* (Mr. Nelson's form), *L. luteola*, *L. Nelsoni*, *L. pendula*, *L. quadricolor*, and *L. tricolor*. In one of Mr. Nelson's letters to me he says, ‘There are many views about the nomenclature of *Lachenalias*’—a

statement, alas, too true, as all who have attempted to form a collection have found to their annoyance. *L. Nelsoni* is certainly the finest all-round yellow. As to treatment, we pot during September and October, six bulbs in a 6-inch pot in soil consisting of two parts loam, one part well decomposed manure (that from an old hotbed answers well), one part sand, and a dash of dry wood ashes. This compost should be used in a fairly dry condition; the bulbs should be placed



Flower-spike of *Lachenalia pendula*.

about 2½ inches below the surface on a little layer of perfectly dry sand; they may then be left in the potting shed or any convenient place without water for about three weeks; by that time root action will have commenced, after which gradual watering should begin. A good plan is to examine a pot or two previous to using water in order to see if rooting has taken place. After that an abundance of light and air is the most important requisite; when the flower-spike can be first seen nesting down amid the foliage an occasional watering with weak liquid manure will be beneficial. After flowering let them still enjoy full sunlight, and as the foliage turns yellow gradually withhold water; thus by the time the bulbs are ripe the soil will be dust dry. They should then

be turned out of their pots and placed in a dry cupboard or drawer, there to be left till the potting season comes round again.”

FORCING IN FRAMES.

It is surprising what may be done in frames in the way of forcing, especially where plenty of leaves, stable manure, or tan can be got, as by the aid of either heat highly congenial to vegetation may be obtained at a trifling cost. The great thing in starting is to see that the manure, or whatever is used, is well sweetened, i.e., freed from rank steam, fiery gases, and its fermentation moderated before the bed is formed. When ready for use, the bed must be staked out according to the size of the frame, allowing about a foot larger all round, so as to insure plenty of base for it to stand on. The height will depend on what is intended to be forced. If for Cucumbers, or anything of that kind where strong heat is required, 4 feet will not be too much, as the bed subsides a good deal unless trodden firmly when made up, which is not a good plan, as it often prevents the material from heating in the regular manner it does when put more lightly together. Although many like a solid hotbed, I prefer one made up with a foundation of faggots or bushes, as then it is an easy matter by applying linings around to send fresh warmth under whenever there is any decline, which cannot be done so quickly and certainly when the manure and leaves get closely compressed by the weight of the frame and soil constantly bearing them down. For beds that have not to last any great length of time, and are only required for Carrots or Potatoes, from 2 feet to 3 feet is quite high enough if the material they are made with is good, as all Carrots and Potatoes require is just heat enough to start them well on their way. In the growing of either

Carrots or Potatoes light soil should be used; for the former a good deal of sand is beneficial, and the latter like leaf-mould. To save time while the frame is being made up and got ready Potatoes may be forwarded in small pots or boxes, and then planted out in the bed, where to economise space, Radishes and Mustard and Cress may be sown between the rows, or young Cauliflower or Lettuces raised, as any or all of these will be off before the Potatoes require the room. The distance at which to plant Potatoes is about a foot from row to row, and 9 inches from set to set, which is quite enough for Ashleaf or Myatt's, the two best sorts for growing in frames. If

Cucumbers are to be grown, some half rotten leaves should be scattered over the bed, and then a ridge of soil laid along the middle to warm. What suits Cucumbers best is fresh cut loam, just the thin top spit with plenty of fibre. This should be chopped up roughly, and laid in the frame lightly, as the more loose and open it is, the more freely will the roots of the Cucumbers be able to ramify. Unless the frame is very large, one plant to a light is quite enough, as by training a branch back and front the ground may soon be covered with fruit-bearing shoots. The bottom heat necessary to grow Cucumbers quickly and well is about 85°, and if kept steadily at this, with a temperature inside of 65° by night to 75° by day, the progress of the plants will be rapid and the stems strong. In giving air, which should not be done till the thermometer runs up to 75°, great care is requisite, or cold, cutting winds will rush in. To prevent this the lights should only be just tilted behind, so as to open them about half an inch, as with that much the glass may be allowed to rise 10° or 15° by the aid of the sun without any danger of burning or injuring the leaves. Cucumbers in frames so early in the season require but little water, either at the roots or over the foliage, as the steam from the manure supplies moisture, but on hot days it may be necessary now and then to sprinkle the foliage, but this should never be done unless the water is warm, as it would otherwise cause a chill and stunt the plant's growth. Some think Cucumbers only set by being impregnated, which is a most mistaken notion, as the setting is quite unnecessary,

unless seed is required, for the fruits swell just as well when there are no male flowers near, and the plants do much better without them. This being so, they should be pinched or rubbed out as they show, and the shoots stopped one joint above the young fruit, which will prevent the frame becoming too crowded with foliage. Besides Cucumbers, Potatoes and Carrots, Asparagus forces well in manure frames at this season, and if roots are taken up and put in on a gentle heat, heads will soon be fit to cut. To get these stout and well coloured and of good flavour, air should be given on sunny days and whenever the weather is favourable. S. D.

ERYTHRINAS AND THEIR CULTURE.

OF this gorgeously flowered genus, which in tropical forests is represented by many richly flowered species, both in the large tree and bush forms, we have at least one useful and very ornamental kind in cultivation, as well as several others more or less known and remarkable either for handsome foliage or richly coloured flowers. *E. Crista-galli*, or the Cockscomb Coral tree, as it is called—which is rather a long name, although perhaps with some, at least, preferable to the Latin name of which it is a literal translation—is one of our most useful greenhouse plants, as well as being one of the most gorgeously flowering subjects for outdoor summer bedding. In some of the London parks one may see beds of this plant in the autumn which are a glowing picture of scarlet and deep green, something to talk about, as one might say, while in some gardens the fitness of this species for greenhouse and conservatory decoration is amply testified to by the fine, profusely flowered specimens sometimes met with. Being an old-fashioned plant, we nearly always find this *Erythrina* in old-fashioned gardens. But, like many other antiquated fashions and ideas, some of these old-fashioned garden plants often find their way back to favour; as George Elliot says, they are just old enough to come into popular favour again. I do not mean to say that this *Erythrina* has ever quite gone out of favour in some quarters, but as we often find occasion to say of similar plants, it is not nearly so much in favour as it deserves to be. We grow this species in quantity for conservatory work, and as the season for working up a stock of such plants is just commencing, a note or two on *Erythras* may be seasonable just now. Old stools of

E. CRISTA-GALLI should at once be placed in a warm, genial temperature and well watered and syringed. This treatment causes them to break freely. On the young shoots becoming 4 inches or 6 inches long they may be taken off with a little of the old wood attached—a heel, as we say—and placed in a sandy soil in a propagating frame, where they will soon emit roots. Pot them on as they grow, using a mixture of loam and cow manure, and keeping them in a humid stove temperature until they are strong plants, when they may be gradually hardened off preparatory to their being placed out-of-doors if in the warmer parts of this country, or they may be grown on for indoor work. Abundance of water at the roots as well as overhead are necessary to the well-doing of this plant. As I have already hinted, it prefers a mixture of loam and cow manure, quite one-third of the latter to two of the former being not a bit too rich for it. As winter advances the plants should be potted up, and after becoming established dried off, that is, should they have been planted out of doors. They may be kept in any warm greenhouse under the stage until the time arrives for starting them again.

E. BIDWILLI is a hybrid between the above and *E. herbacea*, and combines the characters of its two parents. The shoots are annual, as in the above, and the flowers are borne in the axils of the leaves as well as on a terminal spike. This kind may be treated as advised for *E. Crista-galli*, and it is quite as useful a plant.

E. HERBACEA is a pretty dwarf-growing kind, deciduous like the two last, and bearing its flowers

on leafless axillary spikes at the base of the leafy shoots. It is a lover of a little warmer treatment than those above mentioned require; in other respects the treatment may be the same. Coming now to the ornamental foliaged kinds, we have in

E. MARMORATA a handsome stove plant worthy of a place in every collection where variegated leaves are desired. It is a large broad-leaved species of compact, yet elegant, appearance, and is remarkable for the beautiful marbling of its foliage, which is often blotched and spotted with more white than it has green. Being evergreen, too, it may be grown into a very handsome specimen. One of Messrs. Veitch & Sons' introductions, and in my opinion one of the best of variegated stove plants. It is a tropical species, being a native of the South Sea Islands.

E. PARCELLI is a tall-growing stove plant, very elegant, with trifoliate leaves, the leaflets being marked with a yellow variegation which spreads from the costa and veins almost to the margin. Treated liberally, it soon grows into a tall and beautiful plant, also a native of the South Sea Islands. Like the stocky-stemmed hardier kinds, these stove species delight in liberal treatment as regards soil and water. Other species, such as *E. indica*, are sometimes met with in botanic gardens, but as they are not free flowering under cultivation, at least they need not be mentioned here. There are several varieties of the Cockscomb species, some of which are superior to the type, such as *E. compacta*, *E. laurifolia*, &c.

B.

Simplex glazing.—This method consists of small neatly-made deal rafters, about 2½ inches by 1½ inches in size, upon the uppermost surface of which is fixed a double layer of thin lead strips, the two even ends of which terminate along the centre of and about 1 inch above the rafter. The squares, in width according to the distance of rafters apart, are then laid on the flat part of the lead, and the two projecting ends are then pressed closely over the squares on either side of the rafter. The simplicity of this arrangement, and the comparative ease with which the squares may be fixed by even unskilful hands, highly commend it to notice. At the same time there are one or two faults in connection with it which cannot be overlooked by practical men. Lead is unfortunately easily affected by heat, and when fully exposed to the sun on glass roofs in summer, the edges quickly curl upwards, and the rain in this case would then be freely admitted inside the house. Also as the pressure of the lead on the glass decreases from the same cause, the squares would have a tendency to slide out of position, unless secured by other means. Again lead by the action of soft water upon it leaves an unsightly deposit on the glass, which cannot be easily cleansed, and in time becomes highly objectionable. If these faults can, however, be overcome, the Simplex method of glazing may have a prosperous and profitable future.—T. C. W.

Tuberose culture (see p. 123).—Tuberose may be potted from January to June, but only a few should be reserved for the last-named period. From those potted in June we have had flowers at Christmas, but from some cause or other we lost more than half of them in consequence of the buds turning yellow; but as one flower at that season is worth half a dozen in September, the time at which we had the bulk of the plants in flower, we had to be content. Anyone wishing to secure a few flowers at Christmas should place the bulbs, after being potted, in a frame, covering them over with 2 inches or 3 inches of ashes or Cocoa-nut fibre; a wooden shutter over them will be better than glass. Glass must be heavily shaded and well ventilated, the object being to retard them as well as to protect them from rain. When they start into growth raise them out of the material in which they are plunged, but they may remain in the glass-covered frame until the temperature falls below 50° at night. When once started they must be pushed briskly on. They will require a temperature of from 55° to 60° to enable them to expand their

flowers in November and December. It is best to place one bulb in a 4-inch pot, using soil consisting of three parts loam and one leaf-soil, with a sprinkling of sand, pressing it firmly round the bulb, which should be inserted half its depth in the soil. It is seldom that Tuberose require watering until they start into growth; even then it must be judiciously applied. Over-watering has been productive of more failures than anything else. When once the flower-spikes are visible the plants must not be allowed to get dry, and they will be benefited by applying stimulants in a liquid form, which I prefer to using organic matter in the compost. It is seldom they all flower; one or two out of every dozen invariably fail with me as well as with others who have grown them largely. Bottom heat of from 60° to 70° will assist in reducing failures to a minimum, and it should be applied in the shape of a hotbed; thus the top heat can be kept comparatively low, say from 50° to 60°, and the bottom heat can be regulated by renewing the linings. Plunged in a moist hotbed, they seldom require water until they have grown 4 inches to 6 inches. As regards sorts, I have no partiality for one more than the other, and your correspondent will find both Italian and American good, *i.e.*, if he procures his bulbs from a reliable source. Tuberose are subject to red spider, but in some houses they may be grown without a trace of it. When it makes its appearance water is the best remedy, applied by means of a syringe. The surface of the leaves being smooth, the insects are readily washed off. —W. P. R.

RECENT PLANT PORTRAITS.

THE number of the *Botanical Magazine* for February contains coloured portraits of the following plants:—

BILLBERGIA (HELICODEA) PORTEANA (a double plate, No. 6670).—This plant is a native of Brazil, and is a member of the family of the Bromeliaceæ; it produces long pendulous spikes of curious purple and green flowers, surmounted at top of stem by numerous brilliant rose-coloured bracts or involucre, and is said to be one of the most striking of all cultivated Bromeliaceæ. It flowered at Kew for the first time in summer of 1878, and again in June, 1882, when the present drawing was made.

POGONIA GAMMIEANA (Plate 6671).—A curious and handsome foliaged Orchid from India, where it is found in hot valleys below Darjeeling, and also in the Western Himalayas about Bagesar. It produces spikes of pendulous and rather pretty pink flowers, and is said to be extremely difficult to cultivate. It flowered at Kew in May, 1881.

MICROGLOSSA ALBESCENS (Plate 6672).—Native of the Himalaya. This plant was introduced so long as 1842, but is still very rare and comparatively unknown in gardens. It is described as a very handsome hardy flowering shrub, with bunches of small starry purple blossoms. It bloomed for the first time in the gardens of the Royal Horticultural Society at Chiswick, and has been described under no fewer than nine different names.

PSEUDODRACONTIUM (AMORPHOPHALLUS) LA-COURI (Plate 6673).—A singular Aroid from Cochin China, whence it was introduced by M. Linden, who sent it to Kew, where it flowered in May of last year. Its foliage is distinctly spotted with white; it was discovered by a French collector, M. Contest Lacour, after whom it was named. Its flower-scapes are of a greenish colour, and probably when fully developed attain a much larger size than here figured.

PLEUROPETALUM COSTARICENSE (Plate 6674).—Native of Central America. A very handsome half-shrubby plant bearing bunches of brilliant red fruit about the size of a small pea; well adapted for pot culture in a moderately warm house, where it is said to retain its beauty for several months. This plant was sent to Kew by Dr. Wendland. It flowers in the Palm house in the autumn and ripens its fruit in winter.

The last number of *La Belgique Horticole* contains a fine triple plate of a very curious Bromeliad named *Vriesia tessellata*, the foliage of which is veined over with cross lines somewhat resembling the structure of that curious aquatic known as the Lattice plant; also a plate of *Masdevallia Chimæra*, the best representation of this curious species that I have yet seen. The *Revue de l'horticulture Belge* for February contains a pretty group of four *Masdevallias*, representing the following varieties of this showy family—*M. Lindeni*, *M. Veitchiana*, *M. amabilis lineata*, and *M. towarensis*, with three flowers open simultaneously on same stem. The last number of Regel's *Gartenflora*, completing the volume for 1882, contains coloured plates of *Odontoglossum Murellianum* var. *cinctum* (plate 1101), a very pretty Orchid with white flowers margined with light purple and a distinct golden centre with handsome markings. *Ethionema grandiflorum* (plate 1102), a very ornamental low growing herbaceous plant, producing quantities of bright rose-coloured flowers resembling those of a Ten-week Stock, also woodcuts of *Crinum australe pedunculatum* and *Trichocentrum Pfaui*, apparently a very handsome Orchid. W. E. G.

PLANTS IN FLOWER.

A SEEDLING PRIMROSE of the duplex or hose-in-hose class comes from Mr. Dean's seed grounds at Bedford, where at present Primroses of every type and hue abound. This seedling has flowers of a rich rosy mauve colour, and the corolla being duplicated makes it a very showy variety.

FLOWERS of CHOICE BULBOUS PLANTS sent us by Mr. Barr remind us pleasantly of the return of spring. Among them are the *Galanthus Elwesi*, the handsome Snowdrop noticed last week; *Iris reticulata Krelagei*, the early form of this lovely netted *Iris*, with flowers of a more violet tinge than the type; and the Spring Snowflake (*Leucojum vernum*) with its snow-white bells so prettily tipped with green.

EUCHARIS AMAZONICA.—Will you kindly note that we have here (Roseneath) two plants of this *Eucharis* in flower—one with twenty-four spikes, the other with eleven, each spike producing from four to seven flowers, numbering altogether 186 blooms. I may add that both plants were in flower last October, and that each then produced from eight to twelve spikes.—CHARLES MAY, London Road, Enfield.

PRIMULA FLORIBUNDA is quite a little gem among Primroses. It is not much to look at, but the colour of the tiny flowers is such a rich golden yellow as is seen in but few if any of the other species. It grows but 4 inches or 5 inches high, at least in the case of the specimens which we saw in the Chiswick garden; from a tuft of leaves it produces a slender flower-stem terminated by whorls of flowers as big, say, as a threepenny-piece. It was exhibited at the last meeting at South Kensington from Messrs. J. Dickson's nursery at Chester. It is a Himalayan species.

HABROTHAMNUS NEWELLI, a seedling raised by Mr. Brotham of Ryston Hall, Downham Market, is a fine greenhouse shrub, suitable for draping pillars or hiding rafters. It is an improvement on such as *H. elegans* and *fasciculatus*, inasmuch as the colour is brighter, being a carmine-crimson and more floriferous. Flowering throughout the winter, it is very useful for cutting from, and it affords plenty of material for the flower basket when most required. In the Horticultural Gardens at Chiswick there is a fine plant of it in flower under the roof of one of the houses.

MILLA LEICHTLINI, a little Chilian bulbous plant, gives one the impression at this season that it is trying to flower and cannot, the flower-stalks being so short that the half-grown leaves and numerous flowers are mixed together. A plant in the open border at Kew is just now in this condition, and were it not that it has so very few rivals it would be unnoticed. The flowers are about the size of those of the favourite *Triteleia uniflora*

(which by the way is also, strictly speaking, a *Milla*), and are paper white, lined with green. We have known *Leichtlini's Milla* for about eight years, but we have never seen it much better than we have just described it; therefore it can be only recommended to one specially interested in bulbous plants. After all, perhaps it is our own climate and not the plant that is at fault. It may be quite a gem in a Chilian autumn.

STAPHYLEA COLCHICA.—Quite out of the ordinary run of forced flowering shrubs is this pretty plant which we saw the other day so beautifully in bloom in the garden at Gunnersbury Park. The flowers, which are pure white, are produced in clusters on the end of each twig, and are sufficiently numerous even on small plants to be effective. A pleasing set-off to the delicacy of the blossoms is the tender green of the foliage, which begins to unfold just about the same time as the flowers. Mr. Roberts speaks highly of it as a decorative plant at this season, and forces it pretty extensively. Pretty as it is, it does not seem to be much known, though Messrs. Veitch introduced it, we believe, some ten years ago or more. It needs the same treatment in forcing as shrubs of a like character, such as *Lilac*, *Deutzia*, and *Azalea*.

THE YELLOW COLCHICUM (*C. luteum*) sent us by Mr. Barr has a peculiar interest, inasmuch as it is the only yellow flowered *Colchicum* known. The whole plant does not exceed 4 inches or 5 inches in height. It bears its bright yellow blossoms while yet the leaves are but half developed. The blossoms, usually two or three from each corm, are about 1½ inches across when expanded, and as bright a yellow as the Cloth of Gold *Crocus*. It is a native of the mountains in the extreme west of India, beyond the Indus in Hazara, at an elevation of 7000 feet, where it flowers in December and January. It seems to flower a little later in the country, but much depends on the state of the weather. It has been introduced some seven or eight years, but is even now a rarity. It is quite hardy and thrives well with other species in a deep loamy soil.

PURPLE SCABIOUS flowers are not as a rule seen in winter, but they are now to be found in Baroness Rothschild's garden at Gunnersbury Park, where Mr. Roberts grows this plant better and on a larger scale than we have seen it elsewhere. Spacious cold frames, leaning to the south, so as to catch every glimmer of a wintery sun, are filled to overflowing with them. The plants are in 6-inch pots, dwarf and bushy, and covered with flower-heads, notwithstanding that a supply of flowers has been cut from them since autumn. These *Scabious* are also useful for adorning a conservatory, but if for no other purpose than for producing an almost inexhaustible supply of beautiful cut blooms they are worth attention. The way in which Mr. Roberts specially prepares them for winter blooming has been told so often in THE GARDEN that repetition is needless.

CLEMATIS INDIVISA.—When greenhouse roofs are conspicuous by their bareness in the way of flowers, it is well to have at least one plant to rely on for winter bloom, and this New Zealand *Clematis* with its garlands of white blossoms embowered amid glossy evergreen foliage is the best one could recommend anybody to grow. It not only flowers in winter, but in spring and summer; in fact, it is somewhat erratic on that point. In the conservatory (No. 4) at Kew it is in bloom, and probably in a month or two hence the fine specimen of it that trails along the north side of the temperate house will be wreathed in white, and we have seen Mr. G. F. Wilson's fine plant of it in the garden at Gishurst Cottage in full bloom in summer. Its flowers are pure white, star-shaped, as big or bigger than a crown-piece, and produced in elegant loose clusters. It is little or no trouble to grow, and flowers well in an ordinary greenhouse with a good bed of soil to start with, and the usual treatment afterwards. It seems to have a liking for a shady part of the house, for the best flowered plants we have seen of it have been in partial shade.

AMERICAN NOTES.

Virescence in the Rose.—A specimen was lately shown to the Torrey Club by Mr. Braman of what is popularly called a "green Rose"—a condition of the flower in which chlorophyll is substituted in the petals for the usual colouring matter.

The tree flora of the foot hills in Eastern Colorado is said in the "Proceedings of the Torrey Club" to be much more abundant than that of Southern Wyoming. *Pinus ponderosa*, known as yellow Pine, was very plentiful, and attained there a height of 80 feet to 100 feet, and was a very valuable timber tree. *Pinus edulis*, the "piñon" of the Mexicans, was a small tree extending as far north as Colorado Springs; *Juniperus virginiana* was occasional; *Abies Douglasi* was quite plentiful at middle elevations, attaining a height of 75 feet, and known as Swamp Pine; the narrow-leaved Cottonwood (*Populus balsamifera* var. *angustifolia*) and also *P. angulata* were frequent along the streams; *Salix nigra* var. *amygdaloides* and *Negundo aceroides* were frequent along the Platte River. The most abundant shrubs were *Quercus alba* var. *Gunnisoni*, the only Oak of the foot hills, except *Q. Emoryi*, which was scarce and was a scrub Oak, seldom rising higher than 10 feet and occurring plentifully on the dry slopes; *Cercocarpus parvifolius*, *Spiræa dumosa*, *Prunus americana*, *Vitis riparia*, and *Acer glabrum*, the Mountain Maple, were also plentiful.

Select garden vegetables.—Among the finest Squashes recommended by the secretary of the Massachusetts Horticultural Society may be named the Butman, which is beautiful in colour, excellent in quality, a good keeper, desirable for amateurs, but not very productive. The Marblehead is like it, both better than the Hubbard, of which they are sub-varieties, and both moderately productive. The Essex was obtained by crossing the Turban and Hubbard, a remarkable sort, uniting the excellence of the Turban with the keeping quality of the Hubbard. It is a rapid grower, ripens early and may be planted as late as the 1st of July. Marshall Wilder said the Essex and Hubbard would fill the season. Mr. Gregory said the Marblehead Squash was brought from the West Indies, and he recommended raising only the best sorts, even if not the most productive. They would be worth more in the end. Mr. Ware said that Fottler's Improved Brunswick Cabbage is the best early variety, and that Mr. Fottler sold his seed for its weight in gold. It has now run some years and has gained in size and lost in earliness. In Marblehead, where the Cabbage is the most important of all crops, it was formerly preferred to the Stone Mason, but is now less reliable. The last named was introduced some forty years ago by Mr. Mason and afterwards improved by Mr. Stone. It makes solid heads of excellent quality. The American Improved Savoy is an improvement on the old Savoy, having smaller stumps and larger heads. Mr. Gregory said the Stone Mason Cabbage has one fault—a tendency to rot at the stump. As regards Tomatoes, Marshall Wilder said he had tried all the new sorts, and had settled on the Acme and Paragon. Mr. Ware thought these two superior to all others. As to Potatoes, Burbank was highly commended. Early Ohio is earlier than Early Rose and is of fine quality. The Bell is probably the best new sort. Among Peas, several had found the American Wonder the best early dwarf variety, and Champion of England was the general favourite for a late one. Mr. Gregory said the John Bull Pea has very stocky leaves; pods and Peas both very large, and it fills out well. Hancock's Early was the most satisfactory among the hard yellow sorts. Mr. Wilder said Breck's Excelsior is an excellent variety.

Mistakes in grafting.—Some of the supposed remarkable changes effected in fruits through the influence of the stocks employed in grafting have proved to be nothing more than mistakes made by the grafters. Mr. Hovey stated this year at a meeting of the Massachusetts Horticultural Society that many years ago, when the

Lewis Pear was first introduced, and was supposed to be valuable, he planted six or eight trees, but finding them to be small and unprofitable, he regrafted them with Beurré Bosc. Afterwards a Bosc tree, when it fruited, bore a small green Pear, inducing some persons to suppose it a striking case of graft hybridism, but it proved only that the man who cut the Bosc scions from one of the original Lewis trees had cut one of the shoots below the graft. Another curious instance was where a well-known fruit raiser had grafted a poor with an excellent sort; the graft, when it bore, gave fruit almost identical with the stock. But he found that in pruning the stock, a shoot had fallen and was mixed with the grafts, and this shoot was used instead of one of the good grafts. Sometimes shoots from the stock spring out so near the place of junction as to be mistaken for those of the graft. Mr. Peter Henderson has doubtless adopted a just view when he remarked that the only distinct change by grafting was where variegated or diseased leaves of the stock imparted the disease to the graft, and apparent and not radical changes are thus made.—*Country Gentleman*.

History of the Lombardy Poplar.—Names are often misleading. People have often endeavoured to trace some relationship between this variety of Poplar and some European species, on account of its name. But the Lombardy Poplar is only so called from its having been introduced to England from Lombardy. It has been traced from Persia, where it abounds, and from the Himalayas to the banks of the Po, and thence to the margin of our English streams.—*Gardeners' Monthly*.

The origin of treeless prairies seems to be referable to annual prairie fires by the growing consent of those who patiently investigate the matter, and thus one of the great philosophical questions of the past age is being finally set at rest. Up to, say, a couple of years ago the belief of Prof. Whitney prevailed that there was something in the finely comminuted soil of the prairies which so firmly enveloped the seed as to prevent the necessary action of the atmosphere in inducing germination. Other hypotheses—all, however, tending to the physical impossibilities of tree growths—were in favour. In the "Proceedings of the Academy of Natural Sciences of Philadelphia" for February, 1881, probably the first philosophic attempt to show the futility of all these hypotheses appeared. It was there shown that there was no reason why the seeds of strong herbaceous plants should not grow and form the well-known flora of the prairies than the seeds of ligneous plants; that herbaceous plants or annuals which could flower and commit their seeds to the earth before a fire flew over them could spread in spite of prairie fires; but that ligneous plants, which required several years of growth before seeding, could not spread when annually burned down; that, as a matter of fact, trees were being raised by the million on the prairies by nurserymen, and that wherever prairie fires were prevented from occurring, the woodlands did actually encroach on the grassy prairie. This view now receives all the confirmation that is necessary from a paper by Mr. Ridgway in the "Proceedings of the National Museum," wherein he shows that the forest area of the Wabash basin has extended to such an extent that numerous small grassy prairies which were common at the first settlement of the country have become transformed to woodland, and that, owing to this encroachment, the forest area of the valley is greater than it was fifty years ago. There are now huge trees of Oak and Hickory, 80 feet high, on what certainly was grassy prairies fifty years ago.—*Independent*.

Bad stoking.—Many garden lovers have suffered from this evil—the dense smoke, heavily laden with soot, so often emitted by the greenhouse chimney, wasting the fuel, fouling the air, spoiling the appearance of the surrounding garden, and by the deposit of soot on the glass robbing the inmates of the house of a considerable portion of the light so necessary to their well

being. As the fogs and clouds of an English winter leave so small an amount of light, it is of the greatest importance not to further curtail it. By a little care in the management of the fire, the evils just alluded to may to a great extent be avoided. The general rule in making up a fire is to pull it to the front of the furnace, and to throw the fresh fuel on the top and behind the clear fire, the heat of which drives off the gas, tar, and other volatile portions of the coal to pollute the air and blacken the neighbourhood, thus worse than wasting a most valuable part of the fuel. Instead of this the clear fire should be pushed back and the fresh fuel added in front; by doing so, the gas, &c., escaping from the fresh coal having to pass over the clear fire behind, is consumed. By attention to this simple matter we obtain the heat desired and burn the objectionable smoke.—*THOS. WOODFIELD*.

GARDEN DESTROYERS.

Mining insects (*G. L. J.*).—Your plants are attacked by the grubs of a small fly nearly allied to the Celery fly. The fly lays its eggs under the skin of the leaves from which the grubs are hatched; these feed on the juices of the leaves, which they obtain by burrowing about within the leaves. You will easily see where the grubs are if you hold the leaves up to the light, and a pinch kills them at once. Some of the grubs have become chrysalides, but the same treatment will kill them.—*G. S. S.*

Root-feeding insects (*C. B. and G.*).—The insects you forwarded are young specimens of a common millipede (*Polydesmus complanatus*); as they feed on the roots of plants any insecticide which would kill them would also injure the plants. The best way to catch them is to place pieces of Potatoes or some other vegetable scooped out with the hollow part downwards in their haunts; they will be sure to crawl under them; small garden pots filled with dry moss are also very successful traps.—*G. S. S.*

Mealy bug.—Young gardeners and amateurs should use "Cambrian's" remedy for destroying mealy bug on Vines with caution. Coal-tar, soil, and lime, made into paint, and every crevice in the Vines filled up, followed by the syringe or garden engine with sufficient force to wash off the bug, would not only dash the foliage to pieces, but would pretty well annihilate the tar mixture, which would wash off with less force than the bug. In the cultivation of all sorts of fruit under glass, make cleanliness the principal object; never heap dirt on to dirt, but with a sharp knife remove all loose bark, and follow with a stiff brush, soft soap, and hot water, and give the glass, woodwork, and walls a similar application; allow them to get quite dry, and then give the woodwork a coat of paint, and wash the walls with hot lime. If these annual cleansings are attended to and thoroughly done, the tar mixture and syringe may be dispensed with; in fact, the syringe should never be used on Vines after the buds break, for the least sediment in the water will injure the bloom. As soon as the Grapes are set, give strict attention to supplying the roots with water, and damp the floors and any available part, so as to create a genial atmosphere, when the finest fruit will be the result.—*JAMES SMITH, Waterdale*.

Complete Index to "The Garden."—The general index, embracing the whole of the volumes from the commencement to the end of the twentieth, is now ready. It has been compiled, printed, and bound with much care, and will be very useful in making more accessible to all who possess the volumes the immense mass of practical gardening matter, plates, and woodcuts embodied in its pages. Those who intimated their willingness to subscribe for it will be supplied at the subscriber's price of 10s. 6d. per copy. As its production has been more expensive than was anticipated, the price has to be fixed at 12s. 6d. per copy. There will be no free copies, and no reduction to the trade on the published price.

London suburban cemeteries.—The state of these may be judged of to some extent by an article in the last number of the *Saturday Review*. The following refers to the state of the Tower Hamlets Cemetery, which, be it remembered, is one of the cemeteries formed since the general closing of the intramural cemeteries scarcely a generation ago: "Portions of the available burial space were set apart for family vaults and brick graves; other portions for family graves marked by the usual head and foot stones; the remainder of the space being used for what are known as 'common interments,' arranged in two or more classes, in which a considerable number of coffins are placed one above another in graves dug to as great a depth as is consistent with safety. Out of the difficulty of providing ground sufficient for these interments the present complaints have arisen. The removal of excavated soil has involved the raising of the level of the ground in portions of the cemetery, and for some years past interments have been made in the ground so raised, which may probably have covered previous graves. But one especial complaint which is now made against the directors is that they are destroying the memorials, tablets, and ornaments which have been placed by relatives over the resting-places of their dead. These marks of affection have been very simple, and often very touching; commonly a framework of wood or other material has been placed round the grave-mound, and within have been set small wooden tablets, or frequently the large shells which seafaring men bring home, and which give a broad surface for an inscription. Sometimes a more special memorial would appear; and for several years over a child's grave near the southern gate of the cemetery a little glass case contained a pair of baby shoes, which no East-end passer-by ever thought of disturbing, till at last the case fell to pieces by decay. A more serious complaint which, in connexion with this destruction of memorials, is being made against the directors, consists in a charge of something approaching to pit-burial. It is said that instances have occurred in which the coffins of children have been removed after interment and placed, to the number of between fifty and sixty, in a single grave. If this statement, or anything approaching to it, can be substantiated, the pressure upon the ground still available for interment must have become so excessive as to call for immediate and perhaps legislative consideration. In the earlier days of the cemetery a practice of pit-burial was introduced for workhouse funerals; but on the attention of the directors being called to the matter, it was at once discontinued."

CATALOGUES RECEIVED.

- Wheeler's (Gloucester) Select Seed List.
- E. P. Dixon's (Hull) Garden and Earm Seeds.
- Parsons & Co.'s (Flushing, N.Y.) Ornamental Trees and Shrubs, with descriptive notes.
- Hiram Sibley's (Rochester, N.Y.) General Seed Catalogue.
- Downie & Laird's (Edinburgh) Garden, Flower, and Agricultural Seeds.
- J. R. Pearson's (Chilwell and Nottingham) Garden and Flower Seeds.
- Richard Dean's (Ealing) Catalogue of New and Choice Potatoes, and choice novelties in Flowers and Seeds.
- Vilmorin-Andrieux & Co.'s (Paris) General Catalogue of Seeds.
- W. Thomson & Co.'s (Edinburgh) Vegetable and Flower Seeds, &c.
- J. Green's (Thorpe, Norwich) New, Rare, and Beautiful Plants.
- Sutton & Sons' (Reading) Potatoes as a Field Crop.
- Liverpool Horticultural Co.'s Vegetable and Flower Seeds.
- W. Fisher's (Burton-on-Trent) Vegetable and Flower Seeds.
- R. H. Vertegans' (Birmingham) Herbaceous, Alpine, and Bulbous Plants and Seed List.
- V. Lemoine's (Nancy) Choice New Plants.
- J. Rock's (San Jose, California) Ornamental Trees.
- R. & J. Farquhar's (Boston, Mass.) Illustrated Catalogue of Seeds.
- Ryder & Son's (Sale) Vegetable and Flower Seeds.
- Braid & Murray's (Kirkcaldy) Seed Catalogue.

PROPAGATING.

PROPAGATING CLEMATISES.

THE usual method of propagating these is by grafting a young shoot on a piece of root of the common kind, that is so far as concerns the ligneous species, the herbaceous ones being of course increased by division. Those for which grafting is employed can also be multiplied by means of cuttings made of the half-ripened wood put in during the summer months; but the most successful way of striking them if the plants are in pots is to put them in a growing temperature about February, when the young shoots will push forth in abundance, but in a somewhat weakly condition. These shoots if taken off readily strike root. The principal thing to guard against is damping off; but when once they have formed roots the danger in this direction is then over. When struck the cuttings must be allowed to have more air than hitherto, and as soon as possible they should be potted off. The advantage of striking thus early is that a long season of growth is thereby secured, and for the same reason grafting should be performed with as little delay as possible. For stocks take strong fleshy roots of the common Traveller's Joy (*C. Vitalba*), or of *C. Flammula*, and cut them up into lengths of from 4 inches to 6 inches, leaving as many of the small fibres attached to them as possible. The scions must be young shoots of the current year, and should not be of too great a length; a couple of well-developed leaves and a pushing bud will be sufficient. Split the top of the stock, then cut the scion in the form of a wedge, and insert it in the cleft portion, being careful not to bruise the tender succulent scion, and also observe that the cut parts fit perfectly together. Then tie firmly and the operation is finished. The grafted root must now be potted in a small pot, sufficiently deep to cover the whole of the point of union. Then plunge the pots in a propagating case where there is a little bottom heat, but before doing this give a good watering to settle the soil. As the succulent shoots are very liable to damp off if moisture be allowed to condense too freely on them, a little air may be given when necessary, but on no account allow them to flag; indeed, if possible, it is better to dispense with the air except when the lights are taken off, which should be done every morning, in order to remove condensed moisture. As soon as a union has taken place, which will be perceived by the centre bud starting, air may with safety be given, and the plants quickly hardened off; when necessary they should be shifted into larger pots. Early propagation in the case of these plants is very desirable; if the cuttings are taken from plants grown under glass the roots should be taken under cover for a few days, just to put the sap in motion. After a time the scion frequently pushes forth roots of its own in addition to those of the stock upon which it is grafted. The greenhouse *C. indivisa* also does well grafted in this manner, besides which half ripened shoots are not difficult to strike.

T.

Propagating variegated Oaks.—The Oak mentioned in THE GARDEN (page 80) is, I presume, a variegated form of the common kind, in which case it must be grafted on young green-leaved plants of the same sort, and even if it be the Turkey Oak (*Quercus Cerris*), the same principle must be carried out, and as young seedlings have been raised from the tree, no better stock exists on which to graft the variegated shoots; cuttings of it will not strike, and variegation is seldom perpetuated by seed in the case of such trees. In grafting several methods may be employed, but in all cases it will be found that the Oak is rather a difficult subject to deal with. If fair-sized stocks are obtainable, cleft graft them after the manner of fruit trees in March, or if the stocks are small, say as large as a lead pencil, pot them and side-graft them about August, choosing for that purpose a half-ripened shoot of the current year's growth. In this latter case, which, in the hands of an ama-

teur, is more likely to be successful than the other, the plants, when grafted, must be kept in a close frame without artificial heat, and do not remove the head of the stock till spring, and then only by degrees. The Oak may also be inarched, but in the case of large trees that is a somewhat difficult matter. In all cases the point of union must be carefully covered with grafting wax to exclude air, besides which care must be taken to tie the graft in securely.—T.

MARKET PLANTS.

THE zonal Pelargonium, being grown largely during winter for cut bloom and in summer for market plants, is produced by our market plant growers in enormous quantities. Their production is, however, not so much a matter for wonder or surprise as the way in which they are got rid of. Out of the perhaps quarter of a million sent away from the nurseries yearly one-half may find their way into beds to make gardens gay for a month or two in summer; then they disappear. The other half, kept in pots, go into windows, and are used for other purposes in house decoration for a few weeks; then they are cast aside to make room for some new favourite that in its season will take their places. Still they have, in the estimation of the purchasers, played their part and all are content. There are few market plant establishments around London where zonal Pelargonium bloom is more largely grown than in that belonging to the Messrs. Hawkins & Bennett, of Twickenham, names well known in connection with the Lily of the Valley, which is so superbly grown by them. Nearly all the houses in this establishment are broad lean-tos, and have broad paths running through them, so that perambulation is easy and pleasant; the stages at this time of the year are crammed to the utmost with myriads of fine robust plants in 4½-inch pots which are just now producing bloom that as fast as ready is cut and bunched for market. The ranges are of great length, and being of good height and breadth, the eye can readily run over the whole of the contents. When, as is often the case, one length of three divisions is entirely filled with scarlet, white, and pink-flowered kinds, the vast bank of colour gives a very charming effect. So far the good old kinds of Vesuvius, Master Christine, and Madame Vaucher give the desired colours, but a visit on the part of the firm to Mr. Cannell's winter blooming Pelargoniums, at Swanley, has led to the introduction of several less known kinds, and there can be little doubt that in a short time some of these from being now but a plant or two will fill whole houses. Messrs. Hawkins and Bennett are fast erecting more large houses, and in these mean to introduce as an experiment

Mr. Cannell's system of top heating, which, as has so often been shown in the past, seems to be the great cause of such successful production of winter bloom at Swanley. Should the plan turn out at Twickenham all that is expected of it, it will not be a matter for surprise if some change is introduced into the existing houses that shall enable the top air in those to be both heated and dried also. It is, in fact, in the drying of the air more than in the heating of the house that the success in producing such beautiful bloom in the winter is found. A very gentle heat will suffice to keep any zonal Pelargonium growing, but the bloom needs something more than exciting—it needs a dry atmosphere and an entire absence from drip, and this is partly gained by the system of top-heating. At Swanley, it is true, there is a sharp pitch to the span-roofed houses that should be generally copied, because the drip is always less; but in all cases where there is top-heat the drip is less, because moisture does not gather on the glass. Some day, perhaps, Vine growers, and especially those who want to ripen early Muscats, may give a trial to the top-heating plan; in fact two or three 2-inch pipes, running along at regular intervals just beneath the rods, might be productive of marked success in securing not only a free set,

but rapid development of berries as well as rich colouring. Some of

The double-flowered Pelargoniums are grown at Twickenham, and notably Madame Thibaut, pink, and F. V. Raspail, a grand scarlet, with large pips. These are not gathered in trusses, as the waste would be excessive, but singly, and sent in small bags to market, where they are wired, and then made into bouquets. Considerable judgment is needed in getting plants in 48° to bloom well right through the winter, for whilst anyone may, with room, grow large quantities of plants fit for bedding, or even for market, in the spring and summer, it is by no means easy to have good plants to bloom not only early in the winter, but all through the winter, and to so effectively arrange the needful heat and general cultivation, as that whilst the plants are blooming they shall not get drawn or become weakly. Most gardeners who have grown collections of zonal Pelargoniums soon learn to admire the pretty, soft hues found in the salmon, rose-tinted varieties, and, not least, the beautiful violet-shaded flowers. The market grower, however, seldom favours these intermediate hues, let them be ever so beautiful. If he does not, his customers at least seem to prefer the decided colours such as are found in Henry Jacoby, Vesuvius, Master Christine, Mrs. Turner, or Madame Vaucher, so that the dominant colours in any market-growing establishment are scarlet, white, and deep pink.

The broad alleys that run through Messrs. Hawkins and Bennett's houses greatly facilitate the removal of the plants, as handbarrows may be carried right through them. Then they have the benefit of an admirably arranged supply of water, which, having a moderate pressure, can be utilised for watering the plants by means of hose and a tube far more rapidly and cleanly than can be the case when ordinary water-pots are used. It seems strange, having regard to the great saving of labour which results, that a similar plan is not more widely adopted, especially in large places. The elevation of a cistern, or, as is the case at Twickenham, a couple of huge wine casks, with pipes communicating with all the plant houses, gives all that can be desired. It is fair, however, to the firm I am writing of to say that their houses are all not only very roomy, but substantially built. They are intended not only for a year or two, but for a generation or two, and hence some little extra outlay in laying on a constant supply of water is not at all wasted capital. The huge trade done at this establishment is evidence that it is well for market plant growers to take but few things in hand and to do these well. Reputations for the cultivation of certain things are not made in a day, but when made cannot be too highly prized. Thus Messrs. Hawkins & Bennett trade almost exclusively in zonal Pelargoniums, Maiden-hair Fern fronds and blooms of Stephanotis, and their famous Lilies of the Valley.

A. D.

OBITUARY.

WE hear with regret of the death of Mr. CHARLES ALBERT PATERSON, at Edinburgh, at the early age of 22. He was the youngest son of Dr. Paterson, of Fernfield, Bridge of Allan, well known for his collection of Orchids, of which his late son was an enthusiastic lover, and assisted his father in their culture.

WE have also to record the death of Mr. ROCHFORD, of Tottenham, to whose excellent system of Vine growing allusion was only made the other day in THE GARDEN. His place as a market nursery is second to none in the neighbourhood of London.

Names of plants.—A. B. C.—1 and 2, *Viola odorata*, commonly called Violets; 3, *Azalea amona*; 4, *Salvia Heeri*.—P. Barlow.—*Zygopetalum Mackayi*.—A. C.—*Dendrobium fimbriatum*.—Lady K.—*Narcissus Tazetta floribundus*.—G. M.—*Dendrobium fimbriatum*, *Melanthus* species.

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES AND READINGS.

SELF-HELP FOR GARDENERS.—The note on this subject, published some time ago, has brought a mass of correspondence from gardeners, all willing and even anxious to promote some such association as that mentioned. Some correspondents suggest that the Gardeners' Royal Benevolent Institution possesses the machinery, and to some extent the interest, for promoting such an undertaking, and predicts that were that society to take the matter up energetically it would at once meet with such a response from the gardening community as would set the scheme on a practical footing. I have no doubt whatever that the majority of gardeners would join any good society designed to help them in their old age, or their families in the event of their death. Numbers of gardeners are at present members of other friendly societies, for the gardening fraternity can as yet boast of no benefit association of its own.

MAGNUM BONUMS AND CHAMPIONS.—The most saleable and best paying Potatoes in the market just now are these two varieties. They are really only coming in season after this date. In the south Magnum Bonums are realising the highest prices going according to market lists, while in the north Champions are realising 90s. and 100s. per ton, with the probability of higher rates being reached very soon. Last year Champions in Scotland, owing to the abundant supply, were offered at 30s. per ton at the same season. The Champion is rapidly extending in cultivation both among farmers and cottagers. It has been a boon to the latter, affording them a good store till new Potatoes became plentiful. In many places last year, however, the disease attacked both sorts, especially the Magnum Bonum. Many, too, have failed to get good crops of either by growing them on too strong land and planting too thickly.

THE ORCHID CENTRE.—It is quite true, as a correspondent of THE GARDEN lately observed, that Orchid culture grows less general the further we travel from London. This is not to be wondered at. London is the great central depot for imported plants as well as of Orchid culture generally. The frequent auction sales that occur in London are a great advantage and convenience to growers living there and in the adjoining counties—the chances of investing with advantage are greater. We have, however, no doubt that occasional provincial sales, like those at Stevens's rooms, would succeed as well as those in London, if not better, as a few recent examples have shown. Many gardeners and growers would avail themselves of such opportunities of buying who would never think of going to the London sales, and auctioneers and dealers might avail themselves of the opportunities afforded by the more important provincial shows at such places as Manchester, Liverpool, York, Leeds, Glasgow, and other towns to promote their business. The experiment is at least worth trying.

THE RAINFALL.—Since October the rainfall in many parts of England, and especially in the midlands, has averaged fully 5 inches per month, with no present prospect of settled weather. This is an almost unprecedented quantity for the season, and the ground is in a thoroughly saturated condition, rendering all work on the farm or in the garden impracticable. We continue to read of early Primroses and other flowers, and of precocious fruit trees in the south, but in the north, owing to the comparatively low mean temperature that has been experienced, vegetation is not dangerously

forward. The cyclonic storms of wind and rain that we have had of late brought an abnormally low temperature from the west and south-west, with heavy and cold showers of rain and sleet, a thing people hardly remember before. Cold rains, by saturating the roots and reducing the general temperature, retard vegetation almost as much as frost. We hear of puttyless glass roofs have responded to the gale in a rather alarming manner in some places.

CANNELL'S SYSTEM OF HEATING.—It is difficult to see what benefit this method of heating houses from the roof downwards is going to confer. A buoyant and moving atmosphere in hot-houses is the main point, and we know that by placing the heating apparatus at the bottom of a column of air we set the whole body in motion, like smoke in a flue. Mr. Cannell's plan or principle is to place the fire at the top of the chimney instead of at the bottom. If we are to adopt the system of carrying hot-water pipes along the roof instead of on the floor, another system of ventilation than that in use will have to be adopted, otherwise the warm air will be expelled as fast as it is heated, and that is just the reverse of what hot-water engineers aim at. Besides, the plan presents many obstacles and practical objections, in the case of fruit houses especially.

REMARKABLE EXPERIMENTS.—Some remarks elsewhere on the effects of light in ripening Grapes must make practical Grape growers scratch their heads. Grapes in Algiers exposed to all the heat of an African summer never, it is said, ripen their berries (for want of sugar) under a trellis covered with Vines grown expressly for the shade of their foliage. It is a remarkable thing that under our duller skies in vineries the fruit can be ripened to tolerable perfection under a trellis, on which the leaves are crowded together as thickly as they will exist, and probably the Vines grown on a trellis in Africa were no worse crowded than these. It is to be regretted that anyone should bring such a tale as this all the way from Africa with plenty of evidence to the contrary at our own doors. One of the Vine growers near Fontainebleau has along tunnel—a trellis—covered so thickly with Frankenthal Vines that one can scarcely see outside anywhere, and yet the Vines bore an even crop fast approaching maturity when we saw them; this was out-of-doors. It was positively almost dark under the archway where all the bunches hung, but the leaves turned their surfaces outside to the sun. Another curious circumstance in connection with some experiments recorded by a certain M. Macagnoli is that in Italy an umbrella has the effect of raising instead of diminishing the temperature. Three sets of Vines growing "side by side" out-doors, it would appear, were operated upon, one lot being covered by a black cloth, one by a white cloth, and the third left exposed, with the result that while during three months the mean natural temperature round the uncovered Vines was 70° Fahr. it rose to 82° under the white cloth, and to 92° under the black. Meteorologists have a maxim that no object can be warmer than that which heats it, but here we have the temperature raised and steadily maintained for three months 22° above the surrounding temperature by means of a black cloth only. In other words, the mean temperature was much higher in the shade than in the sun—a wholly abnormal condition of things. Of the result of this experiment nothing more need be said at present, but we commend the subject to the attention of manufacturers of frigi-domo and the like. The object of your contemporary is to prove that it is

LIGHT only and not heat or the two conjoined that turns fruit ripe or rather sweet. Gardeners have entertained the belief that it was the thorough exposure of the foliage to the light, in conjunction with the right temperature, which produced perfect maturity, and they point to the fact that no amount of light will ever render Grapes

or Gooseberries fit to eat either as regards sweetness or flavour, from trees that have from any cause lost their leaves before the fruit was ripe. If light only can convert the acids of fruit into sugar, how comes it that sour Apples and Pears grow sweet and excellent after being several weeks in a dark drawer or fruit room? and how is it Oranges gathered in a half green state ripen and become sweet in the packing cases in which they are shipped or stored for months afterwards? And how do Melons ripen in dark warm rooms? not to speak of other and similar examples. Scottish peasants gather Sloes from bushes when they are sour and rough, but put in a bag in a little oatmeal as a packing material, and allowed to hang in a warm kitchen, they turn out sweet and mild towards Christmas. What converts the tartaric acid in such a case as this? No; Lindley, though pooh-poohed by some now, said, "the production of sugar and certain flavours were the effects of a high temperature and exposure to bright light, and that under opposite circumstances acidity prevails," and his opinion has not yet been controverted.

QUICK RETURNS.—"T. B.'s" second note on this subject is more gratifying than the first. Our error respecting the length of the young rods originated in our estimating about 1 lb. to the foot run—the maximum allowance of all good growers of permanent Vines—and an average of 20 lbs. to each cane, as recorded by "T. B." gives just 20 feet. That, it appears now, is the weight to 11-foot rods, or about 2 lbs. to the foot—an unprecedented feat in Grape culture, and one only to be accomplished by extension. Eight feet of wood in the season is the exact amount recommended for general practice by extensionists. Still, "T. B." and other physiologists will find it difficult to explain why the pruner should stop at 8 feet if he can ripen twice or three times that length of rod successfully, as has been done. The principle involved is that as much wood as can be ripened soundly is fit to leave and bear fruit discretely, and those who now sanction 8 feet cannot logically stop there. This is the way intelligent practitioners will look at and consider all such problems, and the difficulties of persuading gardeners of this are vanishing more quickly than "T. B." appears to be aware of. It is dangerous prophesying in these days. To simplify garden practice and accelerate results should be our aim. It is but a few years ago since we read in a calendar of operations that the way to propagate the Lapageria was to insert morsels of cuttings that required nearly a year to root and several years more to nurse to an adult state, but, thanks to discussion and argument on the subject, that practice is now superseded by a better, and we seem in a fair way of doing the same in the case of the Vine and Peach.

FOOD FOR GARDENERS.—The Crystal Palace School of Gardening presents a rich bill of fare for the "next course" of Wednesday lectures and demonstrations. The theme is "The Relation of Function to Structure in Flowering Plants"—a very substantial diet for gardeners most people will grant. Since this intimation appeared, the Crystal Palace authorities have advertised for "competent young men for flower garden work; also some for all kinds of plant growing, to work under a foreman," and a facetious acquaintance asks if the "syllabus" can have caused a dispersion of the staff. "Six lectures" on "the relation of function to structure in flowering plants," and on that alone, it may be conceived, would try the patience, not to say endurance, of most human beings.

DUTIES OF GARDENERS.—The Crystal Palace School should note the following extract from an otherwise excellent article on gardeners in a contemporary: "Gardening requires a man to be thoroughly in earnest. He must devote every moment he has to the study and practice of his calling; he must be a close and attentive observer of Nature and her wants; he must be able to grapple with many difficulties, and by assiduous

endeavours seek to comprehend the varied details in connection with the multitudinous subjects that come under his notice and require his attention." Dr. Guthrie used to tell moralists that their great mistake lay in attempting "to dam up human nature;" and the Queen's chaplain, the late Dr. McLeod, recommended dancing as an excellent recreation for all sorts of young people, but the author of the above paragraph evidently believes in "all work and no play" for gardeners. Considering the modest average prospects of the young gardener, a perusal of the above may well make him pause and ask if it would not be preferable at once to take the Queen's shilling. He certainly ought to strive to get on as a student, but working with the spade all day and studying with Spartan fortitude every spare minute at other times, in order to comprehend "multitudinous subjects," is expecting and asking too much from him. Besides, there is no need for such laborious study. Any man who is willing may master his business and have leisure to spare. The things he has got to master are neither so multitudinous nor so varied; and if he only chooses his subjects of study judiciously, and apportions out his time methodically, he may soon, while becoming at the same time a good workman, master the main branches of his profession. L'EREGRINE.

NOTES OF THE WEEK.

GARDENER'S ROYAL BENEVOLENT INSTITUTION.—At a meeting numerously attended of the committee of this institution, held a few days ago, Mr Edward Tidswell, of the firm of Bollen & Tidswell, of Wood Street, Cheapside, was unanimously elected treasurer of this institution, in the room of Mr. Robert Wrench, deceased.

NEW BOOK ON VINES.—We learn that the book on "Vines and Vine Culture," by Mr. A. F. Barron, Royal Horticultural Gardens, Chiswick, will shortly be published. It is an illustrated treatise on the cultivation of the Grape Vine, with descriptions of the principal varieties, reprinted and enlarged from the *Florist*.

THE "SHAKESPEARE FLORA."—Messrs. Palmer & Howe, of Manchester, announce the early publication of a work, under this title, by Mr. Leo H. Grindon, in which every tree, plant, and flower alluded to by Shakespeare is to be dealt with briefly from the botanical point of view; every important passage in which the name occurs is then to be quoted, and all unusual and curious words and phrases which occur in those passages are to be explained. The work, it is said, is to be illustrated, and its size and general appearance is to be exactly those of "Country Rambles," by the same author, issued last spring.

THE QUEEN HAS PROMISED TO OPEN THE INTERNATIONAL FISHERIES EXHIBITION AT SOUTH KENSINGTON, ON MAY 1. The site is an area of 22 acres, in the Royal Horticultural Gardens, and the total area to be occupied by the exhibition will be 253,000 square feet. The buildings which are now in course of construction are of wood, with arched roofs, and are arranged in blocks with intercommunication through corridors. On the west, or Queen's Gate side, will be the tanks and aquaria, which will be supplied from a circulating reservoir, capable of holding between 30,000 and 40,000 gallons of water. There will be a lecture theatre seating 150 persons, several model cottages, and a fish-curing establishment.

HOT-WATER CURE FOR SICKLY PLANTS.—The *Florist* asks has anyone tried hot water as a restorative for sickly plants? and then proceeds to say that M. Willermoz some time since related that plants in pots may be restored to health by means of hot water; ill-health, he maintains, ensues from acid substances in the soil, which, being absorbed by the roots, act as poison. The small roots wither and cease to act, and the upper and younger shoots consequently turn yellow, or become spotted, indicative of their morbid state. In such cases the usual remedy is to transplant into fresh soil, in clean pots with good drainage,

and this often with the best results. But his experience of several years has proved the unfailing efficacy of the simpler treatment, which consists in watering abundantly with hot water at a temperature of about 145° Fahr., having previously stirred the soil of the pots so far as may be done without injury to the roots. Water is then given until it runs freely from the pots. In his experiments the water at first came out clear, afterwards it was sensibly tinged with brown, and gave an appreciable acid reaction. After this thorough washing, the pots were kept warm, and the plants very soon made new roots, immediately followed by vigorous growth.

HORTICULTURAL EXHIBITION AT PARIS.—An international exhibition of plants in flower, forced vegetables, fruit trees in pots (forced), and of coniferous and evergreen trees will be held in the Champs Elysée from the 28th March to the 1st April. A gold medal is offered for new or recently introduced plants either in or out of flower. Intending exhibitors must communicate before the 12th of March with the president of the society, 84, Rue de Grenelle, stating what they wish to exhibit and the amount of space they will be likely to require. Flowers, fruits, and vegetables will be received on March 26, and up to 3 o'clock p.m. on March 27.—J. C. B.

VEITCH MEMORIAL PRIZES.—The trustees of this fund intend to offer the following prizes to be competed for on May 22, at the summer show of the Royal Horticultural Society at South Kensington, a prize of five sovereigns and the Veitch Memorial Medal for—1. Best specimen stove or greenhouse plant, in flower, to be selected by the judges from the plant classes. 2. Best specimen Orchid, in flower, to be selected by the judges from the plant classes. 3. Best dish of three bunches of Grapes (one sort), to be selected by the judges from the fruit classes. To be awarded only to subjects of superior cultivation exhibited by *bonâ fide* gentlemen's gardeners.

PRIZES FOR PACKING FRUIT.—In order to show the best mode of packing fruit for the market, so as to realise the highest prices, Messrs. Webber, fruiterers, Covent Garden Market, will again offer the following prizes for the best packed three boxes of fruit, to be competed for on July 3 at South Kensington: 1st prize, £5 5s.; 2nd prize, £3 3s.; 3rd prize, £2 2s. To consist of one box of Grapes, not less than 14 lbs.; one box of Peaches, not less than 24; one box of Strawberries, not less than 2 lbs. The exhibits are to be booked, carriage paid, at any station irrespective of distance, and delivered by railway company, addressed to the Superintendent, Royal Horticultural Society, South Kensington.

CONGRESS OF HORTICULTURISTS IN BELGIUM.—The Syndical Chamber of Belgian horticulturists has issued the following notice: "In order to give to the representatives of horticultural industry of all countries an opportunity to extend mutually their commercial relations and discuss their common interests, an international meeting of horticulturists will take place at Ghent in April, 1883. The programme will be published in due time. As this meeting will coincide with the great quinquennial International Flower Show organised by the Royal Agricultural and Botanical Society, entertainments will be provided for the congress members, and excursions organised to the different horticultural centres in Belgium."—T. C. B.

NEW MODE OF KILLING THRIPS AND RED SPIDER.—The *Garten Zeitung* points out an easy way to kill these pests, which is worth trying. The directions are to take a tub large enough to dip the largest show plants in, and fill it with clean water at a temperature of 130° Fahr. Into this the plants are plunged for four seconds, not longer; and it is averred that this will kill all the living insects, though a second immersion is, perhaps, necessary to completely destroy the young, undeveloped insects. The temperature of the water should not be allowed to fall below 122° Fahr. In this way a large collection of Azaleas was treated when they were taken out of doors in

spring, and again when they were taken in in autumn, and neither the young shoots in spring nor the flower-buds in autumn are said to have suffered in the least. Dracænas, Myrtles, Crotons, and other plants were also successfully treated in this way, the young, tender leaves not being in the least injured.

NEW PARK FOR NEWCASTLE.—At the Newcastle-on-Tyne Town Council meeting the other day a letter was read from Sir W. G. Armstrong, intimating his intention of presenting his estate in Jesmond Vale, in the eastern suburb of Newcastle, to the town for the purpose of adding it to the Armstrong Park, which he gave to the public a few years ago. Jesmond Vale is about a mile in length, and possesses some of the most lovely scenery to be found in the vicinity of Newcastle. A part of the gift consists of a handsome banqueting-hall and some houses in Jesmond Vale. The estate is given with the reservation that the control of the park shall remain in the hands of Sir William and Lady Armstrong during their lives. Heaton Park and Jesmond Vale together will make one of the finest parks in the country, and will be a great boon to the large population resident in the eastern portion of Newcastle.

THE BOTANICAL DEPARTMENT in the new Natural History Museum at South Kensington is being arranged with great success on a new plan by Mr. Carruthers. Dried samples of plants are not either instructive or amusing to any but the scientific eye, but the new arrangement undoubtedly is both one and the other. Types of families are selected, and exhibited in their dried state, and also by means of coloured drawings and diagrams are shown as they were alive, with all their peculiarities of structure fully developed. A series of maps also shows by varying intensity of colour the geographical distribution of the family upon the earth's surface, while a coloured scale tells whether the plants comprised in the family are found in the more ancient or recent strata of the earth's crust. Great strides have been made towards completing this valuable and interesting method of arrangement, and the difficult task of making botany popular and accessible without sacrificing direct scientific teaching appears in a fair way towards achievement.

A DISEASE FROM REEDS.—A curious affection has been occasionally met with in certain parts of France, especially in Provence, among Reed workers, chiefly those who manipulate the stems of *Arundo Donax*. A case at Frontignan (Hérault) has lately been very carefully studied by M. Baltus, of Lille. A man, aged forty-seven, and his son, aged seventeen, had been at work for several hours loading a cart with Reeds, which had been cut a year before, and kept in a damp trench. Both were seized with a painful irritation of the nose, eyes, and throat, followed by erythematous swelling in the same parts, which extended to the hands and trunk. An examination of the Reeds showed that they were covered with a mould consisting of the spores and mycelium of a fungus, *Sporotrichum dermatodes*, which had developed under the influence of the prolonged exposure to moisture. The spores had been shaken off as dust during the manipulation of the Reeds, and had irritated the exposed parts of the skin on which they had lodged. Although usually trifling, the malady may sometimes assume a severe form. It may apparently be prevented by the simple expedient of washing the Reeds before their manipulation.—*Lancet*.

PRIZES FOR AMARYLLISES.—An amateur, anxious to encourage the cultivation of this fine tribe of plants, again offers the following prizes to be competed for at the Royal Horticultural Society's meeting, on Tuesday, March 27, 1883. For the best seedling—1st prize, £2; 2nd prize, £1; 3rd prize, 15s. Fine form and substance are the points specially aimed at in offering the prizes in Class A. To be eligible, the flower must be smooth in the petal, of good firm substance, without the unevenness of the marginata conspicua type, and as little pointed in the petal as possible. Colours will not be considered unless two flowers

should be, in other points, considered equal in merit, the better coloured of the two would then receive the higher prize. For the best six *Amaryllis*, named, three to be dark and three light varieties—1st prize, £2; 2nd prize, £1. These prizes will be awarded only on condition that the exhibits are considered to be of sufficient merit. Form, substance, and breadth of petal are necessary points. For the best variety selected from among the plants exhibited in Class B—for the best dark variety, £1; for the second best variety, 10s.; for the best light variety, £1; for the second best variety, 10s.

FRUIT GARDEN.

DIFFERENT TREATMENT GRAPES NEED.

THERE are few edible fruits in which the different varieties require so much difference in the shape of warmth and other matters to bring them to perfection as Grapes. It is needless to say that such kinds as Miller's Burgundy, Black July, Royal Muscadine, Black Hamburg, and other hardy kinds that come early to maturity require treatment very different from what is needed to bring out the true character of the Muscats, so long in cultivation, and some of the black and also white sorts that in times more or less recent have made their appearance. The first three named are now rarely met with under glass, yet it is a question in the case of many who try Grape growing in houses, often without fire-heat and with little cultural knowledge, if the results would not be better by growing some of these all but forgotten early ripening sorts than confining the cultivation to others that when skilfully managed, are no doubt preferable, but which, without the requisite treatment, are often a failure. Grape growers know from experience that with regular attention to shutting up the house early in the afternoon whilst the sun is on it, so as to secure a high temperature for some time, good Black Hamburg Grapes can be grown without fire heat; but on such short as well as sunless summers as the last was nothing less than unremitting attention to the closing would secure ripe fruit, and, for another year, the equally important condition of fully ripened wood.

What I have, however, more particularly now to urge is that, even with the admitted difference in the requirements of the different kinds of Grapes, it often happens that a useful variety gets condemned when it is the treatment which is at fault. When Madresfield Court first came out most growers got it, but the greater number discarded it on account of its disposition to crack unless its roots were drier during the time it this way suffers than the majority of kinds require. Yet so good, as well as good looking, is this Grape, that it has been again reinstated in most gardens, the little precaution needed to prevent the berries splitting being well repaid by having it in right order. Lady Downes got similarly out of favour through the liability its berries have to scald, which unless means are taken by an extra amount of air being given during the critical period occurs to an extent to which other varieties are not subject. What it required was soon found out, and the necessity of using fire heat, which many growers keep up continuously, along with air always on during the scalding time, does not entail so much extra labour as to prevent a large number of growers from putting their main dependence on this variety for a late supply. Gros Colmar is another case in point. When first this sort came sufficiently under notice to admit of an opinion being given about it, there was all but a general cry of condemnation against it, and no wonder, for, managed as it mostly was, and with many still is, it has little to recommend it beyond size of berry. Yet all that was said against it had no effect in preventing it when grown as it requires, holding by a long way the first place with the public who buy late Grapes; for when grown with sufficient heat to bring it thoroughly up to the mark it is as much improved in quality as it is in appearance.

This, by the way, holds good with that very old, but best of all Grapes—according to most people's verdict—the Muscat of Alexandria, which, when grown with the full amount of warmth which it requires, is as good to dress in comparison with what it is when short of fire heat.

Any allusion to the particular requirements of individual varieties of Grapes would be incomplete without mention of the Duke of Buccleuch, which, as an early white sort, when well managed, has no equal for appearance and quality combined, and there is abundant proof that it can be produced free from spot or cracking simply by attention to its peculiar requirements. It is scarcely needful to say that the varieties just named are far from being all the Grapes that require something or other different in their treatment from that of the Black Hamburg and kindred sorts; conformity to the requirements that answer for these often appears to be the grounds on which some rest their verdict for or against a Grape; but the all- alike-treatment test proves too little to be accepted by everyone.

Of the number of new sorts that have been raised in this country, and of others new and old of Continental origin that have been brought into cultivation in comparatively recent times, the majority have not enough good properties to admit of their taking the place of the older well-proved kinds. But the varieties I have named have sufficient merit to repay the trouble of deviating from the ordinary track in their management.

T. B.

RIPENING OF LATE PEARS

LATE Pears seem very erratic in their time of ripening, and some much more so than others. Our fruits of Easter Beurré have behaved very strangely, being in and over by Christmas, but they have not been of the high quality we have them sometimes; they became spotted and were a little dry and mealy in flesh. The fruits referred to were gathered from pyramids growing on the Quince stock in rather light soil resting on a gravelly bottom, where most sorts, when mulched with long manure, generally do well. The best Pear this season with us has been Glou Morceau, and the finest fruits of this were from an old tree that covers a very large space on a wall having a south-east aspect, a good situation for a Glou Morceau or any other sort of late Pear, as all require a warm, sunny position, and the fruit are never melting and rich unless the trees are so favoured. We have a striking instance of this fact here. A Ne Plus Meuris on a west-south-west wall has some of its branches along and over the top, and from these branches the Pears are not only always larger, but better coloured, and greatly superior to those from the other part of the tree. This is the case with most others gathered from trees in the same border and trained in the same way, and I know a garden in which many of the Pears are planted on the north side of the wall and run up with clean stems till they get to the top, over which they are led and trained above the heads of Peaches on the south side. This, I think, would be a good plan to follow in growing late sorts of Pears. The roots would then be in cool moist soil, and the fruit fully exposed to solar heat, which is so necessary to ripen and finish it up. The Pear we set most store by is Bergamot Esperen, the fruit of which, after anything like a fair summer, is generally very buttery and melting, rich and juicy, as is also that of Josephine de Malines, but the juice of this often has an astringency which is objectionable. Although we sometimes have Josephine de Malines and Bergamot Esperen through March and April, they are both over now, and Beurré Rance is shrivelling, which the fruit of this Pear frequently does unless the autumn is warm and sunny.

S. D.

American Apples.—It has been asserted that American Apples and French Pears are in every way as good as ours. This I deny, but I admit that the Newtown Pippin is a first class

Apple. With the exception of this, however, I am confident that our Apples are, I should say, 50 per cent. better than those grown in America. I have had some experience in growing Apples in Tasmania. They cultivate principally French Crabs, Stone Pippins, Pearmain, &c. These are equal to any grown here, and so are their Cherries, Mulberries, and I might say Walnuts. But in my opinion with proper cultivation, shelter, &c., English Apples will always be preferred to any grown in America.—C. LONG, *Vineyard Villas, Richmond.*

FREEING ORCHARDS FROM LICHEN.

AN effectual plan of freeing orchards trees from Lichen is to burn sulphur under them; the fumes will kill all vegetable growth and also insects, and cause the bark to become bright looking and polished. The way to use the sulphur is to have some old cracked garden flower pots or anything of that kind that will hold fire, which should be made with charcoal, so as to keep burning steadily; on this throw a handful of sulphur every few minutes, and keep the pots moved from tree to tree, placing them on the side from which the draught sets in that the smoke may be carried right through the tops. The best time to apply the sulphur is during a still day when the air is heavy. Of course it will not do to burn sulphur after the buds are in a forward state, as then it would injure them; but so long as they remain closed in their scaly coverings they are safe, and the sulphur fumes will not do the least harm. We have been using them against our walls and not only have they cleaned the trees, but the bricks are completely freed from all moss, and have quite a new look. Pears and Plums that had scale on them throw it off, and since we have fumigated Peaches and Cherries outside, we have little or no trouble with either aphid or spider, and the saving in insecticides, time, and labour is something considerable. Sulphur may be got in any quantity at 3d. per pound, and a man or boy with several pots to attend to can soon get over a number of trees. I have no doubt that the asphyxiators, advertised so extensively some time ago for driving rats, &c., out of their holes, would answer for smoking trees, as the fumes of the sulphur could with one of them be more concentrated and driven wherever required. I am going to use a common fumigator with bellows for our standard Rose stems, as they are mossy, and a puff or two from it will at once put them right. Lime is also a good thing for eradicating Lichens and Moss from trees, but to be thoroughly effectual, it must be got quite fresh, and then slaked in a tub with water, when it may be syringed on, if made to the consistency of thin paint, in which state it will adhere tightly and cover the branches. Besides being so highly beneficial to trees and bushes by destroying the Moss, lime keeps off sparrows and bullfinches from the buds, which they cannot eat when so coated, but which they often when not protected peck out and leave the trees bare. This is almost sure to be the case near towns or farmhouses, where sparrows abound, and I have in such places seen bushes of Gooseberries and Currants quite spoiled.—J. SHEPPARD.

—Being short of labour, your correspondent should make an effort to prevent the growth of Lichen on his orchard trees instead of year after year being pestered with attempts at destroying it. So far as my observation goes, it is solely occasioned by poverty or badly drained soil, often by the conjunction of the two; hence the remedy is obvious, and, at all events, draining ought to be done; and if further cultivation, such as the digging in of and mulching with farmyard or rotted stable manure be impracticable, an occasional dressing of soot, applied early in the year, that it may get washed into the ground, should be given, and in most cases this treatment will prove an effective deterrent to the growth of this parasite, and, as a consequence, prove beneficial to the trees in regard to their fruiting properties. A quick way of destroying the Lichen now on the trees is to get some freshly slacked lime, and mix

it up in a large tub as for whitewashing. To a bushel of lime add half a bushel of soot, thoroughly mixing them together by adding water in such quantity as is needed to make it into a liquid that can be strained through a fine sieve, in order that it can be applied with a syringe, or, better still, a garden engine, over the trees. Dry weather should be chosen for its application, and of course after all pruning that is intended to be done is completed; no fear need then be entertained of the mixture injuring the buds.—W. W. H.

Freeing orchards from Lichen.—This is not at all a difficult matter, as I have proved. The remedy is fresh slaked lime dusted while it is hot over the branches. My first attempt was in a rough and ready fashion. Having a large orchard to deal with, a waggon-load of lime was distributed in three separate heaps about the orchard, and as soon as it was slaked a man with a wheel-barrow full of it stood underneath the trees and threw the lime with a scoop up amongst the branches. This killed the Lichen on all the branches which it touched, but the lime was not sufficiently distributed upon the upper sides of the branches to make a satisfactory clearance. Next year, therefore, I obtained another supply of lime, and by having one man under the tree to hand up the lime and another high amongst the branches to distribute it, every branch in the orchard was effectually cleared of Lichen. If your correspondent wishes to try this plan no time should be lost, as the trees should be operated upon before the buds begin to expand, and dry, still weather should be selected in order to make the remedy a complete success. I may add that the effects of the lime dusting will not be visible for several weeks, and to be efficacious the lime must be hot and strong. The parasite in the first instance will become brown, and then it will fall off and be tossed about the orchard by the wind.—J. C. C.

—“Constant Reader” may clear Lichens from fruit trees by applying hot lime in a powdered state. It is best to apply it when the trees are in a moist condition. The lime freely applied will eventually benefit the trees, besides killing the Lichen. I have also applied nitrate of soda in a liquid state for the same purpose, and with satisfactory results. Lichen, if not too great in quantity, does not appear to injure trees to the extent generally supposed. In the west of England fine crops of Apples may be seen on trees furnished with a fleecy coat of Lichen.—CHAS. McDONALD, *Stokesley*.

—Has your correspondent ever tried quicklime as fresh and hot as it can be had for freeing orchards from Lichen? It should be applied in winter while the trees are wet from rains or otherwise. I have also seen strong brine applied with equally good results, but only on a very small scale, and how it might answer on large trees in orchards I cannot say, but I should consider it rather hazardous for the grass beneath if used in any considerable quantity. The lime does no harm otherwise.—R. STEVENS.

Duke of Buccleuch Grape.—As a grower and exhibitor of this Grape my attention has been called to an advertisement which appeared in THE GARDEN on January 13, but after reading it over three times I confess that its meaning is beyond my comprehension. May I be permitted to ask where it is stated that the Duke “is grown by hundreds of gardeners to the weight of 4 lbs. and 5 lbs.” (presumably per bunch), “and can be kept fresh and plump for more than six months after it is ripe?” If the advertisement in question is a genuine invitation to growers to produce extraordinarily large bunches, why the condition, “perfectly ripe for a month previous to the show?” Surely it is enough if large bunches are perfectly ripe, sound, and in good condition upon the show day. What am I to understand by “being shown at London, Edinburgh?” &c. If an exhibitor show, say in June, at York, “two single bunches,” and they weigh over 4½ lbs. each bunch, and comply with all the requirements of the donors, will

he be there and then awarded the prize? or must he wait until the September shows are over before he can know his fate? How are Grapes shown in June to be compared with those shown in September? I venture to say that before the advertisers can make their proffered special prize practicable, they must throw a little more light upon the subject than is contained in the advertisement.—J. MCINDOE, *Hutton Hall, Guisborough*.

A land of Peaches.—In the neighbourhood of Sydney such fruits as the Peach, Nectarine, Apricot, Plum, Fig, Grape, Cherry, and Orange are as plentiful as Blackberries. The orangeries and orchards of New South Wales are among its sights; and in the neighbourhood of Sydney and round Port Jackson there are beautiful groves of Orange trees, which extend in some places down to the water's edge. Individual settlers have groves which yield as many as thirty thousand dozen Oranges per annum. One may there literally “sit under his own Vine and Fig tree.” If a Peach stone is thrown down in almost any part of Australia where there is a little moisture, a tree will spring up, which in a few years will yield handsomely. A well-known botanist used formerly to carry with him, during extensive travels, a small bag of Peach stones to plant in suitable places, and many a wandering settler has blessed him since. Pigs were formerly often fed on Peaches, as was done in California, a country much resembling Southern Australia; it is only of late years they have been utilised in both places by drying or otherwise preserving. A basket load may be obtained in the Sydney markets during the season for a few pence. The summer heat of Sydney is about that of Naples, while its winter corresponds with that of Sicily.—*The Sea*.

QUESTIONS

Ants are very numerous in one of my houses. They swarm more particularly on some large Camellias, and persevere most astonishingly in carrying soil up the stems of the plants. Will any of your readers kindly tell me how to destroy them?—S. O.

Franciscas for cut flowers.—Will some of your readers kindly tell me whether Franciscas are good for cut flowers? If so, which is the best, and whether they fetch a good price in Covent Garden market?—W. G. B.

Picotees for exhibition.—I am desirous of growing Picotees out-of-doors in pots. Will some one kindly answer me the following questions in reference thereto? Do they require much water, and how am I to tell when they need it? Is it better to grow them wholly in the shade, or shade the flower? and if the latter, when should the shading commence? Can I defer the blooming time and how? I have an impression they bloom sooner in pots than in the open. Is this so?—B. H. L.

Ribbon borders.—We have in the gardens here (Belfast) a border on each side of a centre walk, 300 feet long by 7 feet wide, which we propose bedding in the ribbon style this year. This walk leads from the conservatory to a range of houses 300 feet or 400 feet long, in front of which is the flower ground; the ribbon, therefore, needs to be a very effective one. What, may I ask some of the readers of THE GARDEN, would, under the circumstances, contrast best?—S. W. J.

Grubs on fruit trees.—We have been very much troubled for two or three years past with grubs on our Pear, Apple, and Cherry trees. As soon as the buds begin to expand and the leaves to develop we find one and sometimes two or three grubs in each leaf, which they roll up with a kind of web; from the leaves they go into the blossom, which they completely destroy. No insecticide seems to kill them, the great difficulty being to get at them, being rolled up in the leaves. There are two kinds, one a small brown grub like the Rose grub, the other a pale green, about half an inch long when fully developed. Can any one tell me how to get rid of them?—C.

* * * Our readers will greatly oblige by replying, so far as their knowledge and observation permit, to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

PLANTS IN FLOWER.

TWIN-FLOWERED CYPRIPIEDUM HARRISIANUM.—A flower-spike of this handsome Lady's Slipper is sent by Dr. Paterson, a curiosity we have not before observed, though of frequent occurrence in *C. insigne*. Dr. Paterson possesses a fine form of this Orchid, for each of the flowers measure 6 inches across, and are of a good dark colour.

THE HOOP-PETTICOAT DAFFODIL (*Narcissus Bulbocodium*) is grown successfully in pots at Kew for the adornment of the conservatory (No. 4). For this purpose the bulbs are procured in autumn, and treated in the way Dutch bulbs are, the result being fine potfuls with healthy tufts of foliage and large rich yellow blossoms, so distinct from the ordinary run of spring decorative plants.

COTYLEDON FULGENS is the showiest plant now in the Cactus house at Kew. It is similar, if not identical, with the now tolerably well-known *Echeveria retusa*, but the colour of the blossoms is a much brighter orange-yellow than usual and they are more numerous produced. It is a useful plant for cultivating for winter and spring bloom, and it is of the simplest culture in a warm, dry house. A native of Mexico.

TWO NEW SPECIES OF CORYDALIS are sent by the New Plant and Bulb Company, Colchester. They are *C. Ledebouri* and *C. Sewerzowi*. Both are dwarf in growth, with divided and glaucous leaves. The first has pinkish flowers arranged on a closely set spike, while those of *C. Sewerzowi* are an inch long and a kind of bronzy yellow. Both are interesting new hardy plants introduced to cultivation, we believe, by Dr. Regel, of St. Petersburg.

DEGALACANTHUS MACROPHYLLUS is the name of a rather showy plant flowering in one of the stoves at Kew. It is a low-growing plant, inclined to be bushy. Each branch is terminated by a wide-spreading cluster of flowers, which in shape somewhat resemble some species of *Salvia*, though the plant belongs to the *Acanthus* family. The colour of the flowers is a pale mauve, the lower lobe of the corolla being a deep purple. As a free-flowering stove plant for winter it is worth attention, but we doubt if it is obtainable in nurseries.

A BORNEAN RHODODENDRON, recently introduced by Mr. Bull, is one of the finest things in flower in his nursery at Chelsea. It has large deep glossy green leaves nearly a foot long, crowded in clusters at the upper parts of the branches. The trusses, numbering from eight to a dozen blooms, terminate the branches, and are encircled by foliage. The blossoms are nearly three inches across, bell shaped, and of a rich orange yellow. It is in the way of *R. Brookeanum*, but if it be identical with that species it must be a wonderfully fine form of it. It is one of the handsomest tender *Rhododendrons* we have seen, and when Mr. Bull can distribute it, it will be sure to be welcomed.

NOTES FROM CORNWALL.—I send you a few flowers from out of doors. Daffodils are getting quite plentiful with us. A large *Pyrus japonica* here against a wall is quite a mass of scarlet. Some of our Carnations have been throwing up spikes of bloom all the winter, but they have not opened well, having suffered more from damp than cold; a few of the buds seem inclined to open. One plant has over fifty buds on it. The *Primrose* sent seems a good variety; it throws up several blooms on a strong foot-stalk at least 8 inches high; the spike sent has sixteen expanded blooms and buds on it. [A fine variety.] I also send *Amaryllis aulica*, which I find a most useful one for forcing. We had a very severe gale from the S.W. on Monday morning; it commenced soon after midnight and lasted till 10 a.m., when it moderated considerably. Two tall trees (an Elm and an Ash) were snapped off some distance from the ground, and some evergreen Oaks were overturned.—JOHN C. TALLACK, *Prideaux Place, Padstow*.

NOTES.

Now when the wind is howling in the chimneys, and rain-drops patter and splash drearily on the window pane, it is pleasant to think of sunny lands where there is heat and sunshine, and where Palm trees wave beside the glistening sea. "And what do you think excited my ecstasy? It was a fine young grove of Cocoa-nut Palms, seen for the first time waving in a strong breeze. You have no idea from seeing them in hothouses what Palm trees are under the open sky. They are as different as an eagle on its eyrie from the same bird bedraggled in a dirty cage. The plummy leaves shaking to and fro, and rustling in the wind, are noble as well as unutterably beautiful. Truly the Palms are princes of the vegetable world. It never struck me until I heard the sound through their leaves how beneficent it was of Providence to place such huge fan and feathery leaves in the hot climates where they catch the slightest air and play, fan-like, backwards and forwards on their long leaf-stalks, cooling all around them and comforting the air with their aspen music." Such a warm and genial picture is very pleasant, and suggestive in this time of Snowdrops and "Lenten Lilies."

TILLANDSIA IONANTHA.—From Glasnevin Mr. Moore has posted me a very pretty little Bromeliad—one of the most dainty I have ever seen. It is named *Tillandsia ionantha*, and came from Makoy, of Liege, who makes quite a special culture of these South American epiphytes. The curved awl-shaped leaves form a little tuft 2 inches or 3 inches high, and from its crown spring two or three flowers, apparently tubular and of a glossy amethyst purple colour, their smooth brilliancy of tint suggesting that of a bit of stained glass. The lower part of the leaves behind are powdered with silvery scales and shine like burnished metal. The sketch shows the natural size of the plant and its flowers. No Orchid could well be prettier than this and some other *Tillandsias*, and some time these

*Tillandsia ionantha.*

graceful little dwellers on tree-tops will have their day. I do not remember if this plant has ever been figured in colour, a honour which it richly deserves.

"A ROSE WITHOUT A THORN."—What a favourite that lovely, rich Charles Lefebvre Rose (GARDEN, plate 374) must be with many, seeing that it has such vivid crimson flowers on

its smooth and thornless stems! I once heard an old Lancashire fruit grower say that he would give a hundred pounds for a plant of the old Warrington Gooseberry with spineless branches! So, too, I can well imagine people anxiously asking Mr. William Paul for beautiful Roses without the dreaded thorns, which, although crooked enough, seem instinctively to pierce the tenderest part of the hand, intent on "gathering Roses while it may."

ENGLISH PLANT NAMES.—"Marsh Marigold" (see p. 100) may rest assured that although the few may object, the many will be grateful for any pretty and characteristic English names he may devise for beautiful plants. Mr. Barr tells us that the beautiful leaved *Funkias* sell far more readily under the pretty name of "Plantain Lilies" than ever they did under their Latin one. So, too, of *Myrsiphyllum asparagoides*, the "Boston Smilax" of American gardens, which has in some places acquired quite a new popularity under the far prettier and more suggestive (because more truthful) name of "Wreath Lily." Again, take for example, *Parochætus communis*, a lovely Himalayan mountain weed, the beauty of which is as effectually concealed under its Latin name as a bit of blue Gentian is when under an avalanche. Once, however, let anyone see it and hear it spoken of as "blue-flowered Shamrock," and its beauty is photographed on the mind for ever just as Burns photographed the Daisy as "wee crimson tip'd flower," and as Chaucer had long before done as "Day's Eye," or "Eye of Day." "Oh!" say the learned ones, "Latin is a cosmopolitan language, a lingua franca which is understood by savans all the world over, so Latin must ever be employed." All this we hereby do "graunt and firme letton" to the botanist for all time; all we say is that every plant worthy of a Latin name is worthy of an English name in addition to that. It is not as if we wished the botanist to give up his Latin in exchange for English—we freely grant him his rights, but object to his, or anyone, trying to suppress English names. The gardener has as good a right to give English names, or, on just occasion, any other names, as the botanist has. We have as great a respect for precedence of nomenclature as anyone, and shall not give new names to the Violet, or Primrose, or Ivy, or Holly, or Oak, all English names, as lifeless and unchangeable, and as definite as any language can ever be. Travellers tell us that there is scarcely an animal or a bird alive in any country that is not as definitely known (by the natives of the country in which it lives) by a name as characteristic as any Latin nomenclature can possibly be. Is bread of "Triticum" more nutritious than that of "Wheat"?

A NOBLE ORCHID.—A Dublin friend tells me of a fine *Odontoglossum Alexandræ* which is now flowering in a lady's conservatory in Fitzwilliam Place. Last year the plant bore two spikes from one fine plump bulb, the number of blooms on each spike being, as my correspondent believes, thirteen and ten or eleven respectively. Last year the one leading growth "broke double," and this season each bulb bears one stout spike on one of which is thirteen, and on the other nine blossoms. The actual number of blossoms on a spike, however, is of minor consequence, what is far more remarkable being the size and fulness of the delicately-tinted flowers themselves. The broad petals are most exquisitely fringed of a warm white, due to the most subtle flushing of carnation, the sepals being delicately suffused with rosy lilac. The spotting is confined to the lip, which has a solitary blotch of reddish-brown just below the characteristic yellow disc. Just now when importations contain such a large proportion of weedy pallid varieties, the sight of such an exquisitely beautiful kind is all the more refreshing. This variety is from an early importation and was purchased for its present owner by the late Dr. Moore. Seeing the prices now being paid at Stevens' for good forms of this Orchid, one would think it would be a profitable employment for a collector abroad to select the best varieties and mark them ere be consigned them to Europe. Only the other day we heard of half a

plant in flower fetching £30 or £40, and yet imported plants may be had for as many pence. I know a little of the difficulties and dangers under which collectors must ever labour, but I also know the advantages they often have of liberal European assistance, and native labour not over expensive, and in their own interest I ask of them as a favour that they will select and mark exceptional variations, seeing that most men who buy are liberal enough when they can conscientiously write "value received."

STENOGASTRA CONCINNA is a little stove plant now but rarely seen, and yet but few plants are prettier than it is when well cultivated. The

*Stenogastria concinna*

plant is of tufted habit, barely 2 inches high—a fine specimen would go into a fusée box—and the delicate *Gloxiria*-like flowers are of a soft lilac colour shading into white, the throat of its tiny blossoms being spotted or dotted in a really exquisite manner. It is a choice little gem for associating with the rarer kinds of *Goodyeras* and *Anætochili*, or for pan culture beneath a glass shade or bell-glass, provided air is freely admitted.

SOPHRONITIS GRANDIFLORA.—Once when I was staying with Orchid-loving friends they were in ecstasies because one of their correspondents in India, or Malaya, or somewhere else, had told them of a "bright scarlet species of Moth Orchid, or *Phalænopsis*," and they were very anxious for him to send home plants of the new beauty. Alas, for those brilliant hopes which flit past us like gaudy butterflies, something happened, and the plants never came. I shall not moralise on the fallacy of "great expectations;" my readers may moralise for themselves, and I—I have grown so fond of the large-flowered scarlet *Sophronitis* that I do not care whether the scarlet *Phalænopsis* is or is not torn from its native lair. As a contrast to white *Lycastes* and *Cælogynes*, *Sophronitis* is most lovely.

SPRING-TIME.—What hope and promise there is in early spring days when the Grass is chequered with warm sunshine, and the Daisies open their eyes and Crocuses their cups of gold, and the Snowdrops become taller, Daffodils also make sudden growth, and the golden stars of the lesser *Celandine* sparkle in little nebulae on the thin turf beneath the dark Olive, green boled Elms. Blackbird and thrush, like rival prima donnas, sing their newest and sweetest songs, as if doing their best for pride of place in our hearts. Even the noisy rooks suddenly remember that it is nest-building time. Two are there now on a topmost branch nodding to each other most approvingly as they examine their last year's nest. They remind me of the picture of King René and his wife, so intent are they on their housebuilding. Then rosy buds of Almond trees are ready for bursting, and the golden winter Jasmine is supplanted by *Pyrus japonica*, which seems to set the old grey walls afire, so brilliant are its scarlet blossoms.

HARDY SHRUBS NOW IN BLOOM.—Odd coral buds glint here and there among the tender leaflets of *Pyrus japonica*; the soft green bells of

Clematis cirrhosa sway to and fro in the sunshine; their as yet unopened buds remind one in colour and size of Hazel nuts when fully grown, but unripened. *Daphne Mezereum* is a mass of sweet purple blossoms, and the Japan Jasmine is yet in full glory, and yet the pride of place must be given to one of the hardiest and best of all spring blooming shrubs—*Rhododendron præcox*. A specimen now in full bloom and bud in a sheltered (not shady) corner reminds one of a "specimen" Azalea at a May flower show. Its blossoms are of a lively lilac-purple tint, the buds being deeper red and the leafage dark and fresh, and as glossy as if grown in a hot house. It is perfectly hardy, and once well planted is totally careless, oblivious even of the existence of a gardener. Perhaps this is the reason one so rarely finds the plant either in public or private gardens. In most nurseries it is extinct—"not in stock" is perhaps the right way of expressing the fact. It is a hybrid, I am told, between an Azalea and a *Rhododendron*, but I want to hear where it may be purchased.

HAPPY MARRIAGES.—So one of my friends calls the blending of two sweet-smelling flowers or leaves together, and sends me examples. A bunch of Violets and sprays of golden-leaved Thyme is exquisite in colour, and in fragrance also. Then Rosemary sprigs and winter Heliotrope is another very successful mixture, colour also low and harmonious, and a right royal marriage is that of the Amazon Queen Eucharis with *Narcissus* (*N. Tazetta* var.). Then Veitch's Jasmine (*J. gracillimum*) and Violets again are so distinct as to be positively a new sensation altogether in the way of perfumes. The wonder is, seeing how we fight for delicately blended colours, that we have been so long content with either crude perfumes (*i.e.*, one flower only), or failing that have rushed to the Charybdis of a copious mixture, or what a cynical friend calls "family jam." I am more particularly anxious that lady readers of THE GARDEN should tell us of all the "happy marriages" they know of in the way of flower odours. I forgot to say that Tea Rose buds, Niphetos, or Safrano will do, and Paper-white *Narcissus* is a—well, try it for yourself.

SNOWDROPS.—These are now at their best with us—not in fullest blossom, but at their freshest and fairest, with all the promise of budding beauty, which I hold more precious in a way than that fulness "of maturity so suggestive of decay." *G. Elwesi* and *G. Imperati* are alike giants of their race; the latter is here the largest, unless Melville's large variety, which seems to be a little later, eventually surpasses it in size, as it certainly did last year. *G. nivalis*, single and double, are abundant in borders and on the green turf, and where dead leaves have blown and clustered around them I note the flowers are the larger and cleaner for such accidental shelter. *G. Redoutei* produces plenty of its snowflake-like leaves, but "nothing but leaves" is a poor text from which to preach. *G. plicatus* is much finer in leafage and blossom than *G. nivalis*, but not so floriferous. *G. Elwesi* is of all most distinct by reason of the large additional basal blotch on the three inner petals. One or two late flowering varieties are barely out of the ground yet. *G. Imperati* in the bud state is most lovely. If it were an Orchid, everybody would . . . but it is not.

HELLEBORUS NIGER ANGUSTIFOLIUS.—Since I rashly penned my note on this plant several people write to say that *H. altifolius* "sometimes comes pure white," and they gratuitously jump to the conclusion that it is my plant. I know *H. altifolius* well—as the wisest of my correspondents infers; it is quite distinct and "sacred to the memory of the late Miss Hope, of Wardie," but mine is a large—the largest and best—form of *H. niger*, the individual blooms being "large and white as those of a Eucharis," with no red speckling or rosy flushing on any part of the entire plant, simply pale green stalks and pure white sepals. Then someone says that *H. altifolius* (*H. niger maximus* of gardens) as figured in THE GARDEN is wrong in colour. This is scarcely true. The flowers are past their best, too old for figuring, in

fact; but the colour of the plant is most faithful, just as its flowers fade away. This plant and *H. niger* (type) have always scapes speckled with red. My plant is never so speckled, nor do its blossoms die off rosy, as do those of *H. altifolius*. I hope someone will recognise my portrait and say a word in defence of such a "swan-like beauty."

VIOLET-SCENTED ODONTOGLOSSUM.—A little plant of *Odontoglossum Warneri* now in bloom is deliciously perfumed like Violets. Has this plant or its first cousin, *O. Rossi majus*, ever been suspected of robbing or of mimicking the spring Violet's fragrance before? Time of day, 10.30 a.m., in bright sunshine. Of course it is now well known that the odour of some Orchids changes at different periods during the daytime. Some even—the *Angræcums* to wit—are most potent in perfume after dusk. Someone once told me *A. virens*, the small blossomed dwarf form of *A. eburneum*, Lindley (= *A. superbum*, Dupetit Thouars), had the fragrance of Christmas plum pudding, and I know for a fact that *Odontoglossum gloriosum* (odoratum var.) has the fragrance of Hawthorn or May. I wish Orchid-growing amateurs would look into this question of fragrance and tell us their experience. It is comparatively an unworked mine, and the results would at least be highly interesting, and might some day be of practical value as well. For the present can anyone corroborate my experience of *O. Warneri* being Violet-scented? **VERONICA.**

Gladiolus planting in January.—Visiting one of the best and most expensively maintained gardens in this vicinity the third week in January, I was rather surprised to find the experienced gardener planting fifty Gladioli corms obtained some days previously. I gently remonstrated as to the early period. He replied, "I find our corms begin to move naturally if the atmosphere is mild and moist invariably in January. If we do not take advantage of this, a check is experienced that I consider affects the subsequent growth." I may just state that the proprietor has been twenty years a most successful grower of Gladioli, and only patronises the best of the gardener's hybrids added every year to his stock. Now, I do not commence to plant myself until February, but I would like to ask if any of your readers have tried planting in January, and with what result. I know Mr. Douglas in certain cases recommends leaving them outdoors during the winter.—W. J. M.

THE CHRYSANTHEMUM AND ITS CULTURE.

Diseases and insects.—The Chrysanthemum, being hardy and robust in constitution, is singularly free from diseases. When they are housed or sheltered under canvas in October, however, mildew sometimes makes its appearance. Its origin is by some attributed to very cold nights succeeding sunny days, *i.e.*, to great extremes of temperature. Overcrowding the plants and insufficient ventilation is another fertile cause of mildew. The best of all preventives is to stage the plants thinly, allowing each ample space; give abundance of air and keep a morsel of fire burning, especially on cold, wet nights. It must, however, never be forgotten that it is shelter, not heat, that this flower requires. A fire-heated house is best for preserving the dry atmosphere best suited to the preservation of the blooms. Should mildew actually appear, dusting the affected plants with flowers of sulphur is the best antidote.

Professor Westwood, writing on the insects which infest Chrysanthemums in the *Gardeners' Chronicle* (1881, p. 537), says: "I regret to find that a very large proportion of my Chrysanthemum plants (on which I have for some months past been bestowing a large share of attention) have come blind, the tops of many of the shoots having shown a strong and vigorous foliage—too vigorous, in fact, for the development of flower-buds, whilst many have produced imperfect one-sided buds, instead of the fine round ones which should produce the perfect flowers. How far

the peculiar weather of the last six months has caused such effects I cannot determine, but I do know that, notwithstanding all my care, insects have abounded on my plants, and I have no doubt that in many instances it is to their agency that my failures are to be attributed. Throughout the early summer months I found the perfect cuckoo-spit insect or frog-hopper very commonly on the young plants, it having been developed earlier in the year from the patches of froth, vulgarly called cuckoo-spit, to be found on many plants, in the midst of which the immature frog-hopper is to be found. The perfect insect is extremely active, springing off the plant on the slightest motion, so that it is very difficult to be captured. Taking its place on the tenderest part of the plant, it inserts its delicate sucker into the young shoots and arrests their growth.

"Later in the summer the earwigs make their appearance, feeding by night on the tender foliage, and concealing themselves on the return of daylight within the buds, their heads being invariably turned towards the innermost part of the buds, and their tails towards the extremity of the curled-up leaves. This affords an easy mode of catching and destroying them. On taking hold of the folded leaf and the tail of the insect between the forefinger and thumb of the right, the alarmed insect immediately raises its head, which may be seized by the nails of the thumb and forefinger of the left hand, and the insect decapitated. I observed the curious fact that it is almost always the case that the depredators are females (easily distinguished by the much smaller size of the forceps at the extremity of the body); with these females were sometimes associated the immature earwigs, and I have taken as many as seven of these insects in the head of a single shoot, their presence being indicated by the minute black granules of their excrement on the surface of the leaves."

The writer of this article has published the description and figure of a species of field or plant bug (*Phytocoris campestris*) which constantly causes much mischief in the autumn to the Chrysanthemum buds by inserting the extremity of its delicate rostrum (including four very fine bristles) into the buds, and thereby injuring such of the petals as are in part attacked by preventing them from expanding properly and preventing the so much desired regularity in the bloom."

This species has been unusually abundant on my plants this year, and with it have been associated several other kinds of plant bugs having precisely similar habits, and being equally injurious to the plants. One of these, nearly as large as the preceding, is of a delicate pale green colour, which causes it to be observed on the plant with difficulty. This species was named *Cimex nassatus* by Fabricius. Another species, of smaller size, is the *Cimex* (*Anthocoris*) *nemorum* of Linnaeus, about one-and-three-quarters line long, of a black colour and shining, the wing covers of pale whitish yellow spotted with black or pitchy colour; the apical membrane yellowish white, with the middle and end brownish black, and the legs yellow. It is common on trees and bushes from June to October, and hibernates among dry leaves. A greater amount of mischief is committed, however, by a much smaller insect, the *Cimex minutus* of Linnaeus, belonging to the genus *Anthocoris* and subgenus *Triphleps*. This little insect insinuates itself quite into the centre of the bud, its minute size rendering it difficult to be perceived, although the black colour of its body and the black triangular patch in the middle of its wing-covers render it quite conspicuous when exposed, or when the bud is gently opened. In its preparatory state it is also equally injurious, and is easily distinguished by a large white patch at the extremity of its rudimentary wing-covers. The same insect occurs in North America, where, from its habits, it has been named *Anthocoris insidiatus*.

Besides the foregoing insects I have noticed several others on the buds of my Chrysanthemum plants, although of comparative rarity. The common 7-spotted ladybird is one of these, but as this insect is known to be insectivorous, feeding both in the larva and perfect state on plant lice,

it may possibly have taken its place on the plant in hopes of finding its usual prey (which has, however, not made its appearance this year on my plants); in the absence of this, I suppose, it would attack the plant bugs above described. The common long-legged harvest spider (*Phalangium* sp.) has also often been found on the heads of my plants, most probably having got there in search of insects on which it feeds. The caterpillar of the dot moth (*Noctua persicaria*) also has been occasionally met with, and must be looked after sharply, as its delicate green colour with the dark lines on its back render it difficult to be easily detected from its similarity to the folded young leaves of the bud.

Compost and manures.—The best compost for the *Chrysanthemum* is one mainly composed of sound red loam, and the more vegetable fibre it contains the better. My own practice is to buy a few cartloads of this during November. It is dug from a mountain side where the grass and other herbage is short and fine, being eaten off closely by sheep. Almost any kind of plant will grow in it, and it is of that texture which holds much water and yet is never "soapy," but friable even after it has been squeezed in the hand. Sand in any pure form I do not use in the culture of the *Chrysanthemum* (except for rooting cuttings in), but instead I add a cartload of old lime-mortar to, say, five loads of the loam. A barrow-load of pure soot is added to the heap as it is turned over for the first time in December. If possible let this operation be done during dry, frosty weather. The soot is useful in making the soil unpalatable to worms, and as it consists mainly of charcoal or carbon in a fine state, and holds also some ammonia, it is manurial also. Some growers advise adding a fourth or more of well rotted manure to the loam, but I am convinced that the finest and most floriferous growths are those made in good loam, lime rubbish, and soot as above described. The right time to apply the manure is after the flower-buds are formed in August and September, about which time the soil becomes partially exhausted and quite filled with roots. It is quite possible and easy to grow large plants with enormous sappy leaves by adding manure largely to the compost at the final shift into blooming pots (say in May or June), but it does not follow that plants so luxuriantly grown, and so healthy in July, give the finest flowers in November. It must never be forgotten that size of leaf and apparent vigour of plant is no guide to good bloom, no matter whether the desired results are quality or quantity. I rely on a sound, sweet compost, careful and regular watering, and from the first week after the cuttings are rooted I freely expose the plants to sun and air, except during sharp frost. What is requisite is not growth only, but sound, firm wood, or growth well matured. Once every week during summer the plants receive a dose of soot water. I am now firmly convinced that many growers fail in using a compost containing too much manure during the early stages of the plant's existence, and by relying on a basis of sound loam we have the plant more entirely under control, as manurial stimulants can most easily be given in the liquid state when it is deemed desirable, or when it is most useful to assist forward and aid the development of the flower buds. Now, here is a piece of advice given to me some time ago by Mr. N. Davis, of Camberwell: "Never give liquid manure to the plants while forming their buds, or else blindness will be the result." This advice more especially applies to plants from which "perfect" or "prize" blooms are expected, for we know that really creditable decorative bushes, well laden with third-rate flowers, may be grown by giving manure water freely as soon as the blooming pots become filled with roots, say in June or July. Indeed for specimen plants or large bushes it is almost a necessity, and Messrs. S. Dixon, in their notes on *Chrysanthemum* culture, say, in speaking of large trained specimens, "As soon as the roots reach the sides of the (blooming) pots we commence giving liquid manure." I am particular in clearing up this point of when and how and to what plants to apply

manure water, as there has been much misunderstanding on the point, as there has also been on the delicate question of how and when to stop and disbud, which is fully alluded to and explained in another place.

The addition of much manure to the compost causes unstopped plants to grow too quickly, and so their growth is not sufficiently matured. On the other hand, specimen plants or decorative bushes are stopped frequently up to the second week in July in the south of England, or to the last week in June in the north of England, Scotland, and in Ireland. All this stopping and training of the shoots naturally checks the growth, and so a richer compost may in their case be used with more safety than for unstopped plants with only one to three stems from which large blooms are to be obtained.

Watering.—No plant requires more constant attention as to watering than does the *Chrysanthemum*. This is especially the case during July and August, when the pots become filled with roots, and an additional strain has to be borne, as the plants are at that season about making up that portion of their growth upon which the flower-buds appear. Rain or soft river water is best if it is readily obtainable, but if pump or spring water must be used, expose it for at least some hours in tubs or other open vessels, so that it becomes warmed and aerated. My own practice is to water twice a day after the plants are placed in their blooming pots, say in May or June. Dribbling a little water on the surface will not do; nothing but a thorough soaking serves such a gross feeding plant. Syringing the foliage every evening an hour or two before sunset is of great advantage in keeping the foliage clean and bright and free from green-fly and other insects. When manure water is applied it is essential that the soil be thoroughly moist beforehand. If the earth is in any way dry always give a soaking of pure water before the manure water be applied. It then finds its way downwards, regularly becoming equally diffused throughout the ball of earth within the pot, and every rootlet is fed, and none are injured, as might otherwise be the case if watered with crude manure water when the earth is in a dry state. Soot water is a great aid to culture in many ways, and should be carefully prepared, so that no soot floats on the surface. Syringing with a clear solution of soot makes the leaves of a beautiful dark and glossy green tint, and is an excellent preventive of green fly. We water the whole collection every morning about eight o'clock, paying great attention to the thorough soaking of every plant; and to do this effectively when a plant has been allowed to become dry, three or four waterings are necessary. As the plants increase in size and the ball becomes filled with roots it becomes necessary to watch the edges and sides of the ball narrowly, otherwise most of the water which should diffuse itself gradually and thoroughly throughout the ball of earth merely trickles down the inside of the pots, leaving the ball as dry as tinder, although apparently a thorough good watering had been given. We watch our plants very narrowly, and every week devote some time to ramming down the edges of the ball tightly with a blunt lath. A little labour and attention in this way is abundantly repaid. In very hot dry weather a mulching of rotten hotbed manure may be given, and this is especially valuable if the earth has been in any degree washed away in the operation of watering. Even a handful or two of short lawn grass from the mowing machine will economise labour and water also if it be sprinkled on the surface of the soil in which the plants are grown—I mean early in the season, before the soil is in any way exhausted by the ramifying rootlets; after that takes place mulching with rotten manure is most valuable.

Stopping and disbudding.—Both these operations are of great importance in the growth and training of large specimens for show. Stopping the points of the main shoots must be carefully attended to. First, say in December or January, the rooted sucker or cutting has its

point carefully pinched out, and this causes branches to appear from the axils of the three or four leaves below the part pinched off. Pinching or stopping must be done at the exact moment when side branches are desired, as only the bud at the very end or top of the shoots must be removed. To allow a shoot to grow 3 inches or 4 inches longer than is requisite, and then to stop it back into the partly hardened wood, is fatal in all ways. Here are Messrs. Dixon's rules on stopping, which may well be reproduced in this place. "For specimen plants or decorative bushes stop until the second week in July, that is, in the south of England, in Ireland or the north of England the last week in June is quite late enough to stop; after that time is fatal to good flowers. Again, never stop and shift on the plants into fresh pots at the same time. Ten days or a fortnight should always be allowed between these operations. The repotting or shift then strengthens the laterals. For exhibition specimens," say Messrs. Dixon, "these rules should never be departed from." After the first stopping one to three shoots only should be allowed to grow on. Pick out all other growths with a knife. Unless the cuttings were carefully disbudded or cleaned ere they were inserted in the cutting pot basal growths or suckers are apt to annoy one. Pick all these carefully away as soon as seen. Tall plants for large blooms are rarely stopped more than twice; they naturally stop themselves twice, indeed—in May and in July. To allow them to do this, however, is a sheer loss of time, and the better plan is to pick out the May and July flower-buds as soon as they appear, leaving only one shoot to lead up from immediately below the point on the shoot whence the flower-bud has been removed. It will thus be seen that stopping and disbudding are very nearly related in the middle stage of *Chrysanthemum* culture.

Disbudding proper, however, is taking out all side growths below the flower-bud, which is retained as the most likely to produce a fine bloom. Every axillary growth or flower-bud which appears below the flower-bud must be picked out, care being taken that the leaves are uninjured in the operation. August is indeed a busy month to the grower of *Chrysanthemums*, as it is but rarely that the careful work of disbudding can be left to ordinary assistants. So far as decorative bushes are concerned, where quantity and fair, rather than superlative, quality of the blooms is desired, disbudding may be reduced to a minimum. A due thinning out of the weak shoots, or rather the prevention of their appearance, removal of sucker growths, and ample feeding and judicious stopping, will produce fine plants, each shoot being either a wreath of flowers, or bearing a truss of four or five blooms at the top. Writing in a contemporary, August 20, 1880, Mr. Hinds says:—

"*Chrysanthemum* growers in all parts of the country will now be on the *qui vive* for the buds which will produce their fine show flowers early next November. Outside a very narrow circle the method of growing large flowers is indeed a mystery. Different kinds of compounds are recommended for potting, the size of pot in which they should be grown is diligently inquired after, when to pinch, how to pinch, and how many shoots should be grown to a plant, are all questions that crop up periodically among the uninitiated. There are many who think they have only to 'order the good kinds' to insure success. But what a fallacy! The good or evil will be accomplished during the present month. Those who grow flowers for size usually grow from three to nine shoots upon a plant. I have seen good-sized bushes bearing fine flowers under a skilful system of cultivation and disbudding. Many of the early flowering kinds are now showing bud—of course in an embryo state; still it is there. Young shoots will be observed at the base of the bud, which, if allowed to grow, will render the bud useless. But first of all examine the form of the bud and the vigour of the plant. If the bud is cone-shaped, and the plant does not appear to be over-vigorous, remove the embryo shoots at the base of the bud at once. Of course some know-

ledge of the kinds, as to whether they are early or late varieties, is indispensable. In a doubtful case it is prudent to leave the bud and one shoot, so that in the event of the bud turning out to be imperfect or too early for the kind, there is a chance left of obtaining a later flower from another bud. The removal of lateral growths, skilful disbudding, and feeding the plants occasionally with weak soot water will contribute much towards a display of fine flowers next autumn."

Staking and training.—Staking is necessary for at least two reasons—to prevent breakage by winds, and to enable specimen plants to be trained conveniently. Plants grown for large flowers seldom require more than a single stake to secure them, but it should be sufficiently stout to obtain a firm hold of the earth in the pots. Dwarf specimens may be trained on sticks laid flat-wise over the top of the pot and secured with copper wire to a wire ring fixed below the rim. These and a few short bamboo stakes inserted at various angles in the soil will be sufficient to secure the shoots wherever desired. Soft raffia or worsted may be used for tying purposes. Specimens for conservatory decoration are easily secured to slender stakes inserted soon after the plants are shifted into their blooming pots. Six stakes inserted around the sides of the pot, and three in the centre will, as a rule, be ample, and once in position, the main shoots can be secured as growth is made. When tall plants are grown for cut blooms, a few stout stakes 6 feet high may be driven into the ground, and three or four lines of tarred twine or wire carried along from one to the other, to which the tall shoots may be secured as growth progresses.

Bamboo stakes are preferable to deal sticks being far more durable. As a substitute for either, rods of Hazel, Ash, Poplar, or Willow may be employed. In the case of Willows they should be cut after the leaves fall in autumn, and well dried by being tied in small straight bundles and laid upon a smoke flue or on the top of a boiler. So treated they dry firm and straight, and cause no annoyance by rooting into the soil, as is invariably the case when they are used green.

Raising new Chrysanthemums.—Mr. A. Forsyth writes as follows in the *Gardener's Magazine*, April 20, 1872: "New varieties of Chrysanthemums are raised by two methods, in one of which Nature takes the lead, and in the other the initiating agent is man. I shall endeavour to describe both methods, so far as I understand them, after many years' experience and observation, during which it has been my good fortune to submit for public approval a few new Chrysanthemums that have acquired celebrity and well rewarded me for my pains.

"In its native country the Chrysanthemum sheds its seeds naturally, and new varieties spring up, as they do amongst all self-sown plants. In this country its never does so, and yet Nature kindly takes care that our collections shall be enlarged, for every now and then a sport occurs, and by this means a novelty is secured. It appears that lilac flowers are the most sportive, and that they frequently change to yellow; that is to say, a plant which should produce lilac flowers will some day, to our delight, present one or two yellow flowers in the midst of those of the proper colour. It appears that nearly all the colours are capable of sporting into white; but it would be difficult to establish any rules, for if we may make a fair generalisation from all we know, it may be pretty safely said that any colour is capable of sporting to any other colour; that is, within the range of colours proper to Chrysanthemums.

"All the four varieties of *Cedo Nulli* have sprung from one; the form is the same in all, but the several colours are yellow, lilac, brown, and white. *Bronze Jardin des Plantes* came from the good old yellow variety; the *Queen of England*

* Mr. Sharley Hibberd, in sending me this article, at much personal self-sacrifice, says, "You will be glad to hear that the writer of this article, Mr. Forsyth, is doing well in New Zealand, and still sticks to the Chrysanthemum." I am glad to hear this, and so will be all true lovers of the Chrysanthemum.

has sported into six different colours, with some slight change of form too, the *Golden Queen* being the least perfect amongst them. My *Golden Tirlby* was a sport from the old *White Tirlby*.

"It is not worth while to occupy much space with examples, and I shall not say a word on the philosophy of the change, preferring to confess that, while I am familiar with the facts, I am unfamiliar with their physiological import. The question for the practical man is, having obtained a sport, how to keep it? In order to answer the question satisfactorily, I must be particular in what I say. In the case of a sport really worth keeping, the first business is to notice how many terminal shoots produce it, for sometimes the new flowers come in a bunch, though more frequently they appear singly. Mark the branches and cut the flowers, and take off a few fair-sized cuttings from the wood that produced the new flowers, and strike them in a gentle heat with care. Having done this, cut the plant down, leaving uncut the stems on which the new flowers were produced, to obtain from them a good stock of side shoots during the winter for cutting from in February and March. By this course of procedure you will secure a good stock of plants on which, perhaps, in the following season the new flowers will appear, but on which the old flowers may appear instead, and you may just discover that, so far as raising a new variety, all your labour has been in vain: 'Nothing venture, nothing have.' It may happen that the new flowers appear on a sucker from the root, in which case your chance of success is greater than when they appear on the ripe wood; but it is a lottery, and those who enter to win must take their chance of losing. A neighbour of mine had a fine sport of *Queen of Anemones* a few years ago, and exhibited it at the Stoke Newington Exhibition. He raised a good stock from the wood that produced the sport, but he never saw the sport again, the plants producing flowers of the old sort as if nothing had happened to them.

"It would be unjust to the public for any trader to send out a new variety resulting from a sport without first submitting it to a sufficient proof. The instance just cited will show that in this business we must not count our chickens before they are hatched. It is advisable to grow cuttings of sports in such a way as to ensure the full development of all the flower-buds they form, so as to work them right out, and prove them sound to the core—that is, if they are so. Now, to do this, it is advisable to grow them in a poor soil without stopping, and to train them only so much as will suffice to keep them tidy, and to take care to give them no more pot room than is needful for fair growth, but at the same time taking care not to starve them out of constitution.

"Now, we must consider the method which depends on our own initiation, and in which, while we must, of course, wait upon Nature, she will do but little unless we lead the way. The most distinct varieties are raised from seed, and to obtain seed is a most difficult matter. It may be obtained from China and Japan, but is not a regular article of commerce, and it has been grown in quantity in Italy for the French and English raisers, Mr. Salter having been dependent chiefly on Italian seed for the many new varieties it was his good fortune to send into the market. The amateur who may be ambitious of growing his own seed will be disposed to ask for advice on the subject, and happily on that subject I can say something practical. There is but one way to secure seed in this country, and that is, to manage the plants so that they will flower in the spring.

"It will occasionally happen that, amongst a lot of plants that have flowered in the usual way and have been cut down and stored in a pit, flowers will appear in the month of March on buds that were dormant in the previous autumn, and that escaped the knife through being on short shoots amongst the suckers. I remember that, in a report in the *Floral World* some years ago, it was stated that a very fair specimen of lilac *Cedo Nulli* was shown in the school-rooms at Brixton Hill in the month of March, on the occasion of Mr. Hibberd giving a lecture there on the cultivation of the Rose. Now, here we have the whole sub-

stratum of the art of raising seed in this country, and will suggest to the ambitious a simple mode of procedure which is likely to result in a very fair production of seed, and, having done so, I will improve upon it and increase its value.

"We will begin with a lot of plants that have been grown to decorate the conservatory. We will allow them to flower, and so far pay no attention to seed-growing whatever. But the instant they begin to look shabby, we are to resort to measures to encourage seed-production. There must be provided an airy greenhouse or a very light shed, or some such place safe from frost and sufficiently lighted to keep the plants in health all the winter. A dry sunny greenhouse is the proper place for them. They are not to be cut down. No; the faded flowers are all to be clipped off close under the base of each by a pair of scissors or finger and thumb—the "cold steel" to be preferred. Now pack them pretty close, keep them rather dry, and let them have plenty of light and air, and exercise patience. In the course of February and March a lot of flowers will open from buds that were dormant when the proper bloom took place. If you do not get seed from these with the spring sunshine at your command, you will never get seed at all, I fancy, and might as well give up the enterprise as an impossibility.

"Now, we are to improve upon this practice, and the improvement consists in striking cuttings in June, and putting them into $4\frac{1}{2}$ -inch pots as soon as rooted, and shifting them to 6-inch pots about the middle of August. They will probably flower very well in November and December under glass, but they will carry a lot of dormant buds with them into the spring season, and should produce seed in plenty.

"But how about hybridising? you will ask. Permit me, in all sincerity and politeness, to say that hybridising the Chrysanthemum is fudge! Take your seed as you can get it, and with it take your chance of the crossing Nature has accomplished for your benefit; but do not suppose that anyone less gifted than a magician can manipulate the flowers of the Chrysanthemum with the certainty that we operate on the flowers of *Geraniums* and *Fuchsias*. Depend upon it, in the improvement effected by English raisers in the Chrysanthemum there has been very little crossing done by means of a camel's-hair pencil; but no doubt cross-breeders in the insect world have laboured for our benefit. At all events, if we compare the best Chrysanthemum of forty years ago with the best of to-day, the contrast is wonderful, and therefore we may reasonably hope for still further improvements as the reward of our labour.

"The treatment of seedling plants differs from the treatment of cuttings only to this extent, that we want to make sure of their flowering, and care very little indeed about the shape of the plants. Sow the seed as soon as ripe. Pot the plants singly in $2\frac{1}{2}$ -inch pots as soon as large enough, and shift on as needful until they are in $4\frac{1}{2}$ -inch or 6-inch pots, according to their habit and vigour, and in these comparatively small pots let them flower for the first time. You will, if you are wise, or unless you are wondrously lucky, destroy more than 99 out of every hundred of the stock as soon as the flowers appear. Mr. Salter used to say that for every new Chrysanthemum that he named and sold he destroyed at least 2000. The amateur will feel this to be discouraging, but the truth must be told, and, after all, a fine thing may turn up amongst a score or fifty seedlings—who knows? More than once in the history of floriculture an amateur has sowed one seed and obtained from it a new variety that has made his name famous."

Chrysanthemum sports.—When Mr. Salter wrote his work on the Chrysanthemum he frankly confessed that the causes of the appearance of sports was unintelligible to him. Darwin's works had not then appeared, and botany had not emerged from dusky chaos into the comparatively clear atmosphere of cosmos, as some of us are flattered to think is now the case. Graft hybridism had scarcely been recognised as a fact, and the realities of heredity and reversion were certainly

not seen in visions, even if dreamed of in dreams. Now, however, we know that culture and cross-fertilisation for ages will destroy the fixity of any plant. Again, after a plant has had its fixity broken, or after its characteristics become driven from their permanent or fixed condition—their “angle of repose,” so to speak—we begin to obtain a multitude of widely varying individuals when we raise plants from seed. In the case of the *Chrysanthemum* this is especially so; in a lot of seedlings no two are exactly alike. Every new generation is like a turn of the kaleidoscope; the elements the same, their arrangement different. Protean variability is an almost constant result of long-continued cultivation on the one hand and cross-fertilisation on the other. Every plant, every individual, having life has two distinct sets of characteristics: firstly, those which are evident and which can be seen; and, secondly, those which are invisible, or latent, but which may at any time break out or become visible under the influence of certain conditions. The visible characters in one generation may become absorbed or invisible, or partially so in the next. So also the characters of a former generation may again crop out, just as when we have it said of a child that he resembles his grandfather or some bygone ancestor of his line. This occurs in plants in two ways, either wholly from seed direct, or by a partial change in an individual when one bud develops a branch differing from its fellows and which is popularly called a “sport.” Such sports are mainly originated and their production facilitated by culture, aided either by cross-fertilisation or by what is often pretty much the same thing, cross-grafting. Now, if it be true that cross-fertilisation is the cause of variability, one would logically infer that the reverse of variability or fixity of characters would result from self-fertilisation, and this much is practically true, for we know that Stocks, Asters, Zinnias, Primulas, and many other flowers can be bred to come true to colour, habit, size, &c., with certainty by ensuring self-fertilisation for several successive generations.

Here is the golden rule for all hybridisers: To obtain variety, cross-fertilise; and if a good variety, strain, or race be thus obtained, self-fertilise its best and most robust members in order to “fix” the race, and enable it to be obtained true from seed. This rule holds good with all garden or florists’ flowers, and the finest of results may be gained by practising it with skill and careful labour.

Mrs. Marigold was a remarkable sport, “a complete tasselled Japanese variety with pale pink or flesh-coloured florets,” from Miss Mary Morgan. At Mr. Turner’s, Slough, in 1880, a most remarkable sport appeared on a plant of Mrs. Dixon, half the bloom being of that variety and the other half white, exactly like Mrs. Rundle. The florets on the Mrs. Rundle half of the bloom were much broader than those on the Mrs. Dixon, or yellow side of flower.

F. W. B.

Kleinia repens.—I do not say that there is any great difficulty in increasing the stock of this plant, but as I have used it largely for several years past I have naturally endeavoured to find out the easiest way of obtaining the best plants for carpet bedding; neat, compact plants are what is wanted, and it so happens that the old plants when taken up in autumn are rather lanky and naked. These I tried to utilise again another year, but they were so deformed and ugly that a straight line could not be made with them. My practice now is to take off the tops of all the strongest plants in autumn and make them into cuttings; the latter are dibbled into shallow boxes filled with sandy soil. The boxes are then placed on a back shelf in the stove and carefully watered. We have to-day (Feb. 10) examined the cuttings and find them to be well rooted, stout, sturdy material. We have, therefore, removed them to a cool Peach house, where they will remain until the beginning of May, when they will be taken out-of-doors to harden preparatory to being used in the flower beds. We have adopted this practice now for these last two years, and although we

keep some of the old plants we much prefer those raised from cuttings, as they are short and sturdy, with thick, fleshy leaves, and we can make lines or figures of them as true as may be desired. The beautiful tinge of blue which pervades a mass of this plant renders it different from all other succulents.—J. C. C.

KITCHEN GARDEN.

RADISHES AND THEIR CULTURE.

AMONGST the many subjects which we cultivate for salad none are more valued or acceptable than tender, sweet, well-grown Radishes, and an all-the-year-round supply of them may be produced with more ease and less attention than are necessary for many crops. Variety in the way of sorts has much to do with a constant supply, some kinds being most suitable for spring, others for summer, and others again for winter. It would be no heavy or unattainable undertaking to send Radishes to the table every day in the year from three sorts, but as seed is cheap and variety interesting, a few more will be alluded to in the following remarks. Early in spring long growing



Early long frame Radish.

Radishes become ready for use sooner than Turnip-rooted ones, but for summer and winter the latter are preferred. The Early Long Frame Radish is an excellent one for a first crop, and no doubt many of the readers of *THE GARDEN* will have proved this in the case of Wood’s Early, one of the best frame Radishes in cultivation. The French breakfast kind is olive-shaped, and a variety of great merit; in fact, the best spring and summer Radish which we possess, and should be grown by everybody. The red and white Turnip kinds are useful, and some of the newer varieties, which are of many forms and colours, are interesting additions which may probably in time become standard varieties. The Long White Naples is hardy, but in flavour it is not so good as some others. The black Spanish is, as its name indicates, black in colour externally, but pure white within, and very sharp and hot in flavour. This is so much the case, that few would grow it a second time. I would, in short, avoid it altogether and grow the China Rose for winter use. This variety is undoubtedly the best of all winter Radishes; it bulbs freely late in the autumn, is of a beautiful rose colour, will withstand the most severe weather,

and will remain in good condition from November until March or April. To secure a constant supply of spring and summer Radishes seed must be sown frequently, but not so in winter, as one good patch of this will meet all requirements. The Californian Mammoth now being introduced for winter use is too large and coarse to be generally acceptable.

Cultivation.—There is no advantage in securing great quantities of large-sized roots. A small and constant supply of crisp, delicately flavoured bulbs should be the only aim. The earliest will be had from a hotbed or from under some glass protection. It is seldom we grow a special frameful of Radishes, but secure all we want from frames planted with other crops. In January and February we are frequently making up beds of manure and leaves for forcing Potatoes, Carrots, &c., and amongst these are sown a few Radishes. When the Potatoes, for example, are planted in rows 15 inches apart, a row of Radishes may be sown between, and they will be ready for use and cleared off before the Potato crop in any way interferes with them. In Carrot frames the same thing may be done, and sometimes a Radish seed is dropped in here and there amongst the Carrots, as they will push up and be cleared off before the Carrots require much top room. Thus, young spring Radishes are obtained without any special outlay or extra attention; many, however, who try to grow early Radishes in this way make mistakes. One of these is sowing the seed too thickly. Under such circumstances when the plants come up they are a mat at top and bottom, and when this is the case useful roots are never formed. Thinning out some of the plants as soon as they can be handled is one way of avoiding this, but it is a wasteful way; the better plan is always to sow thinly. One seed every 6 inches or so will give a much finer crop and better results altogether than close sowing. Many doubtless wonder why their Radishes do not all bulb, but allowing them to grow too close together is as a rule the cause of this. Many are most particular, too, in getting their seeds in and the crop brought to maturity, but after the usable part of it has been gathered neglect follows, and where Radishes have been raised in a Potato or Carrot frame it is no uncommon thing to see worthless Radish tops overshadowing everything by the time the other crops should have been at their best. Cultivators should always be particular in clearing out all the Radishes as soon as they become too old for use, and any which do not bulb early may be thrown away altogether. In making up a

Special bed for early Radishes, a very shallow bed of fermenting material is sufficient; about 1 foot in depth is enough, and 6 inches of soil should be put on the top of this. They bulb fastest at this time of the year in a moderately rich sandy mixture. The seed should be sown broadcast, very thin, and it should not be covered more than half an inch deep. The earliest seed may be sown in frames in January and February, but in the latter month and throughout March seed may also be sown along the base of a south wall or in any sheltered sunny spot. Here the rule as to thin sowing should also be observed; in fact, this must be kept in mind throughout. When the little plants appear at first in the colder months of spring a slight protection will favour their free growth. A few branches or some similar covering is all that is needed. From April onwards throughout the summer select spots need not be chosen for Radishes, as they will do almost anywhere, their only requirements being a firm, rich, cool soil. Without this, especially in summer, the roots will become hot and stringy before they are well developed, and the period of their usefulness will be very short. In general culture some may prefer having the seed in rows; others may sow broadcast, and good Radishes may be had in both ways. At no time should the seed be put more than half an inch below the surface, and the soil should always be trodden firmly over it, as this induces the plants to bulb quicker and better than when in loose material. Dates of sowing and quantities to put in at each time cannot be given

to suit all; on the contrary, every cultivator must be guided by his own requirements in this respect. We are never without Radishes; our rule is to sow a small quantity of seed every three weeks from the middle of January until the beginning of September, when we stop all sowings and dealings with the summer varieties, and devote one good large piece of ground to the China Rose for winter. This sowing is made on a south border which may have been previously cleared of Potatoes or some other crop. The seed is put in in rows 15 inches apart, in order that plenty of air and light may be admitted to them in winter, and if the young plants come up too close they are thinned out to 6 inches apart. Under this treatment a uniform crop of useful bulbs is the result. We generally gather some of these by the end of October, when they are no larger than filberts, but at present they are as large as pigeon's eggs, very crisp and well flavoured. J. MUIR.

Margam Park, South Wales.

TOO LARGE VEGETABLES.

"A BEGINNER'S" query as to the time for sowing certain kinds of vegetables will doubtless be answered by some of our vegetable exhibitors; but of much greater importance than the limited nature of such an enquiry is the wider one of the purpose and value of vegetable exhibitions. A very natural reply to this suggestion is that competitions in vegetables, as in other products, are promoted to encourage the highest forms of cultivation and the growth of the best and most desirable varieties. No doubt the better cultivation is encouraged because good samples of the commonest kinds of vegetables cannot be got without careful culture, and so far it may be universally accepted that in that respect some good is done by means of competitive exhibitions. But the point as to whether the best and most desirable varieties are encouraged at shows is a different matter, and one very much open to question. Thus Peas are always a strong feature in a collection of vegetables, but are the kinds most favoured by the judges as a rule the best for table use? Is size in both pod and pea desirable? is the latter acceptable on the dining table? are these features usually associated with the best quality and flavour? and lastly, are they usually allied to heavy cropping qualities? Now, it would be pedantic to pronounce distinctly in favour of any one kind of Pea, or to denounce any other variety. To do so would be to evoke a host of protests even from those who are not afraid of protesting too much. What is far better is to put the matter clearly to both judges and exhibitors, whether in pandering to a task for showiness and size they are not proceeding in false lines; are not, in fact, favouring the growth of things that would be rejected if sent to an employer's table. Nay, I may go even farther and ask whether it is not the rule to grow some kinds of Peas for exhibition only, well knowing that varieties of superior flavour and fitness must be grown in bulk for table consumption. Broad Beans, again, on show tables are largely open to animadversion. Do not the great mass of cultivators prefer early Longpods, Broad Windsors, and Johnson's Wonderful for general culture? and yet the best sample of any of these prolific and useful varieties would not stand a moment's chance against the long huge pods of the Aquadule. The most delicious of all Cauliflowers are what we find in the shape of firm white heads of about 6 inches in diameter, taking half a dozen to make an effective dish, yet these are seldom seen in a collection if huge heads of from 9 inches to 10 inches across can be had. The exhibitor in this, as in many other cases, puts up the large heads against his own judgment, but he understands full well the prevailing favour shown by judges towards size, and therefore the big ones have the best of it. There is little to find fault with in either Potatoes, Carrots, and Onions, although sometimes favour is shown towards large and as a rule bad-keeping bulbs instead of medium-sized solid ones that would keep just as solid for the next six

months. Since growers have begun to show handsome medium-sized samples of Woodstock Kidney and similar high-class sorts of Potatoes in preference to the larger but undesirable American kinds, collections have so far improved. Early Nantes and medium-sized intermediate Carrots for summer and autumn exhibitions leave nothing to be desired. The Brussels Sprouts, one of the most acceptable of autumn vegetables, we find an undesirable tendency now to go in for size. No doubt growers have for many years been selecting for stocks that would produce large stems and large sprouts, and now we have in certain popular kinds sorts that are extravagantly big, and in their produce depart altogether from the accepted ideal of a market sample of Brussels Sprouts. It is a fact that market growers would not if they could care to grow a stock of Brussels Sprouts the stems of which were covered with heads as large as hen's eggs. Such huge sprouts are obtained at the cost of flavour and of that delicate piquancy which always characterises a well-cooked sample of genuine Brussels Sprouts. Parsnips are too often shown both too large and too long. The very deep rooting Parsnip usually carries through its entire length a centre core that is both hard and flavourless. The sweetest and most pleasant eating portion of the root invariably is its broad upper portion, which, without being unduly large should be clean, sweet, and succulent. Good fleshy roots some 12 inches to 14 inches in length are better than long tapering roots of 20 inches or more. Leeks are also sometimes too large. They may show high cultivation, but relatively be not half so useful as a handsome bunch of Turnips, a vegetable often shown too large, as also are Beet in some instances. Still with these latter, with Marrows, Tomatoes, and Celery, fewer mistakes of judgment are made than occur in the case with some of the vegetables previously named. Few exhibition products should be more easily judged than vegetables, but as a rule the judgments are oftener than in the case of other products productive of dissatisfaction. A. D.

VEGETABLES FOR EXHIBITION.

"BEGINNER" (p. 126) asks when Peas, Broad Beans, French Beans, Cos and Cabbage Lettuces, Autumn Giant Cauliflower, and early Cabbages should be sown to come in for exhibition about the end of August; and the question is an important one, especially to those who do not keep up a constant succession of such things. Years ago I had some difficulty as regards this matter, but it was soon overcome, as I kept a book in which was noted down the date when everything was sown throughout the year; an empty line was left under each entry, and this was filled up with the date when the crop reached maturity. From this I could always learn the time when our crops would be ready from date of sowing, and I found the plan to be of the greatest advantage in many ways. From repeated observations noted down at the time one can tell almost to a day when any crop will be ready, and I always work accordingly when shows or any special object is in view. In some seasons the time when crops are fit for use may vary a little, but never more than a few days or a week at most, and allowance can easily be made for this. Some districts, too, are earlier than others, and this may have to be taken into consideration as well as the character of the soil. In light, well-drained material many crops mature earlier than in cold, wet soil, but to meet and deal with these variations I would advise all interested in the subject to begin using their note-book at once, and follow the plan just indicated closely for a season at least. The following dates may, however, safely be taken in the meantime as approximate guides. Peas take from fifteen to sixteen weeks from the date of sowing to be fit for use; Broad Beans, fourteen weeks; French Beans (runners), seventeen weeks; dwarfs, twelve weeks; Lettuces, twelve weeks; giant Cauliflowers, twenty-two and twenty-four weeks; earlier kinds, fifteen and eighteen weeks; Cabbage, sixteen weeks; Beet, eighteen weeks;

Brussels Sprouts, twenty-four weeks; Carrots, sixteen and eighteen weeks; Celery, twenty-two weeks; Cucumbers, eight weeks; Leeks, twenty-four weeks; Onions, twenty-six weeks; Parsnips, twenty-eight weeks; Potatoes, eighteen and twenty weeks; Radishes, six weeks; Salsafy and Scorzonera, twenty-four weeks; Savoy, twenty-seven weeks; Spinach, five weeks; Tomatoes, eighteen weeks; Turnips, eight and ten weeks; and Vegetable Marrows, fourteen weeks. With the exception of Cucumbers, Tomatoes, and Vegetable Marrows, the whole of these dates apply to plants which have been raised exclusively in the open ground, but Celery, Cauliflower, and Leeks may have some slight assistance from being sown near the base of a wall or some such place. "Beginner" will doubtless be able to fix his dates of sowing from the above memoranda. For instance, if I wanted Peas for exhibition by the end of August, I would sow the seed the first or second week in May, and sooner or later according to circumstances. J. MUIR.

Margam, S. Wales.

FIRM SOIL BEST FOR ROOT CROPS.

BECAUSE Parsnips, Carrots, Beet, Salsafy, and other root crops are supposed to be finest when they run freely and well into the ground, some cultivators think that the soil cannot be too loose and open for their successful culture, but this is contrary to my experience, as I invariably find that the best-shaped, cleanest, and hand-somest roots come out of the firmest soil. True, some roots will run an astonishing distance downwards in a loose soil, but eighty per cent. grown under such conditions will be furnished with an unusual quantity of superfluous fibres, and many of them will be forked and have long thong-like tails. It would, indeed, be a difficult matter to find out of a large number a dozen of the same shape and size, and while many of them will be worthless for the kitchen, very few will be fit for exhibition. It would be otherwise were they grown in the firmest of soil; indeed, if more attention was given to this point superior results would in many cases be secured. In digging or trenching land for these crops, it is of course impossible to make it very firm then; but as soon as the seed has been sown and covered in, firming the ground should be commenced. It should be trodden or rolled over several times, and as soon as the young plants can be seen in the rows the soil should be again firmly trodden down on each side of them, and the same thing should be repeated at thinning time and afterwards if necessary. This will cause the top growths to be very compact, and it has the same effect on the roots, the result being robust, clean, fibreless produce. I am acquainted with an amateur who grows the finest Parsnips I have ever seen, and all his best roots are grown so near the pathways in his garden that the soil which surrounds them almost forms part of the walk, and when the other roots named are treated after the same fashion the result is in every way satisfactory. Our finest Onions and Turnips, too, are produced in the hardest soil, and sound, well-formed bulbs of the highest quality can, I feel assured, only be raised on firm land. Many Onions are inclined to grow with a very long, thick neck, and seldom produce any bulb worth speaking about; this is caused by the soil being loose; thick necks are never found in any great numbers in a piece of Onions grown on firm ground. As soon as Onion seed is sown a heavy roller should be taken several times over the ground and plenty of after-treading will be beneficial. Our biggest and softest Turnips are grown on loose soil, but the best shaped, most solid, and finest flavoured ones come off the firmest ground. In short, wherever high-class roots are desired firm soil must be one of the main points in their culture. J. MUIR.

Large Leeks.—Some sixteen or seventeen years ago, Mr. Henry, then gardener at Broomhouse, Berwickshire, was considered the best Leek grower in the country, and I believe he is still.

On the 24th November, 1866, six of Henry's hybrid Leeks were lifted, cleaned, weighed, and measured, and the following was the result: Leek No. 1, circumference $12\frac{1}{2}$ inches, weight 5 lbs.; No. 2, circumference $11\frac{1}{2}$ inches, weight 4 lbs. 14 oz.; No. 3, circumference $10\frac{1}{2}$ inches, weight 4 lbs. 12 oz.; No. 4, circumference $9\frac{1}{2}$ inches, weight 4 lbs. 10 oz.; No. 5, circumference $8\frac{1}{2}$ inches, weight 4 lbs. $8\frac{1}{2}$ oz.; No. 6, circumference 8 inches, weight 4 lbs. $7\frac{1}{2}$ oz.; total weight of six Leeks, 28 lbs. 4 oz. Two of the leaves when stretched out measured 11 feet in length, and varied in breadth from 8 inches to 14 inches.—JOHN DOWNIE.

Woodlice in Mushroom-houses (p. 126).

—In order to clear a house of these I know of no better plan than introducing a few toads into the place. These despised, but useful creatures have frequently surprised me by the rapidity with which they pick up the woodlice. They seem to prefer to fix themselves facing the wall, or any part forming the boundary of the bed, and watch for their prey. Whether this is from a dislike to pick them up from the surface of the bed, or guided by instinct, that their victims are sure to come that way in their ramble after food, I am not prepared to decide. I have seen them place their fore feet on the wall and extend themselves after their prey, which they secured when it has been 6 inches up the wall. The toad does not act cowardly; he never attacks his victim when in a state of quietude, preferring to assail him when on the move. Where beds have to be covered with short hay or similar materials, toads labour under a disadvantage. Space should be left on the outside, free from litter, so that they may have a passage round. Every time the material is moved for gathering the crop, commence slowly at one end; the woodlice will, as a rule, rush to the unremoved hay, and in this way they may be allured into one corner or end, where they invariably find a hiding place between the bed and wall. Have a can of boiling water, and pour down, and nothing more will be seen of them. It will be as well to take the hay outside and shake it.—W. P. R.

TREES AND SHRUBS.

THE RED-WOOD AND ITS MANAGEMENT.

THE Sequoia sempervirens or Red-wood is indigenous to the north-west coast of America, and was introduced into this country about the year 1843, yet proprietors have never planted it to the extent which its merits as regards ornament and utility deserve. This may arise in a great measure from the difficulty of procuring seedling plants of it at a cheap rate. It is generally propagated in this country by means of cuttings made of the side branches, and as these are naturally flat they require a great deal of pinching and pruning to induce them to form a conical tree shape; such trees likewise have a great tendency to produce a plurality of leaders, which must be pinched or cut off, always leaving that which is best and most central for the permanent leader. When this tree is cut over by the surface of the ground the root retains its vitality, and produces a succession of young shoots around the margin of the stump, and as these assume an upright pyramidal shape they make superior young trees, and seldom produce rival leaders. I have raised a good many fine young trees from these shoots, and have found them to be in every way as good as seedlings. This conifer bears almost any amount of

Pruning. Several trees I planted about twenty years ago were stem-pruned by gradually cutting off the branches close to the stem for a distance of some 5 feet from the ground; others were allowed to grow in their own way, with the exception of pinching or cutting back several of the branches near the top where the leaders had been lost by frost, so that a new leader had to be supplied by tying up one of the side branches. The bark of the stem of this tree constitutes one of its peculiarities, being a thick spongy substance,

and as soft and pliable as a piece of chamois leather. This, when the tree is stem-pruned, is exposed to view and shown off to good advantage. Of course pruning is in a great measure a matter of taste; however, we may say this much, that when this tree is stem-pruned and the straggling side branches pinched or cut back in order to balance the top, the result is finer and more tree-like specimens than such as have not been pruned, the latter having merely the appearance of large bushes. Trees of this conifer are well adapted for planting among deciduous trees in places where it is desirable to get up cover and procure shelter, and in such cases they should be allowed to grow in their own way, with the exception of cutting off or repressing any rival leaders at the top. In exterior appearance this Sequoia has a great resemblance to the common Yew (*Taxus baccata*). It is, however, quite a distinct species, and produces its seed in the form of a small cone, whereas that of the Yew is contained in a berry. When the timber is cut up for use it is found to be not so elastic as that of Yew, yet it is of good quality, and although the concentric rings of the trunk are of a large size, owing to the rapidity of growth, yet the wood is firmly packed and capable of taking on a fine polish. This tree is not in the least degree fastidious

As regards soil; it is equally at home on deep peat, bog, strong clay, and inorganic fragments of rock mixed with but a small portion of soil. When planted in deep Irish peat bog of a reddish colour and light in texture, I have found it a capital plan to mix a little soil or clay with the bog at the time of planting. This gives weight and firmness to the bog, and gives the trees a satisfactory start. Of course in such cases it is necessary to have the ground thoroughly drained, but when once the trees are well established it is astonishing how they perform that operation for themselves by pumping up the superfluous moisture and rendering the ground firm and the surface drains in their immediate vicinity quite dry. In its native habitats this Sequoia is said to attain a height of some 270 feet, and a girth of stem of from 20 feet to 40 feet, and although I do not expect it to attain such dimensions in this country, yet from what I have seen, I consider it worthy of being planted to a greater extent than it has hitherto been

J. B. WEBSTER.

Birds and Wellingtonias.—Like Mr. Ellacombe, we have been puzzled to account for the seeming aversion which birds have to the Wellingtonia. We have, however, put it down to one or perhaps both of the following, rather unlikely causes, viz., the disagreeable odour given out by the Wellingtonia, and to the outer portions of the branches being thickly beset with stiff sharp spines, which, as in the Araucaria, prevent birds from alighting with impunity; the latter reason would, however, not hold good with regard to the branches close at the stem, as there they are perfectly smooth. Nearly a dozen large specimens of Wellingtonia were examined to-day, and in no case was a nest observed or the least trace of birds having roosted in them at night, although the trees, owing to the sheltered positions that they occupy, would have afforded an excellent lodging. As birds frequent those trees where insects are abundant, can it be that the strong unpleasant odour given out by the Wellingtonia causes a total absence of these? Perhaps some of your readers will record their opinions respecting this curious fact.—A. D. WEBSTER, *Penrhyn, North Wales*.

—I had not remarked the circumstance of the non-building of birds in Wellingtonias before the appearance of Mr. Ellacombe's note, but like him I have never observed a bird's nest in them. May it not arise from the fact of the branches growing in such a strictly horizontal fashion, that though thick and bushy the birds find it difficult to fix nests in them?—W. W. H.

—There is not the slightest ground for supposing that birds will build less in the Wellingtonia than in other trees, whether conifers or other

sorts. We have a Wellingtonia here—by no means a large specimen—which a chaffinch has chosen for a nesting place for the last three seasons, and not from any want of suitable positions, as the place is well wooded on all sides, with trees of all sorts and sizes. One thing worth mentioning, however, is that last season I observed on nearly every coniferous tree standing detached that a chaffinch had taken possession of it. Can this bird have any special liking for conifers in preference to hard-wooded deciduous trees, on which they are mostly seen, and which would be naturally considered the most suitable, their nests being commonly built of the Lichens which grow on them?—R. STEVENS, *Paston, Northumberland*.

Mistletoe Oaks.—In THE GARDEN (p. 131) "Veronica" enumerates twelve Mistletoe Oaks as occurring in England and Wales, and wishes some one to extend the list. In the *Leisure Hour* for 1873 is given the following list of Mistletoe Oaks in England:—

1. Oak at Eastnor, Hereford (discovered in 1851).
2. " at Ledstone, Delamere (discovered in 1851).
3. " at Badhams Court, Sunbury Park, near Chepstow.
4. " at Burningham Farm, Dunsford, Surrey.
5. " at Hackwood Park, Basingstoke, Hants.
6. " not far from Plymouth (by the side of the South Devon Railway).
7. " at Frampton Severn, Gloucestershire.
8. " at Haven, in the ancient forest of Deerford, Hereford.
9. " overhanging a double cromlech at Plas Newydd, Anglesey.
10. " at Bredwardine, Herefordshire (discovered in 1871), and grows upon it in fifteen different places.
11. " at Hendre, Llangattoch, Lingoed, Monmouth.
12. " at Knightrick Church, Worcestershire.
13. " in Lord Londes' park, Lees Court, Kent.
14. " at Lindridge, Worcestershire.
15. " two miles from Cheltenham.

The Mistletoe has also been found on the following trees: Whitethorn, Apple, Willow, Maple, Poplar, Lime, Service, and, according to a correspondent of THE GARDEN, abundantly on the Scotch Fir between Munich and Innsbruck, in the Bavarian Tyrol. The seed is triangular in shape, and at two of the angles puts forth shoots resembling the horns of a snail. Occasionally both horns take root and form two distinct plants, supposed by some to be male and female. Perhaps some of your correspondents could tell us if such is the case. In the *Journal of Forestry* for February, Mr. Middleton, of Clarendon Park, Salisbury, Wilts, says Mistletoe can be seen on several old Oak trees in the park there.—A. D. WEBSTER, *Penrhyn, N. Wales*.

HAVERLAND HALL, NORFOLK.

HAVERLAND, so far as relates to the present mansion and gardens, is a comparatively modern place. A picturesque lake and grand old woods were accompaniments of the old mansion, which occupied a different site. Round the present hall and gardens are thriving plantations of Oak, Larch, and Silver Fir, with an undergrowth of Hazel. It would be difficult to find woods better managed than those at Haverland—often a weak point in estate management. The hall, a large, square, Grecian structure, built of Bath stone, with a lofty observatory or tower at the north-east angle, stands on an eminence surrounded on the eastern and southern sides by terraced gardens, from which extensive views of park, lake, and woods can be obtained. The terraces are traversed by broad, dry, gravel paths—excellent promenades in winter. A short distance east of the mansion is

The conservatory, a large handsome structure of stone and glass, corresponding in design with that of the mansion. The house, which has a ridge and furrow roof, is 60 feet long and 40 feet wide. It contains many handsome specimens of Camellias, Palms, and Ferns. Among plants in bloom I noticed a very large specimen of *Spartanum africana* and a fine old plant of *Brugmansia sanguinea* was flowering freely in one of the borders. The interior of the house is so arranged as to divide the space into four beds

with a handsome vase in the centre, and a border for creepers runs all round the walls. Indeed, these creepers, consisting of Passion-flowers and Tacsonias, &c., festooning from point to point in the most graceful manner, form one of the chief features of this house. Tea-scented Roses are trained up some of the pillars, on which they flower continuously; one especially called *Moiret*, Mr. Hopkins, the gardener, speaks of as being superior to all others in winter. In summer it is deeply tinged with pink, but in winter the flowers are white, and for a Tea Rose very full of petals. It is an old Rose, for I have known it twenty-five years. Another plant that grows here in the wildest luxuriance is the *Habrothamnus fasciculatus*. *Cassia corymbosa* is also planted out against one of the façades of the building, and flowers finely in its proper season. Abutilons consisting of many shades of colour are a special feature planted in the border; they are 10 feet or more high, and blossom freely, one called *Buttercup* being a bright golden yellow, and a good companion for the white *Boule de Neige*. What a striking background plant for a conservatory the variegated Reed Grass (*Arundo Donax variegata*) is! as one enters at the front door its tall, erect variegated growths stand out prominently against the creeper-covered wall, producing a grand effect. Some of the growths made last season are 15 feet high. Connected with the conservatory is a

Creeper-covered wall, on which are *Jasminum nudiflorum*, climbing Roses, the *Pyracantha*, and the *Virginian Creeper*. These plants have grown rapidly, and, the wall being wired, have fastened themselves to it by creeping under the wires. With such a support there is no need for much tying or pruning. Fancy a wall 20 feet high having the appearance of a bank covered with creeping growth falling about gracefully, and now ablaze with the golden blossoms of *Jasmine*. In the autumn the crimson foliage of the *Virginian Creeper* is very striking, and by and by the climbing Roses will be to the fore. But it is in the happy management of the plants (their natural growth) on which their effectiveness depends. If they had been pruned and tied closely in, according to orthodox fashion, they would have been far less effective. The view from the conservatory terrace over the foreground of shrubbery and park and lake, with the wood covering more than 300 acres in the background, is one not easily forgotten—the silver-barked Birch and the dark foliage of the Scotch Fir blending with the stubborn, stately English Oak; beneath all, too, looking ruddy and warm in the winter sunshine, is a groundwork of Bracken. It is, however, in spring in the nightingale season when this wood is so charming—when the Lily of the Valley pushes up its white fairy bells through the *débris* of the Bracken. The walk between the conservatory and museum is a most interesting one. It is about 500 feet long, bordered by turf and cut off from the grounds by shrubs, which form an effective background to a number of statues. The museum, a handsome stone building, forms a proper termination to this walk. At the back of it is a natural fernery in which Ivy and creepers are effectively prominent; a winding path amid Yew hedges leads to a summer house quaintly ornamented with Moss and Larch cones. About the grounds are many handsome specimens of trees and shrubs, including Cedars and other conifers. A Rose garden has also been made, but Roses do not grow well, the soil being unsuitable. Being a winter residence, there is not much bedding out in the ordinary sense of the word, evergreens being used largely for winter decoration. There is, however, in front of the conservatory a terraced flower garden of pretty design and planted so as to look gay in the autumn, and at the same time retain some of its beauty in winter. Mr. Hopkins uses annuals largely, which, when sown late, flower nearly up to Christmas in this sheltered garden in the dry climate of Norfolk. Hardy flowers that bloom late are also grown.

The kitchen garden and forcing department are placed at a convenient distance from

the mansion. A few years ago this garden was noted for its interesting collection of Pear trees both on walls and espaliers, but the roots have now gone down to the sand which forms the subsoil. Moss forms on the bark, and the trees are less fruitful. From the majority of gardens made now and during the last thirty years flued walls and concreted borders have been discarded, but I am convinced that in our climate the principle is sound. The kitchen gardens within and without the walls consist altogether of about three acres, and the land is light, but fertile, and easily worked. The forcing houses include two span-roofed plant houses for producing plants for the conservatory, a plant stove, in which are many plants of *Eucharis* just now in flower, with the usual assortment of fine foliage and flowering plants and some handsome Ferns. On the roof is a fine plant of *Passiflora princeps* finely in bloom. There are two vineries, one entirely filled by an old black *Hamburg*; the other is planted with late Grapes, of which some *Muscats* and *Barbarossa* of good quality are still uncut. As regards the Black *Hamburg*, it was originally one of a number, but being more vigorous than the others, it was allowed to gradually extend itself until it filled the house with the happiest result. Another house, formerly a vinery, is now planted with *Apricots*. There is also a *Cucumber* house, a house for *Strawberries*, and a small lean-to full of *Figs* in pots. As regards these latter, the trees are very large and old, but very fruitful. Mr. Hopkins says he finds it an advantage to delay the pruning till the fruits are all started and swelling. When the foliage is formed there is no bleeding, and the crop can be placed regularly all over the tree. The *Brown Turkey* is the principal variety grown. There are numerous pits for forcing purposes, the whole of the houses and pits in the forcing department being heated by a tubular boiler. Inside one of the houses is a very fine plant of the purple *Guaia* trained over the roof. It bears very heavy crops of fruit annually. In a house adjoining is a very

Effective Fern wall, constructed by building a series of arched caverns of brickwork against the face of the wall. The brick arches are lined with clinkers bedded in cement. The arches towards the top of the wall are smaller than those at the bottom. In these caverns soil is placed and Ferns planted, the effect being all that could be desired. The double Violet *Marie Louise* is a great favourite here, and is largely grown for autumn and winter picking. E. HOBDAV.

SHOW AURICULAS.

I HAVE to thank Mr. Horner for kindly explaining the absence of cultural detail from the two interesting articles to which I lately alluded. With respect to the variety, Colonel Champneys, "Delta" is so far right that I might have taken another example of a grey edge that was both first rate in quality and inexpensive. The "Colonel" crossed my mind as an attractive variety of strong growth, well adapted for a beginner. It certainly does not fulfil all the strict requirements of the florist, but it must be admitted to be a very beautiful and distinct flower. The specimens of it which I have seen shown were not cup-shaped, and though "Delta" may think it is "never staged unless people are very hard up on a prize stand," it was exhibited at the last show at South Kensington in a prize six by one of the large trade growers who was scarcely likely to be "very hard up" for a flower. It is a very strong grower, and from that cause is apt to have too much colour. To meet this tendency Mr. Turner recommends it to be a little starved, treatment under which it is capable of more refinement than "Delta" would appear to have seen it develop. Similarly I have observed Earl Grosvenor and Ne Plus Ultra (Smith) described, the one as "pleasing in colour, but quite second rate," the other as "large and decidedly coarse." I have never seen either of these in bloom, but I take it such old sorts would not have stood their ground so long, nor appear in the selections of good judges like Mr. Douglas without

distinctive excellence of some kind to recommend them. It is doubtless with *Auriculas*, as with most other flowers, certain sorts not of the very highest types nevertheless possess such distinct characteristics and beauty that we have to "be to their faults a little blind." We cannot afford to be without them. M. R.

GARDEN FLORA.

PLATE CCLXXVI.

SHRUBBY ST. JOHN'S WORTS.

(With a figure of *Hypericum triflorum*,* *Blume*.)

THE shrubby *Hypericums* form a very interesting study, and are not so generally found in even the best of private gardens as they deserve. They are singularly diverse in geographical diffusion, extending from Europe, through North America, to China and Japan, thence along the Himalayas into Nepal, and finally, so far as size and beauty of individual flowers is concerned, their beauty culminates in this singularly interesting *H. triflorum* of *Blume*, which came originally from the mountains of Java. *H. triflorum* is a plant with a history. About three years ago I was invited to visit the gardens of Mr. Phineas Riall, of old Conna Hill, near Bray, in the county of Wicklow, which somebody once called the Devonshire of Ireland, and among the many interesting shrubs luxuriating on that sunny hillside, overlooking the glistening sea, I saw this three-flowered St. John's Wort for the first time. At first sight I thought the plant looked as if it might be a hybrid between *H. Hookerianum* (*H. oblongifolium*, Hort.) and our old friend *H. calycinum*. So sure was I of this at the time that I mentioned it to friends, none of whom had ever seen or heard of such a plant. My erroneous guessing at truth, however, had its own reward, for Mr. Smith, of Newry, at once set to work hybridising the shrubby St. John's Worts of all kinds freely, and he has now a fine and promising lot of seedlings under his care. Mr. Riall obtained his plants of this rare species from Pennick's nursery at Delgany, and Messrs. Pennick informed me that they believe it came to them from that old home of "good things," the Comely Bank Nursery at Edinburgh. That the plant was grown at Edinburgh I do not doubt, since Mr. Lindsay (in a letter sent through Mr. P. Neill Fraser) tells me that the late Miss Hope had a plant near her door which, although called *H. oblongifolium*, was in reality much larger in blossom. Then, again, our next Irish authority on hardy shrubs, Mr. John Adair, tells me this large-flowered *Hypericum* was one of the things he specially noticed in a corner of Mr. Anderson-Henry's garden in Edinburgh, now many years ago, so that I am quite satisfied that the plant was at one time grown in the gardens around our "modern Athens." Our authority for the name is Mr. Hemsley, who writes as follows from the Royal Herbarium at Kew, under date July 26, 1882: "The *Hypericum* sent by Mr. Riall is a variety of *H. Hookerianum*, a species figured in the Bot. Mag., t. 4949, under the erroneous name of *H. oblongifolium*. It is exactly the *H. triflorum* of *Blume*, from the

* Drawn by Mr. F. W. Burbidge from fresh specimens sent by Mr. P. Riall, from his gardens at old Conna Hill, near Bray, County Wicklow.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



mountains of Java. The full synonymy of the species, which has a wide range in India, is



Nepaulese Tutsan (Hypericum nepalense). Natural size.

given in Hooker's 'Flora of British India,' i., p. 254." This information is very interesting. Fancy a plant (no matter whether species or variety) from the mountains of Java, from the Tropics near the line, and yet hardy in the county of Wicklow! After that one need not be surprised that some tropical mountain Orchids do not mind a short brush with Jack Frost now and then. Messrs. Cunningham, Fraser, & Co., now the proprietors of Comely Bank Nurseries, believe that they have our plant even yet in cultivation in their nursery under the name of *Hypericum oblongifolium*, and certainly a small plant they were good enough to send me, through a generous friend, does look very much like *H. triflorum*.

Botanically speaking I have no doubt that Mr. Hemsley is right in regarding it as a Javan form of *H. Hookerianum*; indeed, Mr. Gumbleton, to whom I gave one of two plants which Mr. Riall very generously had given to me, wrote me later on that that was also his view of the matter; but as cultivated plants side by side there are great differences in habit and mode of flowering apart altogether from the much larger blossoms which *H. triflorum* produces. Quite a small plant in a pot in a cold greenhouse here has just produced a rich golden flower $2\frac{1}{2}$ inches in diameter, the buds and the backs of the petals being singularly glossy and wax-like. The habit of the growth is lax, producing shoots from 18 inches to nearly a yard in length. These growths are so long, that the weight of the flowers is almost too much for them, as they arch gracefully near the ground, these shoots being bright red or crimson, the leaves on some of these growths being arranged in a decussate manner, while on others they are two-ranked. When compared with *H. Hookerianum*, the latter is far more stiff or virgate and woody in growth, and the ends of its short, stiff young shoots are generally three-branched and nine-flowered, each little branchlet producing three flower buds. Our

woodcut illustrations show the flowers of *H. Hookerianum*, natural size, and also those of *H. uralum* (= *H. nepalense*), a nearly allied, although much smaller flowered species. The only other species intimately belonging to this group is *H. patulum* (also known as *H. pseudo-patum*—Hort.—and *H. Gumbletoni*—Lavallée). For a good figure of this last-named plant see THE GARDEN, Vol. XII., p. 280). Although *H. triflorum* has proved perfectly hardy in Wicklow for many years, yet it is safest to treat it rather as a half-hardy shrub, in the way of the shrubby Veronicas, or by keeping a plant or two in pots in a cool house for the winter. Messrs. Pennick tell me that recent winters have been too much for it, and they have now lost it altogether, so that to Mr. Riall belongs the credit of having preserved it from a total exodus from our gardens hereabouts. I think I am right, however, in saying that it has proved hardy with Mr. W. E. Gumbleton at Cork. A glance at our plate will show what a noble shrub this is when well grown in the open air—the flowers from which our drawing was made having been received from Mr. Riall in June and July last. It is worthy of remark that when cut, after the petals unfold, all the *Hypericums* are possessed of blossoms the most fugitive, but if they be cut in the bud stage every flower will open fresh and fair in water indoors.

The propagation of the plant is easily effected by making cuttings of the half-ripened wood, or from seeds sown soon after they are ripe. By Mr. Riall's generosity I have been enabled to send a plant to Kew, and also to distribute both cuttings and seeds, so that the plant now promises to take a fresh lease of its life with us. On referring to Mr. T. Smith, of Newry, to whom I

pricking them off to-day. With respect to cuttings, it would, of course, strike as easily and in the same way as *oblongifolium*, *patulum*, &c.; but I keep plants growing in a little heat, and keep taking off bits as soon as they are an inch long; it does not, however, grow very fast at this season, but I see is putting on a little animation now. We strike them in the same house they grow in, half fill a 4-inch pot with sand, stick in the cutting, and put a bit of glass on the top. Almost anything will grow thus." Among other shrubby species of *Hypericum* well worth culture forget not *H. chinense* (*H. monogynum*), a very effective, cool greenhouse evergreen shrub nearly always in flower. *H. balearicum* is a gem with its little crisp-edged leaves and bright golden flowers, the size of a florin, and also merits cool house culture, as does also *H. ægyptiacum*, *H. empetrifolium*, and even the dwarf and scandent *H. Coris*. One of the prettiest of all hardy kinds is *H. repens* (*H. reptans*, Hort.), which droops gracefully over rockery stones and flowers profusely, the blossoms being golden and as big as a shilling, and nicely contrasted with its crimson stems and small foliage. *H. olympicum* and *H. Kalmianum* (*H. prolificum*) are both good free blooming hardy border species, and for carpeting rough stony ground or under trees one may do worse than remember "the Rose of Sharon," *H. calycinum*. F. W. B.

SEASONABLE WORK.

BEGONIAS FOR FLORAL DECORATION.

The shrubby types of flowering Begonias are always useful when employed in association with other flowers in a cut state, or a few distinct kinds look exceedingly well on sideboards grouped



Glossy-flowered Tutsan (Hypericum Hookerianum)

had sent seeds, he makes this instructive reply: "I sowed *H. triflorum* and have a big batch just showing the first pair of rough leaves; we are by themselves along with their own foliage. Of kinds to be had in flower now may be named *B. manicata*, one of the prettiest that can be had for

trumpet vases to give a finish and relief to larger varieties of flowers. This sort will also last a long time in flower in the conservatory if the plants have not been brought on in too much heat and moisture; when allowed to expand their spikes in a light, airy house they last much longer. *B. nitida odorata* is also now opening its most forward flowers. This sort is not grown nearly so much as it ought to be, seeing that it produces a continuous crop of flowers for several months in succession. It is, in short, one of the most useful, as well as one of the most elegant, white kinds grown. A little later on this kind will be used here in the conservatory, in which we find it most valuable. It has also, as its name indicates, the advantage of emitting a slight perfume. In a cut state, well developed spikes look well on a fringe of Maiden-hair Fern in a good sized vase, with the addition of other flowers over and above them. *B. semperflorens* is another good winter-flowering kind which is always useful. *B. Saundersi* is likewise a valuable kind; flowering shoots of this variety cut with a good length of stem can be worked effectively into many kinds of arrangements. The tall and straggling growing *B. fuchsoides* is very effective in a cut state. *B. ascotensis* also yields useful spikes. The foliage of some larger growing kind will be valuable to use along with the three last named varieties; we find that of *B. metallica* useful in many ways. The new variety shown of late under the name of *C. socotrana* promises to be an invaluable addition to the winter flowering section of these popular plants. All the kinds just named will be found now to be of service in a cut state. Others there are that will do a good turn during the summer in conjunction with the tuberous-rooted varieties, and other sorts are valuable late in autumn, especially *B. insignis*. In gathering flowers of *Begonias* cut them in each case with as long a stem as can well be had, and also give them as much water as can be safely used. This will help to keep them fresh somewhat longer than would otherwise be the case.

FLOWER GARDEN.

Summer bedding arrangements.—The plants necessary for this purpose may now be propagated. Happily, the increased and still growing interest now taken in hardy flowers does not render such matters so imperative as was the case a few years ago, simply because fewer tender plants are required, and these will gradually grow fewer still, as it is seen that equally pleasing, if less showy, arrangements can be made by means of hardy plants. We, however, by no means predict the entire abandonment of tender summer bedders, but only such a reduction in their numbers that space for wintering and spring propagation shall not interfere with other and more important duties. At this stage of the matter we have already, indeed, arrived, for in computing the numbers and kinds of plants needed, tender second-rate sorts are rejected whenever it is possible to do so without destroying the harmony of the general arrangement. Another way of reducing the number of tender plants is to plant them thinly in a given arrangement, and then clothe the ground beneath with a suitable hardy carpeting plant. One of the most admired beds here last season was one very thinly planted with variegated *Pelargonium* May Queen, the undergrowth being *Herniaria glabra*, bright green, which set off to the best advantage the white foliage and rosy pink blossoms of the *Pelargonium*—altogether an infinitely better arrangement than if there had been 200 *Pelargoniums* in a mass, instead of which there were not more than a score. We mention this arrangement as it shows what may be done in the direction of subduing the never-ending monotony of masses of colour so prevalent in some gardens. The sorts and numbers of plants required being decided, the next matter must be their

Propagation, and with the hardy section of dwarf carpeting plants that is a small matter, as they are all so readily increased by division, and only need dibbling in on any warm border, or, if the beds are now vacant, they may be at once

planted in their allotted spaces, *Antennarias*, *Cerastiums*, *Sedums*, dwarf *Veronicas*, *Ajugas*, *Herniarias*, and all plants of the same thick-like character of growth must be fresh planted every season, for if left a second year, their dense growth engenders mildew and decay, and the whole groundwork becomes patchy and sickly, faults which it retains throughout the season. The half-hardy and tender section of plants also used for groundwork may, with a moderate amount of warmth, be increased almost as expeditiously as the foregoing. Golden Feather *Pyrethrum* may be grown from seed sown in pans, and pricked off in cold frames as soon as the plants can be handled. *Mesembryanthemum cordifolium* variegatum may be increased in the same way, and also by cuttings, which strike freely in pans or boxes set on bricks over hot-water pipes, where a temperature of about 60° is maintained. *Gnaphalium lanatum* may be raised from cuttings struck in warmth and then transplanted into pots; *Alternantheras* by means of cuttings struck on hotbeds of leaves and litter, on which frames are placed containing about 4 inches of light soil (peat and loam) made firm. Cuttings inserted about 2 inches apart quickly root, and there they may remain till needed for planting in the beds, air of course being given to induce a sturdy growth whenever the weather admits of it. These plants are so rapidly increased, that it is not necessary to put in cuttings till March has become well advanced; but the stock plants should now be given abundant heat that cuttings may be forthcoming when wanted. *Iresines* and *Coleus* strike anywhere if afforded warmth; the only remark to make about them is that they should be used as sparingly as possible. *Lobelias* should be raised from cuttings only; seedlings are usually so disappointing, being both irregular in growth and weedy as to variety, that one wonders they are ever used at all. We strike them in a brisk heat, and transplant to frames as soon as they are well rooted; pots or boxes are never used. The herbaceous section of *Lobelias* are most satisfactory when increased by division, though they come fairly well from seed. *Ageratums*, *Fuchsias*, *Gazanias*, *Lantanas*, *Koenigia variegata*, *Petunias*, and *Verbenas* quickly make root in a bottom-heat of 70°, and will afterwards thrive vigorously in an intermediate temperature. They should all be allowed plenty of space; a well-developed bushy plant is equal to half-a-dozen lanky ones. *Calceolarias* in cold frames should be thinned out by transplanting them to other frames, or in the south of the kingdom they will now do at the foot of south walls if protected in frosty weather. *Violas* and *Pansies* should be treated similarly, or, if needs be, strong plants of these may now be planted permanently.

INDOOR PLANTS.

Hard-wooded Heaths.—Of all greenhouse plants in cultivation, Heaths have the greatest dislike to fire-heat if used for any length of time, or in quantity more than sufficient to keep out frost; and in severe winters, when there is a long continuance of hard weather, great care should be taken that the temperature is never allowed to get too high, or the plants are sure to start into growth, which should never be excited except by the natural return of sun heat. On this account, if, as we generally experience after an unusually mild winter, such as the present, we have a continuance of sharp nights late in spring, no more fire-heat must be used than will render the house safe from frost. It is no use attempting to cultivate Heaths except they are well and regularly attended to. Their greatest enemy is mildew, from the attacks of which they are never safe. It is usually more troublesome in damp, mild winters, when the atmosphere of the houses, as a matter of course, is more humid than when there is a necessity for more use of fire-heat. The plants should be looked over closely every week, and the moment the least trace of the parasite is apparent such as are affected ought to be dusted with sulphur. The importance of prompt attention in this matter cannot be too much urged upon new hands in the cultivation of these and all other hard-wooded plants that are in any way sub-

ject to mildew, for it speedily destroys the vitality of the leaves so much as to cause them to fall off in a few weeks, leaving the shoots bare, unsightly, and impossible to reclothe with foliage. All the Heath family, but more particularly the hard-wooded kinds, are proverbially impatient of any extreme in moisture, either too much or too little. In winter it is necessary to keep the soil comparatively dry.

Epacris.—The early flowering kinds should immediately they have done blooming be cut well back, reducing the last summer's growth to one-third its length. This is the more necessary with the erect habited sorts, otherwise they get into such a weak, straggling condition as to occupy twice the room they should, and be equally objectionable in appearance. Although requiring to be treated similarly to Heaths in the matter of being drier at the roots now than in the growing season, they will bear keeping warmer in the winter; and if after the shoots have been cut in they are put for a few weeks in a night temperature of from 40° to 45° with plenty of light and some air when the weather is fit in the daytime, they will be benefited by it. Treated in this way they will make growth earlier so as to admit of their being exposed to the open air sooner in the summer, with a disposition to bloom correspondingly earlier in the ensuing autumn. The bushy growing varieties, such as *E. miniata*, *E. Eclipse*, and *E. grandiflora*, are best adapted for late flowering; and where there is means for keeping them back by the use of a cool north house, a succession in flower may be kept up until midsummer. Their long sprays of bloom, which stand well in water, are most useful for cutting.

Azaleas and Camellias.—Where there is the convenience of a house with a northern aspect, so as to be little under the influence of the sun, it gives advantages in keeping up a display of flowers in conservatories and for other purposes late in the spring, such as is not possible where all the stock has to be treated in houses that are exposed to the full force of the sun. The latter soon after this time begins to have power enough for some hours in the day to run up the temperature to an extent that moves the plants rapidly, even if all the air is given that they will bear; for it may not be out of place to note that even when there is no growth in motion, it is not well to subject plants to a full current of air through this and the next two months. If a selection of early and late blooming kinds of Camellias are grown, and they are treated in a manner to have their growth matured at different times, there is no difficulty in having them in flower from the beginning of September up to the end of May; but as a natural consequence flowers that come in as late as the latter time do not last near so long as those produced in the winter. There is little doubt that the growth and flowering of Camellias is less interfered with when the potting is done about the time the season's growth is completed and the bloom-buds just beginning to form, as when it is carried out then the unavoidable breakage of the roots, which are very brittle, has less adverse influence on them than at any other season. But where there are plants that have been kept so long in small pots that their strength is thereby interfered with, it may be advisable to pot them before the growth begins. Where this is the case, the work should be done before the shoot-buds show signs of swelling, otherwise the season's growth is sure to be affected, even if no more disturbance of the roots takes place than is necessary to remove the drainage. On this account it will be advisable not to wait until the blooming is over, for the loss of a few flowers now will in most cases be a less evil than failure of the crop of bloom another season.

Cyclamens.—The flowers of these are well adapted for cutting, being both pretty and lasting well, but if too many are used in this way the plants suffer. If the flowers are severed from them in the usual manner by cuttings, the stumps of their succulent stalks remaining generally decay down to the base and rot the young blooms that

are springing up later; consequently it is in some respects better in gathering the flowers to pull the stalks out entirely, but if this is carried too far, so as to remove nearly all the flowers as they arrive at maturity, it seriously injures the bulbs; therefore, where the intention is to keep the bulbs or, more correctly speaking, corms, there should only be a moderate quantity gathered. It is well to raise some from seed each year, as though not capable of producing so many blooms the first year as larger plants will, the first season of their flowering is often the most satisfactory. See that the young stock raised from seed last summer are well attended to. If they have been wintered in pans they should have been accommodated with a temperature of about 50° in the night, and stood close to the glass, or the leaves are apt to become drawn and weakly. If treated in the matter of warmth as ordinary greenhouse plants, they make little progress during the winter, and take two years to bring them up to a size that renders them of much use for blooming. The temperature of an intermediate house appears to suit them best until they have attained a strong flowering state. Keep a close look-out for aphides, which conceal themselves on the undersides of the leaves of these plants much more effectually than on most things.

Pelargoniums.—Any plants of the large flowering varieties that bloomed late, and were not cut down until after the usual time, and are not yet put into their blooming pots, should be moved into them at once. If at the same time the points of the shoots are pinched out the flowering will be thereby retarded, so that they will come in after the earliest are over, at which time they will be found useful. Examples of these and many other plants that are kept for late blooming soon acquire a habit of thus coming in late, consequent upon the treatment they receive, and may be had in after the bulk of the stock is over with little trouble in retarding.

PROPAGATING.

Tuberous Begonias, where the stock is to be increased, should now be potted in a good light soil, say equal parts of loam and leaf-mould, and plunged in a bottom-heat of from 60° to 70°, when they will at once start into growth, and when of sufficient length the young shoots may be taken as cuttings. In doing this it is not necessary to sever them at the joint; they should be cut immediately above one, thus leaving a base from which other shoots will push, and as there is sufficient length of stem from one joint to the other, it will not be necessary to remove any leaves for the purpose of insertion. Put the cuttings singly into 2½-inch pots if large, and three or four around a 4-inch pot if smaller, using the soil just recommended, except that it must be sifted and a fair proportion of sand mixed with it. Cuttings thus treated and kept moderately close will soon root, but from their succulent nature they are liable to damp if kept too moist. This is the course pursued in the case of individual varieties, but it is not so much practised as formerly, owing to the fact that seeds saved from good flowers are readily obtainable, and if sown now produce good flowering plants the first season. Being very minute, they require care in sowing, and more especially in watering. Whether sown in pots or pans, both should be quite clean and well drained; then fill to within quarter of an inch of the top with light, open soil, consisting of three parts leaf-mould, one of loam, and a liberal admixture of sand, the whole being sifted through a sieve with quarter-inch meshes and pressed down moderately firm. A even surface being now obtained, give the pots a good watering through a fine rose sufficient to saturate the whole, and then while still wet sprinkle the seeds thinly over the surface, to which from its moist condition they will at once adhere. No covering is necessary, but place a pane of glass over the pot, when the seeds will readily germinate; then the glass must be removed. Thus treated, they come up more satisfactorily than when covered with soil.

Fuchsias as annuals.—A good deal of attention has been directed lately towards treating Fuchsias as annuals, i.e., raising them from seeds in the spring and flowering them during the ensuing summer. Last year we obtained a fine lot of flowering plants in this way. For this purpose the seeds should be sown at once, placed in gentle heat, and as soon as the young plants are large enough they should be pricked off, for they are very liable to damp off just at the surface of the soil.

Deutzias and Azaleas.—Where Deutzias are forced there will be a fine crop of young shoots, which, if taken off, strike within a fortnight, and if then potted in small pots will make good little plants by April, when they may be planted out. The plants must not be removed into a cooler place before the cuttings are taken, or the check they then receive will very much retard the rooting process. Young growths of Azaleas made in heat in this way strike readily if put in pots of sandy peat and kept close till rooted, but in their case a sharp look-out must be kept for their great enemy, thrips, which in the close atmosphere of the propagating house increase rapidly.

Soft-wooded plants.—The propagation of the various soft-wooded subjects that have been taken into heat to hasten their growth must now be pushed on as rapidly as possible, but in taking the cuttings always leave one joint of the young growth, as it pushes forth other shoots much more readily than the old wood. Where Bouvardias are propagated from the roots the present is a good time to do so, but the best plan is after the plants have done flowering to give them a rest by keeping them somewhat dry, and in as cool a temperature as possible consistent with health; then about the middle of January introduce them into heat, and as they then start at once into growth take off the young shoots and treat them as one would Fuchsias and similar plants, when they will strike readily.

ORCHIDS.

East India house.—During the last ten days the weather has been unfavourable for Orchids. Nevertheless we have some good spikes of *Cattleya Leopoldi* in this house—a showy species much superior to *C. guttata*, and owing to its distinct character well worth growing. Plants of *C. gigas*, placed in a cooler house to rest, should be moved into the cool end of this house, and placed near the glass as soon as they have started into growth. This fine *Cattleya* does not flower freely unless it has a good period of rest. *Oncidium Lanceanum* is a very beautiful species, and when its cultural requirements are understood, not difficult to manage. We grow it in a teak basket suspended near the roof in winter, but in summer the sunlight is too much for it in that position. It is now starting into growth, and must not suffer from lack of moisture. *O. phymatophilum*, a difficult species to flower, taken out of the pot, placed in a teak basket, and suspended near the roof, is now throwing up a spike with the young growth. The character of these two, as well as that of some other allied species, is to throw out a mass of young roots all at once, and if these get injured in any way, the health of the plants suffers permanently. The roots may get dried up by being exposed to an over-dry atmosphere and a high temperature, or they may also suffer from the potting material being packed too closely round them. We have not found woodlice to injure such roots, but a large slug will entirely destroy the produce of a pseudo-bulb in one night, and the plants must be carefully watched in case this should happen. *Oncidium ampliatum* has thrown up spikes a few inches in length, and these are specially attractive to slugs. We have to closely watch these spikes in their earliest stages at night, or we would never see the flowers of this species at all. Keep the night temperature about 65°, but it may fall a few degrees on cold nights.

Cattleya house.—The first blooms of *Coleogyne cristata* are now opening, and also those on spikes of *Odontoglossum pulchellum*. These

two Orchids will continue to supply choice cut flowers for these next two months, or longer if there is a sufficient number of plants. The commonest form of *C. cristata* is perhaps the best, although the variety with a pale yellow or lemon blotch on the lip should be grown to prolong the bloom. There is also the pure white variety, likewise a very desirable form. These now require considerable supplies of water, otherwise the bulbs have a tendency to shrivel. One plant turned out the other day, and divided into three, is now flowering as freely, and looks as well as the others. We also potted *C. barbata*; this species requires considerable supplies of water, and not too much pot room. *C. cristata* would probably in some cases be improved if it received more water than it does during the growing season. The best bulbs we ever saw were produced in a *Cattleya* house temperature, and all through the growing season they were kept quite wet, the *Sphagnum* in which they were growing being beautifully green and growing up amongst the bulbs. *Odontoglossum Phalaenopsis* is now making fine, strong growths, and flower-spikes are also showing themselves. Our whole stock of this species has been turned out of the pots; nearly the whole of the old potting material has been removed, and the plants repotted. *O. vexillarium* and *O. Roezli* have also been looked over; in some cases the plants have been repotted, but in others they have merely been surface-dressed. When a portion only of the plants are repotted, a label showing the date of potting should be attached to each, as a guide for future treatment. As all these *Odontoglossums* are so liable to the attacks of thrips, they should be dipped once in about every four weeks in a mixture of soft soapy water to which some tobacco water had been added. About an hour after dipping, the leaves should be rubbed over with a soft sponge dipped in clean water. *Cymbidium eburneum* now so cheap that it should be in every collection, is showing well for flower. Our plan is to repot such plants of it as do not show at this season, as on examining the roots it will be found that they are just starting to grow. Use a compost consisting of about two-thirds good turfy loam to one of turfy peat. Plants showing for flower must have a good supply of water.

Cool houses.—If the repotting of all that require that attention has not been done, let no further delay occur in the matter. Many do not repot until later than this, but the roots of all those potted here during the last few weeks are starting into growth. We used to pot a large proportion of our Orchids in the summer months after the May and June exhibitions were over, but we believe it to be better to do so at this season. We have tried some plants of *Masdevallia tovarensis* in the *Cattleya* house and a portion in the cool house, and so far there does not seem to be any difference between them; but the temperature in the cool house is not allowed to fall so low as it has hitherto done. We have had it as low as 35° on several occasions, but when it can be kept at 45° or 50° without much extra trouble, it may be better to keep it, especially at this time of the year, up to the highest figure. Many species of *Odontoglossum* do not open kindly in the lower temperature, and owing to condensation of moisture on the flowers they are soon rendered unsightly. Amongst *Masdevallias* there are some that certainly succeed best during winter in an intermediate house, and of these *M. Wagneriana* is one. It makes a pretty little tuft, and should be grown in small pans suspended near the glass in a shady part of the house. The new, or at least rare, *M. rosea* is said to like the coolest part of the cool house, and as it is now probably in the hands of several cultivators, we may hope to see it in flower during the current season. The pretty, sweet-scented *Oncidium cheiroporum*, although it does well in the cool house for the greater part of the year, is now starting into growth, and should be repotted. We found on potting ours that the small fibrous roots were in very active growth. *Epidendrum vitellinum* and the *majus* variety were in the cool house until the middle of January; they were then taken out, and some of them were

divided and repotted in much smaller pots, and placed in the intermediate house. If it is intended to exhibit the large flowering variety at the early summer shows, it will not be in flower unless it is placed in a much warmer house.

THE FRUIT GARDEN.

Strawberries in pots.—Until we have a change to brighter weather great patience must be practised in the management of plants now coming forward, otherwise the tedious labour of this past year will end in failure. If they occupy shelves near the glass keep the latter clean, and avoid overcrowding during their progress to the flowering stage. When in flower give more air, or remove them to a light, airy house where they can be regularly attended to with water and sufficient atmospheric moisture to prevent the blossoms from suffering under bright sunshine. Give gentle fire heat to admit of a free circulation of air by night and day, thin out weak flowers, and fertilise with a camel's-hair pencil when the pollen becomes light and plentiful. Strawberries under artificial treatment being so impatient of a high temperature until after the fruit is set, a minimum of 45°, with a rise of 10° by day, will be quite sufficient, but when fairly set and removed to a Pine stove to swell off, there will be little danger of overdoing them with heat, moisture, and stimulating food. They must not, however, be allowed to remain in this position if flavour is to be the test of skill in forcing. When fully swelled and partially coloured they should be removed to a warm, airy house, where exposure to light and the gradual withholding of water from the roots will greatly improve the quality of the fruit. As days increase in length and brightness, successional crops may be brought on faster by closing for a few hours, with sun heat, and moisture from the syringe, but air must be again admitted at night, when the temperature may range from 45° to 50° when external conditions are favourable. Where light, shallow pits are at command it is a good plan to use them as feeders to the forcing pit by placing 1 foot or 2 feet of fermenting leaves over the bottom and keeping them filled up with plants from the general stock. The leaves should be made very firm to preserve the warmth, and lightly covered with coal ashes to keep back worms and to raise the crowns to within a few inches of the glass.

Cucumbers.—It is difficult to conceive or wish for a finer winter for Cucumbers than this has been, and if the rains would cease, and bright sunny days set in, good fruit through the months of February and March should be plentiful. Growers who work on for this time of scarcity, by maintaining low, steady heat consistent with safety, and crop lightly, will now have clean, healthy plants capable of giving an abundance of fine fruit, but unless they are to give way early in the spring to make room for Melons, overcropping must be avoided, as checks of all kinds, particularly from overloading, make many Cucumber houses barren at a time when good fruit is in daily demand. As the days increase in length a little more heat may be given them if it can be secured from solar influence, but no great change need be made through the night, as hard firing brings many ills. To avoid these, dry covering of some kind should be placed over the lights every night, and the bottom-heat from fermenting material should not be allowed to fall below 80° at the base of the pots. Another important operation is frequent dressing, to prevent the foliage and Vines from becoming bleached and drawn by crowding, and so leave them an easy prey to the first enemy, be it insect or mildew, which may attack them. Keep the evaporating pans now regularly filled with stimulating liquid, top-dress the roots with fresh compost, and bathe the foliage and stems with warm soft water whenever the house can be run up to 80° or more with sun heat. Young plants in small pots intended for training over a trellis in the Cucumber house may be shifted on from time to time if the bed is not ready, but one shift from the seed pot to the hill is always best, and it is

better to throw plants away and fall back upon later sowings than to trust to them when they become potbound and often infested with spider before the points reach the trellis. When young plants intended for pits and frames have made two rough leaves, pinch out the points and keep them close to the glass until the hills are ready for them. If the manure has been well worked and placed in the pits, make it very firm and level on the surface; lay sods of turf, Grass side downwards, across the centre to prevent the roots from striking into the manure, and upon these form a long narrow ridge or small cones of light rich soil. Introduce a bottom-heat thermometer, and when a steady heat of 80° to 85° has been secured, cover the remainder of the bed with sods and plant out in the usual way.

Hardy fruit.—With the exception of one night's rain, the weather of the past month has been all that could be desired for pulling up arrears of planting or other work where the disturbance of the roots of fruit trees comes within the range of the operation. The same favourable conditions having also helped forward pruning, training, and winter-dressing, thrifty hands should now be turned to the preparation of protecting materials of some kind, as we can hardly expect a mild winter like the past to pass away without a few sharp spring frosts, and it not unfrequently happens that one particularly treacherous forepart of the night suddenly changes to a sharp frost the following morning and settles the cream of the fruit crop for the season. With this dearly-bought experience in view, all dwellers in low, damp situations will do well to be ever on the watch, and prepared to cover up on the instant, if they do not make a point of seeing everything safe before they retire for the night. So much having been written upon the protection of the blossoms of fruit trees, it may be well to guard young beginners against the abuse of materials placed within their reach, as excessive covering very often forces a weak, premature growth which is killed, whilst its judicious application retards, exposes, and protects in time of need. For walls the first requirement is a broad coping of glass, if possible 2 feet wide and portable, as everything should be cleared away when danger of spring frosts is over. In front of the trees several thicknesses of fishing-net may be suspended permanently. Canvas, frigi-domo, or an excellent and less expensive material called grey baize, sent out by Messrs. Veitch, of Chelsea, may be used as curtains or blinds, but they must be drawn up or aside every day, otherwise the danger to which I have alluded will soon be present in the form of weak, blanched flowers, which cannot be expected to set and swell into luscious fruit. Apricots this year well furnished with flower-buds will be the first to require attention. These may be coped and poled, but the nets must not be suspended until the blossoms begin to open. Next will come the early Peaches; but as these are still drawn away from the walls, and nailing in will be deferred until a late period, arrangements must be made for rapid dispatch when the proper time does arrive. Work in orchards referred to in my last paper may still be carried on as opportunity serves, and stocks may be partially cut back preliminary to grafting in the spring. A mild season being favourable to early enlargement of fruit buds, small birds are generally troublesome; hence the importance of dusting with soot and lime when wet, or syringing with the same in solution after the trees are pruned. As many kinds of Strawberry are already throwing up their crowns, any deferred cleaning and top-dressing must be proportionately early, otherwise the flowers will suffer. Many people have an idea that spit manure is the best top-dressing for Strawberries, but in old gardens already too full of animal and vegetable matter a good dressing of soot, followed by 2 inches of fresh loam, will produce better crops of finer flavoured fruit. If not already done, autumn-bearing Raspberries must now be cut over quite close to the ground. Belle de Fontenay is a fine, large-fruited kind and well worthy of general cultivation.

MARKET FRUIT GARDENS.

THE season being favourable, the pruning of bush fruits is well advanced; as a rule such fruits as Gooseberries and Currants (Red and Black) are cut in severely, even more so than in private gardens, for in the case of Gooseberries, except when the fruit is gathered green, it pays better to have a fair crop of large fruit than a heavier crop of small, under-sized berries, and in order to have size, only the strongest young wood is left. Red Currants, too, are spurred in very closely; after pruning the cuttings are all raked up to the end of the rows and thrown into heaps to burn. A good coating of manure is then forked in lightly round the roots and the soil between the rows is dug up as roughly as possible. As it gets trodden down hard during the gathering season, it is much benefited by exposure, and when forked or prong-hoed down in spring to get out coarse rooted weeds, such as Docks, Dandelions, Couch Grass, or Bindweed, a fine crumbling surface is the result. Cultivating ground in this condition is not only more cheaply performed, but a good layer of finely powdered soil is looked upon as the best antidote against drought, and if the drying winds of spring penetrate to the surface roots the crop is proportionally reduced in size.

Raspberries are being extensively planted, in some cases as intermediate crops between dwarf Apple or Plum trees, but more generally by themselves. They are planted in rows about 4 feet apart, and in patches of three or four young canes, 2 feet asunder in the row. Small canes with good roots are preferred to even good canes with few roots, as the first year's crop is of little value. After planting the canes are cut down about half their length, and the first and second year an intermediate crop is planted between the rows. They are never staked or supported in any way, but the canes are cut down to between 2 feet and 3 feet from the ground. They are, therefore, stiff enough to stand alone. Some sorts make stronger canes than others, notably Prince of Wales, a very fine Raspberry, but some others, such as Fastolf and Carter's Prolific, are largely grown for market. After the second year's growth they are at their best, and with rich dressings of manure, so as to get large fruits, constitute one of the most profitable crops grown. When gathered, they are put into tubs and consigned at once to the jam manufactories, as being very perishable they quickly deteriorate if left on hand any length of time. At present, however, the supply is not equal to the demand. Although the Raspberry delights in a rich, rather moist soil, it is grown to great perfection in soils by no means naturally rich.

Fruit trees intended for grafting should now be beheaded just above where it is intended to re-graft. If left until late in the season a good deal of the strength of the tree is wasted. Shoots about the size of a man's wrist are the best for grafting on. All those done last season should now have their stems cleared of lateral spray left on at the time for promoting root action, and the leading shoots from the graft should be topped about one-third of their length and otherwise treated as young trees forming a head. A supply of grafts should be at once secured and laid in by the heels in trenches in a cool, shaded position; do not tie them in bundles, as the centre ones are liable to get dry and shrivelled, but lay in each variety separately with its name or number at the end of the row. The best shoots for grafts are those of medium strength; they are generally better ripened than the largest ones, and weakly shoots have not stamina enough to form a healthy shoot. Old established trees where Moss grown should now be dusted with freshly slaked lime worked well in among the twigs, as, in addition to its beneficial effect in cleaning the wood, it forms a valuable manure when washed off into the soil. See that all freshly planted trees are securely staked and the stems protected from chafing or being barked by sheep or game. A coating of Birch or a surrounding of rabbit-proof netting makes a good protection, and some case the stems

in rags or sacking, and smear them with tar or other noxious compounds.

Apples of home growth are now realising fair prices; good dessert kinds, such as Cockle Pippins, Reinettes, and Golden Pippins, are worth from 5s. to 8s. per sieve; kitchen kinds fetch from 4s. to 6s., and with such a crop as that of last year home growers can successfully cope with foreign competition, at least in the way of Apples, for some time to come.

KITCHEN GARDEN.

JUST now is a very good time to plant Shallots, than which few crops pay better or command a readier sale. The land which we use for this crop is not rich, but should be well worked and made as fine as a heap of sifted ashes. We draw the drills for them about 1½ inches deep, fill them up to the level of the ground with burnt refuse, and in this we plant the bulbs 1 foot apart. Shallots often become mildewed, occasioned by being too deeply embedded in the soil; hence the reason of planting so shallow, that all the bulbs may be above the soil when matured. A most useful spring crop may be had by planting small Onions just now, to pull and use in a green state. These Onions planted on the edges of borders look trim and smart. Small sowings of Celery may now be made in boxes for very early use, but the main crop we never sow until the second week in March. Of early Cauliflower (Dean's Snowball is the best here), a boxful should be sown at once. The same may be said of Lettuces of the true Cos variety, which stands at the head of its class. We are busy planting Potatoes in frames, sowing Radishes, early Carrots; and here we must remark if clean grown Carrots are wished for, mix plenty of sand in the compost in which they are grown, and you will not be disappointed. Cover up more Seakale and Rhubarb, and keep up a good supply of Asparagus and French Beans. Our young plants of Tomatoes are now in single pots (3-inch ones). We intend planting a house with them next week. The winter plants are now done; therefore directly we can get the house thoroughly cleaned we shall plant the spring batch. Our winter Cucumbers are still bearing, and doing us good service. Our young plants for pits are now potted, and will be ready quite as soon as they are wanted. As to salads, the large variety of Chicory called Witloof is just now most useful. We place a dozen roots in a large flower-pot, and blanch them in the Mushroom house. Keep up successful sowings of Mustard and Cress, and when well up remove them into cool houses.

FLOWER GARDEN.

HERBACEOUS PHLOXES.

THERE is now an immense variety of Phloxes, and when an admirer of these most useful hardy flowers lights upon a catalogue containing a list of very nearly one hundred varieties, he is naturally enough somewhat at a loss what to select; and it is not always wise to leave the selection to dealers, for they make up a select collection according to the varieties they have in stock and what they can best supply. When looking over a fine and select collection at Messrs. Sutton & Sons, Portland Road Nurseries, at Reading, last August, I jotted down the names of the following varieties as being especially fine and well deserving of being included in a select collection: Coccinea, rich crimson-scarlet, very effective; Resplendens, bright rosy scarlet, very fine; Boule de Feu, bright fine red, striking in colour; Madame Guldenschuch, rosy violet, with a scarlet and purple centre, very fine; Roi de Saumon, rich rosy salmon, very effective; Souvenir de Berryer, deep lilac mottled with white, distinct and pleasing; Czarina, one of the very best white varieties, extra fine; Madame Manuel, very pretty; Richard Wallace, rosy scarlet, extra fine form; Monsieur Marin Saison, red, suffused with orange, crimson centre, very striking; Madame Mouisset, bright rose, suffused with carmine, crimson centre;

La Candeur, white, fine form; and Dr. Masters, rosy salmon, very fine.

These were growing in well cultivated soil in the open ground, and had thrown up strong growths, so that each plant produced a few spikes of very fine flowers. It is in this way a bed should be grown, but I would suggest that young plants be raised from cuttings about once in three years, so that at intervals of that time beds may be renewed. And as improvements are made in old varieties, these last should be rejected and the new forms substituted for them.

Fine young plants can be formed by making cuttings of the young growths thrown up in autumn, or by taking out fresh-rooted shoots at that season of the year. These should be potted singly and grown on in a cold frame, and they come in very useful to make a fresh plantation in April or May.

New varieties are largely produced annually. In Scotland, as well as on the Continent, the raisers are always busy, and perhaps there is some reason to think they are multiplied a little too fast. We can scarcely advise cultivators to trouble much about raising seedlings, but there is always a peculiar pleasure in doing so, though the results may not be such as might be desired. Some care is required in raising seedlings, and a cold treatment is the best. Self-sown seed will lie in the soil all the autumn and winter and grow up into plants in spring.

In some parts of the country herbaceous Phloxes are grown for exhibition. It is the practice to show finely-branched spikes in collections of six, nine, or twelve, and when the varieties are good and the spikes fully developed, a very effective feature is secured. As a matter of course, the spikes should always be shown in vessels containing water to keep them fresh and the flowers fully expanded. But it is only at exhibitions held at the middle or end of August and early in September that these Phloxes can be produced in fine character. Sometimes specimens are grown in pots for exhibition purposes, but never in a satisfactory manner. The difficulty appears to be to get dwarf plants with a balance of good foliage and flowers; but Phloxes are so pretty and inviting when well shown in water it is enough that they be exhibited in that form.

E. D.

SOIL FOR ANEMONES.

"A. D." states (p. 57) that Anemones do better with him on strong soil than on that of a light character, but it must not be accepted as a fact that they always do best in a soil of a very retentive nature. Probably "A. D.'s" Anemones that do so well on strong clay soil are growing on a south border where they get abundance of sun (a situation these sun-loving flowers so thoroughly appreciate), while those growing in light soil are not, perhaps, so happily situated. I grow them in quantity and can fully testify as to the usefulness of the blooms in a cut state. From a medium-sized bed on a warm south border without any protection (in the way of frames, &c.) I have cut a goodly number dating from the third week in December, while at the present time there are scores of buds in all stages of growth. I may state, too, that clumps of them growing in various parts of the garden, and in the same light calcareous soil are scarcely throwing up a flower bud yet. While thus resembling "A. D.'s" plants as regards their blooming propensities, they differ from his inasmuch as they grow on very light soil indeed, but they nevertheless yield an abundance of large, gorgeous blooms for at least six months of the year. The flowers, too, are very hardy, bearing several degrees of frost unharmed. It is surprising how fresh they appear after all the wet, damp, and slight frosts we have had if perchance a fugitive sunbeam lingers behind a few minutes. The unopened buds have a very useful property of unfolding their brilliant petals on being transferred to the drawing-room or anywhere else where there is a little warmth. Position is a great desideratum as regards their culture. I have some growing in a damp, rather shady nook, and the re-

sult is that they dwindle and languishingly send up one or two buds to apologise for the others that do not appear, or it may be to remonstrate with me for not placing them in a more suitable position. For early blooming the corms require to be thoroughly matured; consequently a dry, warm, south border is indispensable. I have had the corms dried in the sun to such an extent that one would never believe there was any vitality in them; still, after being placed in a moist, shady situation and kept moderately damp, they plumped up and sprouted almost immediately, bloomed, and did well afterwards. Of course I do not recommend this drying process—what I mean is that they will bear a great deal of it with impunity.

Thickthorn.

H. DOBBIE.

AURICULA NOTES BY THE WAY.

I DO not feel sure that the unshaded alpine had, at the northern meeting of January 31, or has, in the opinion of the northern florist body, quite the status that Mr. Brockbank would accord to it, by virtue of subscriptions having been accepted for its exhibition at the next Northern National Show. A set of prizes was guaranteed by Mr. Brockbank, and his kind intent to add to the extent of the show was liberally received. But when he interprets this to be the formal and first acknowledgment of the unshaded alpine in the north as a legitimate florist flower, I doubt whether so grave an import was generally understood or attached to his proposition. For my own part I took the question to be simply—May there be exhibition space and a class list for these flowers if prize money is forthcoming? And the meeting said—Yes. But the rank of a florist flower is high, and should not be purchasable. If conferred formally the degree should be granted by the fullest senate available, solemnly convened for that definite purpose. Many northern florists, however, were absent even at our large meeting; and among those present I think would be some who could only say that the unshaded alpine is a weaker type of the flower. Indeed, technically and correlatively, it is as bad as the shaded self would be. The weakest colour point in the self is any degree of shadiness, and in the alpine any lack of it. While the true self is a flower of a dense uniform body colour, and heavily mealed eye, the best alpine is a heavily shaded flower with perfectly unmealed and golden eye.

Shaded alpines with pale, but unmealed eye are recognised, but they are a weaker type. The unshaded alpine is the flower with what has so far been considered its most distinctive property left out. I would not say we are never to find and adopt a new thing or style of beauty, but not for the mere sake of novelty and abundance, and not to the hurt of what is higher, rarer, and more difficult to attain and of gentler worth.

We have allowed a touch of floral comedy and grotesqueness to find an expression by the admission of fancy or nondescript Auriculas, Polyanthus, Carnations, and Picotees at our classical national shows, and I begin to fear whereunto this spirit of good humour and frolic may lead us. Old hands may understand it and be amused and not lose their balance, but young ones and the public may get confused and misled, and not see our real object as plainly as we do.

Who shall say that in the Auricula some one may not next be offering to find the prizes if we will admit a class for shaded self? Have they not beauty also? and is there not a host of them, or soon could be? Then may arise young champions for other mixtures, whose origin is simply out of the obscurity of present rejections from the seed bed, and which may be had in any quantity and variety out of the most carelessly saved seed. I should not like to see this lawlessness let loose upon any of our florist flowers of the old standing. We have no flower more beautiful and well defined than the classic-edged Auricula; none so grave and reverend and refined; perhaps none to be so easily overlaid and lost sight of in a mass of raw, irregular, and loose additions. Who would set their pearls in brick-

bats? Moreover, we have gems yet to seek for, and perfections yet to work out in old lines. We have not yet the golden centre in alpinas of the lilac shades, or golden tubes to our blues in the selfs, or edged flowers of perfect quality with other ground colours than black.

AURICULA VINCTA!

Rule XI. could have borne the interpretation that was put upon it, viz., that a shady exhibitor could have shown a plant he had neither grown nor had in his garden because he could say he had bought it, and left it his property 100 miles away, and now had fetched it to the show. But the old honest interpretation was that for two months before exhibition the plant must have been under the hand of the exhibitor, so that his skill or otherwise should have had time to tell decidedly upon the condition and chances of the plant. It is well to make honourable showing an assurance to all. This safety is priceless. But those who henceforth may think the owner of any powerful seedling is rather close-handed for not letting a circle of friends have a plant to win with may be relieved to know that it is not now the raiser's fault. The word property, as applied to the possession of an Auricula, is to signify that the plant cannot compete unless the exhibitor has the fullest control over it by absolute gift from the donor, therein including, of course, the power to part or have it parted with.

Now it is not hard to find a trusty friend, and plants of outright gift will no doubt appear at the shows; but in the chances and changes of life it would become a great effort on a large scale to keep a dispersed and distant eye on a number of private seedling treasures that from time to time might drop from the hand that held them. This will have to account for the still more lengthened time that may now elapse before any desirable seedling is shown, save by the raiser himself and perhaps an intimate friend. For I take it that no one can afford to let an undistributed seedling very far out of his own hands when he knows he cannot recal it or have any hold upon its dispersion.

Plants lent may, I suppose, be recalled; but though the friend may have grown them the year round and round again, he cannot win with them, for they are not legally his property, and they are not, in the eye of this new law, his growth. He has not grown what he has grown, and seedlings thus disqualified from competition I would rather see shown with their full and lawful franchise, although the raiser be obliged to keep them to himself to secure it.

I willingly voted for a more forceful form for Rule XI., but think that if anyone has certainly had the whole growth of a plant in his own hands, it might, without his necessarily having absolute power over its destiny, be considered for exhibition purposes his property. F. D. HORNER.

Kirkby Malzeard, Ripon.

THE GLADIOLUS FAILURE.

IN the various letters which have appeared on this subject recently many causes have been suggested for the failure of Gladioli, which seems to have been so general during the last few years, but the change of climate which appears to have now become the rule over most parts of England is surely enough to account for a great deal if not all of these losses. Though I have never grown Gladioli in more than a small way, and never went in for show varieties, I always used to have a nice lot till the year 1879, when I lost almost all of them, including Kelway's named varieties and many sent me by Herr Max Leichtlin, which were the produce of crosses between the florist's Gladiolus and some of the true species, such as insignis, Saundersi, purpureo-auratus. When one remembers what is the natural climate of the plant, and what our summers have been for some years, and especially since 1878, it is not surprising that Gladioli die, but rather wonderful that any are left. I find that even the species planted out in frames and not disturbed by taking up have very much deteriorated and diminished

in number, but those which I have grown from seed in a cold greenhouse have been as good as usual, and the seedling bulbs when planted out were even last season very fair. What is wanted, I think, is a strong infusion of the blood of very hardy interesting sorts such as Saundersi, even if something is lost in the form of the flower. Named sorts seem to me a delusion which is not worth keeping up, and I should like to know how many of the varieties which have received first-class certificates in the last ten years can now be found equal to the standard of first-class seedling varieties. It seems to me that the practice of giving certificates to individual varieties of Gladioli, Cyclamens, Gloxinias, Primulas, and other plants which are most readily and successfully propagated from seed is a mistake. Let a certificate be given to the strain or the exhibits of any particular grower when the general standard of his plants is good enough to deserve it, but to keep up 1000 or more named varieties of any plant seems to be an obsolete and useless practice. H. J. ELWES.

NARCISSUS MONOPHYLLUS.

I DO not think Mr. P. Barr or anyone else has any secret about the cultivation of this charming plant, as I have found it more easy to bloom than many other bulbous plants. I may say, however, that I do not think it can be flowered well except in a pot kept in the greenhouse. Mr. Hammond, of St. Alban's Court, Kent, showed a 5-inch pot of it four or five years ago at South Kensington, which had, if I remember right, about sixty flowers out at once, and was good enough to give me bulbs and to tell me how he managed them. Since then I have never failed to have plenty of flowers from Christmas till about the middle of February, and have found the bulbs increase fast. Pot them twenty or thirty in the same pot, well drained, and keep the pot on a hot dry shelf in the greenhouse from about May till October without a drop of water till the leaves show; then water moderately as long as the leaves are green, say, till about April, when gradually dry them off. Do not disturb the bulbs unless they are too crowded, say once in three or four years. I should be glad to know from those who have grown them if the Snowdrops, of which great quantities have been lately imported and sold as Galanthus Elwesi, are equal to the plate of this plant in Bot. Mag., vol. ci., t. 6166, which is a true likeness of it as I first had it. My original plants have diminished in numbers and become smaller in size, I think, and do not seem so hardy or so early as they were. I do not know the origin of the lately imported bulbs, but if anyone visits Smyrna they will find the fine form of the plant in the mountains about two hours' walk south of Manisa, a town on the Cassabar railway, in ravines on the north side of the mountain at about 3000 feet. If anyone can send me bulbs of this form I shall be glad to give anything in my garden in exchange for it. H. J. ELWES.

I DO not for a moment dispute that Narcissus (Corbularia) monophyllus may not be grown out-of-doors in certain parts of the United Kingdom. Mr. Ewbank tells us that he can grow it at Ryde. I believe it would do very well in the Scilly Isles, on the west coast of Scotland and the adjacent islands, and perhaps in some parts of Cornwall and Ireland, but that it will ever become a generally established plant in this country I cannot believe. Mr. Barr, Mr. Elwes, Mr. Ewbank, and a few others grow it with considerable success in pits or frames under glass, but in 99 cases out of 100 it simply defies cultivation altogether, and I believe it to be sheer folly to attempt to grow it. There is something in soil, atmosphere, and climate which renders its cultivation impracticable. The same remarks apply to another lovely little Algerian Narcissus, N. elegans (oxypetalus), and the S. European N. serotinus. I can do nothing with the pretty and delicate little N. pallidulus, so common on the mountains round the Escorial. I brought a number of bulbs home from thence between three and four years ago, but I fear they are all dead. I also distributed a considerable

number among various friends. I should like to know whether anyone has succeeded in establishing it. My late friend, Mr. Nelson, of Aldborough, who could grow almost anything, told me he could do nothing with it either in the open border or under glass. Its close ally, N. triandrus, grew like a weed with him. All the Corbularias are capricious, and utterly refuse to grow in many places. I grow all the known species except C. monophylla under glass in a pit, but can do nothing with them in the open border. One of your correspondents, writing from Kent, says he grows C. Bulbocodium luxuriantly in his sandy, peaty soil. I am not the least surprised at this, because it is almost invariably in soil of this kind that all the Corbularias grow wild. The only Corbularia with light coloured flowers which grows in the neighbourhood of Bayonne is the large sulphur-coloured Hoop Petticoat Narcissus, C. citrina. Talking of bulbs which baffle cultivation, I would ask if anyone has succeeded in thoroughly establishing those two lovely Californian Frithillarias, recurva and pudica, or any species of Calochortus? A few years since bulbs of Narcissus Broussonetii and canariensis were imported, the latter by Messrs. Krelage. Has anyone established them?—H. HARPUR CREWE, Drayton-Beauchamp Rectory, Tring.

Several paragraphs have appeared in THE GARDEN lately touching the blooming of Narcissus monophyllus. You allude (p. 130) to my successful treatment of it a few years ago. Alas, my hand has forgot its cunning! I have a stray bloom occasionally, but never again five blooming bulbs in a 5-inch pot, which so attracted the attention of a great horticulturist when he saw it standing in Mr. Barr's window, that (as I understood) he took off his hat to it. What I wish to know is whether these successful growers can bloom the same bulbs year after year. That is the point. My friend, Mr. Ewbank, has much in his favour; but, if I remember aright, he told me, three or four years ago he could not manage it. Has he found out the secret? I remember telling Mr. Barr that when I had made it grow I could make it bloom, but I have been mistaken. There are other bulbs from the same quarter (Algiers) which are equally stubborn, for though I have bloomed both Narcissus elegans and N. serotinus, the identical bulbs will then remain two or three years in the ground and not attempt to move, yet keeping perfectly sound. Can anyone tell me where to get a bulb or two of Narcissus viridis? Dr. Durando, of Algiers, says it is only a variety of N. serotinus, but Mr. Burbidge, in his monograph, seems to imply otherwise. Will some correspondent kindly give me the treatment of Saundersonia aurantiaca?—A. RAWSON.

"Veronica" is right in having questioned the correctness of my statement, that the White Hoop Petticoat is found near Bayonne. A friend who lives at Bayonne has asked local botanists, and they send me word that it is not found there. Not having access to a copy of Gerarde's "Herbal" (a book written half a century before Parkinson's "Paradise," not after, as "Veronica," by a slip of the pen seems to say), I cannot tell whether the explanation of the name Cantabricus as given to the White Hoop Petticoat because cultivated at Cambridge is Gerarde's or "Veronica's." Cantabricus, however, ought to mean Biscayan. Cantabri is the ancient Latin name of the Baques, and Cantabricus sinus the classical name of the Bay of Biscay. In modern dog Latin Cantabridgia has been adopted as the conventional rendering of Cambridge, from which an adjective Cantabridgiensis, corrupted in vernacular English into Cantab, has been formed, but this must not be confused with the genuine classical adjective Cantabricus, a name more likely to have been given to the plant in question from an erroneous opinion of its habitat, and which may account for Mrs. Loudon's statement (see page 130).—C. WOLLEY DOD. [Narcissus monophyllus is now in flower at Kew, both in pots in a cool house and under a handlight in the open. In the latter case the handlight is kept closed throughout the year, and the plants under it seem to be thriving admirably.]

BOOKS.

LES PLANTES POTAGERES.*

THE object of this work, as explained in the introduction, is "to invite the attention of the greatest possible number of readers to the vast variety of plants known and used as vegetables, and to the advantages of making a good selection from amongst them; to note briefly their various adaptabilities and the principal properties of each; and, especially, to point out the characteristics by means of which different varieties may be distinguished from one another."

A careful examination has assured us that the volume is in every respect worthy of the distinguished establishment from which it emanates, and that it is a work of the highest importance to all who take an interest in the subject. Its programme has been fully and faithfully carried out, and in this respect leaves nothing to be desired. An introduction of some ten pages (in which the aim and scope of the work are explained at length, together with some interesting and valuable remarks on the subject of "varieties produced by cross-fertilisation") is followed by an alphabetical enumeration of no fewer than 137 species of plants used as vegetables. These and all their best known varieties, amounting to many hundreds, are described under the natural family and botanical name of each, followed by the corresponding name in English, German, Flemish, Dutch, Danish, Italian, Spanish, and Portuguese. Then come particulars as to the native place, whether the plant is annual, biennial, or perennial, and such other distinguishing points as may require notice. The mode of culture and uses are briefly indicated, and the description of almost every species and variety is accompanied by an exquisite wood engraving which accurately represents the plant to which it refers, and in such difficult subjects as the varieties of Cabbages and Lettuces reproduces in a marvellous manner the characteristic features of each. There are in all 624 of these illustrations. Not the least valuable part of the work is a carefully prepared table of the average duration of vitality in the seeds of the various plants enumerated. The same may be said of the very comprehensive index of 81 pages, which, notwithstanding the alphabetical arrangement of the species, the vast number of varieties described and figured has rendered necessary. The volume is well printed on good paper, and contains 650 pages, exclusive of the introduction. As an example of the manner in which the plan of the work has been carried out, we subjoin a translation of two or three of the shorter descriptions:—

Cardoon.

CYNARA CARDUNCULUS (L.).

Natural Family, Compositæ.

Foreign names: *French*, Cardon; *German*, Cardy, Card; *Flemish*, Kardoen, Cardonzen; *Danish*, Kardon; *Spanish* and *Portuguese*, Cardo.

Native of South Europe. Perennial. Notwithstanding the different botanical names which have been given to them, the Artichoke and the Cardoon appear to belong to the same species, cultivation having in the case of the latter developed the leaf-stalks, and in the former the receptacles of the flowers. The Cardoon is a larger plant than the Artichoke, and of a more vigorous growth, but the botanical characteristics and general aspect of both present the greatest analogy. In the Cardoon, the stem, which attains the height of from 4½ feet to 6 feet, is enamelled and of a whitish hue. The leaves are very large, pinnatifid, of a slightly greyish green on the upper surface, and almost white underneath, armed, in several varieties, at the angle of each division with very finely pointed yellow or brown spines from one-fifth of an inch to three-fifths of an inch long. The very fleshy leaf-stalks are the edible part of the plant. The flowers, which have usually pointed scales, re-

semble those of the Artichoke in miniature. The seed is thick, oblong, slightly flattened and angular, gray, striped or streaked with deep brown. A gramme (15 grains) contains twenty-five seeds,



Prickly Solid Cardoon.

and the weight of a litre (nearly a quart) is 630 grammes. Its germinating power continues for seven years.

CULTURE.—Unlike the Artichoke, which is almost always multiplied by means of offsets, the Cardoon is always raised from seed, which is usually sown in May, in holes filled with compost, and at a distance of about a yard every way from each other. It might be sown earlier in pans on a hotbed, but this practice presents few advantages, as the Cardoon has ample time to develop itself during the summer and autumn, and is not a vegetable that is sought after before its natural season. The ground must be kept very clean, and the plants should be copiously watered through the summer. As they will not have grown large enough to touch each other before September, the ground between the rows may be utilised in the meantime by sowing some other crop there.

Before Cardoons are used, the leaf-stalks are blanched by tying them all together and wrapping them round with straw, which is also tied with cord, bast, &c. The plants are then earthed up and left so for about three weeks, when the leaf-stalks will be in proper condition to be used. If left longer they will be in danger of rotting.

The Cardoon does not bear frost; therefore before winter the plants should be taken up and placed in a winter vegetable house.

USES.—Chiefly as a winter vegetable use is made of the blanched stalks of the inner leaves, and also the main root, which is thick, fleshy, tender, and of an agreeable flavour.

Echalotte.

ALLIUM ASCALONICUM (L.).

Fam., Liliacæ.

Synonyms: Chalotte; Ail stérile.

Foreign names: *English*, Shallot; *German*, Schalotte; *Flemish* and *Dutch*, Sjalot; *Danish*, Skallotteløg; *Spanish*, Chalote, Escaluña; *Portuguese*, Echalota.

Native country, Palestine. Perennial. Although botanically very nearly allied to the Onion, the Shallot differs from it completely in a horticultural point of view by its mode of growth. It seldom yields seed, but produces leaves in abundance, and the bulbs, when planted in spring, rapidly develop a great number of cloves or bulblets,

which remain attached to a common base, and in a few months become as strong as the parent bulb. It has been under cultivation from a very remote period, and there are several very distinct varieties now in existence.

CULTURE.—The Shallot is planted immediately after winter is over in good, rich, well-manured ground. Well-rotted farmyard manure suits it much better than that which is fresh and contains straw. It is still better, when possible, to plant in ground that was well manured in the previous year. The bulbs should be placed at no great depth in the soil and about 4 inches apart (if the common kind is planted). They may be put either in beds or rows. As soon as the leaves begin to wither (about July) the plants are pulled up and left to dry for a few days; then they are divided and the bulbs are stored in a dry place. Those plants which are to furnish bulbs for the next season's planting may be left in the ground for some little time longer.

USES.—The bulbs which will keep all the year round are used for seasoning. The leaves, cut when green, are also used for the same purpose. After this follow descriptions and illustrations of varieties.

Purslane.

PORTULACA OLERACEA (L.).

Nat. Family, Portulacæ.

Foreign names: *French*, Pourpier; *German*, Portutak, Kreusel; *Flemish* and *Dutch*, Postelein, Postelijn, Porcelein; *Danish*, Portutak; *Italian*, Porcellana; *Spanish*, Verdolaga; *Portuguese*, Bel-droega.

Native country, India. Annual. The Purslane, which is undoubtedly of Indian origin, has become naturalised with us to the extent of becoming a weed. It has a thick, fleshy stem, sprawling on the ground when the plant is isolated, but simple and erect when grown thickly, with thick, shortly spoon-shaped leaves, in the axils of which are produced very small yellow flowers, succeeded by roundish, slightly compressed seed vessels filled with small, black, shining seeds. There are about 2500 seeds in a gramme, and the litre contains on an average 610 grammes. Their germinating power continues for at least seven years.

CULTURE.—Purslane is sown in drills or broadcast in light soil from May to August. The stems and leaves may be gathered about two months after sowing, and the same plants may be cut two



Golden Purslane.

or three times in succession, provided they are well watered.

* "Les plantes potagères: Description et culture de principales légumes des climats tempérés," par Vilmoren-Andrieux et Cie, marchands grainiers, Quai de la Mégisserie, 4, à Paris. 1883.

Purslane is often sown under frames or on a hot-bed in order to obtain a supply during winter or spring. The seed is sown from December to March on hotbeds, as the plant requires a pretty high temperature to enable it to grow vigorously. It may be cut eight or ten weeks after sowing.

USES.—The leaves are eaten boiled, and are also used raw in salads.

White Dutch or Case-knife Kidney Bean.

Foreign names: *French*, Haricot Sabre à Rames, Haricot Sabre à grande cosse; *German*, Weisse-Schwert-Bohne, Schlacht-Schwert-Bohne.

A very vigorous growing variety, attaining a height of 9 feet or more; stems green and thick; leaves very large, of a deep green, crimped; flowers large, white, passing into Nankeen yellow, and forming long bunches. Pods straight, sometimes undulating on the sides, 10 inches to 12 inches long, and containing eight or nine Beans each, numerous, produced in succession for a long time, especially when the first are gathered green. Beans white, shining, kidney-shaped, very like those of the Haricot de Soissons, but more regular in shape and one-third less in size, seldom exceeding three-fifths of an inch in length. The litre weighs 715 grammes, and 100 grammes contain 245 Beans. They ripen very slowly. The young pods may be used as green Haricots. The Bean, when used fresh from the pod, is one of the best; it is also very good when dried. This is certainly one of the best varieties. The only objection to it is that it requires very long stakes when growing. The Germans cultivate a great number of sub-varieties of it, characterised chiefly by having broader and straighter pods, but, notwithstanding numerous trials, we have never found



White Dutch, or Case-knife Kidney Bean.

any to surpass or even to equal the variety here described. It is the most tender and also the most productive.

Dwarf yellow Canadian Kidney Bean.

Foreign names: *French*, Haricot Jaune du Canada; *German*, Canada Zucker-Bohne.

A very good variety, hardy and productive, but somewhat late, and well adapted for market-garden culture in the open ground. Stems rather vigorous, branching, 16 inches to 20 inches high, thickly covered with medium-sized flat leaves of a clear green colour. Flowers lilac, pods very numerous, green at first, changing to yellow, containing usually five ovoid Beans a little smaller than those of the Haricot de Prague, and of a deep yellow colour passing into brown about the hilum. The litre weighs 815 grammes, and 100 grammes contain about 260 Beans.

The dried Beans are much esteemed. The pods to be tender should be gathered before they are fully grown.

Closely resembling the yellow China Kidney Bean, this variety is distinguished from it by the deeper colour of the Beans, and by its leaves being larger, less crowded together, moderately crimped, and of a deeper green colour.

Spinach.

SPINACIA OLERACEA (L.).

Nat. Family, Chenopodiaceæ.

Foreign names: *French*, Epinard; *German*, Spinat; *Flemish and Dutch*, Spinazie; *Danish*, Spinat; *Italian*, Spinaccio; *Spanish*, Espinaca; *Portuguese*, Espinafre.

A plant of rapid growth, with leaves which, in the wild state, are arrow-shaped and pointed, but are much larger and rounder when cultivated, when they are also remarkable for the thickness of their parenchyma, and are almost entirely deprived of their flavour, while preserving their green colour to a marked degree after cooking. The leaves form a rosette, in the centre of which appears, sooner or later, according to the variety, the flower-stem, which in some plants bears only male, and in others only female flowers, the plant being dioecious. The seeds are very variable, those of some varieties being furnished with three very sharp points, while those of other varieties are rounded in shape and without points.

CULTURE.—Spinach is best sown in drills 10 inches or 12 inches apart. In order to have a constant supply, successional sowings should be made every fortnight, or at least every month, especially during spring and summer, when it runs freely to seed. Copious and frequent waterings are neces-

Monster Spinach of Viroflay.—This variety, which is of recent introduction, resembles the Flanders Spinach in the shape of its leaves



Dwarf Yellow Canadian Kidney Bean.

and its manner of growth, but its dimensions are much greater, for it is not unusual to see plants of it which are 2 feet and more in diameter, with leaves measuring 10 inches in length and 8 inches wide at the base. Like all varieties which exhibit extraordinary vigour of growth, this requires an abundant supply of nutriment, and is especially suitable for gardens that are well manured and well kept. W. M.

INDOOR GARDEN.

STEAM HEATING.

In "Notes from America" a writer says: "Steam heating will give more satisfaction uniformly than hot water or any other form of heating. The price for steam heating is about one-third less than hot water, and it gives us good or better satisfaction"—statements which surely require some explanation. Steam heating was for a time, I believe, considered to be an advance upon the old smoke flue, but it was soon found to be hardly even that, and to say now that it is an improvement upon hot-water heating, and one-third less expensive, is misleading. On the contrary, I am inclined to think it more expensive than hot water, and altogether an unsatisfactory method of heating horticultural or other structures. Few of



Monster Spinach of Viroflay.

sary to ensure an abundant and good crop. The Parisian market gardeners have for a long time given the preference to the pointed-seeded varieties for spring sowing, reserving the round-seeded kinds for the end of summer and for autumn. We have at present some round-seeded varieties which are quite as hardy and as slow to run to seed as any of the pointed-seeded kinds.

USES.—The leaves are eaten boiled.

the readers of THE GARDEN have had experience in this matter, or I doubt not they would readily confirm this statement. I am old enough to remember the time when nearly all the plant houses in the Royal Botanic Gardens, Edinburgh, were heated by steam, and the office of stoker there at that time was a long way from being a sinecure, particularly during severe weather. Steam, of course, is not generated till water boils,

and to keep the pot constantly boiling requires unremitting attention, more particularly when, as in this case, the pot was about the size of a small sitting room, and consumed more than a ton of coals in twenty-four hours, not to mention the constant attention required in turning off and on the steam in the various structures, so as to regulate the various temperatures required. Indeed, I think anyone who may have had experience in the warming of plant houses or structures of any kind by steam will hesitate before recommending that system in preference to hot water. P. G.

LACHENALIA STOLONIFERA.

"B." asks (p. 142) "Does any reader of THE GARDEN know anything of *Lachenalia stolonifera*?" I have grown it for many years and, like him, have never been able to bloom it. I have also distributed it to several persons (I think Messrs. Henderson had it from me) who, as far as I can ascertain, have been equally unsuccessful with it. I had another variety, quite as stubborn, called *nitida*, which I believe to be only the same as *stolonifera*. The tubers are quite unlike those of any other *Lachenalia* with which I am acquainted. Another, called *contaminata*, has beaten me, but it is growing very strongly, and I am not without hopes of seeing a bloom twelve months hence. Is there no one, like Mr. Baker, who will take up and investigate the genus? Loudon enumerates upwards of forty species and varieties, but one of the best, *aurea*, is not in his list, though I think it must have been introduced before the publication of the *Hortus Britannicus*. I have raised many hybrids which, owing to a change of residence, were placed in the charge of the late Mr. Nelson. Early in last year he sent me a few blooms, but though he thought highly of one or two of them, they have hardly equalled his own seedlings. At present my hybrids are in the kind charge of Dr. Foster, who also has sent me blooms this winter, but they all run upon the lines of *quadricolor*. I have bloomed the following successfully, viz., *aurea*, *fragrans*, *luteola*, *pendula*, *pustulata*, *quadricolor*, *reflexa*, *tricolor*, *versicolor*, *violacea*, *viridis*. If *reflexa* was a species, and not a mere variety (Loudon does not give it), I think it quite equals *aurea* in beauty. I regret to say I have lost it, and the others are mostly dispersed. *L. unifolia* is, I believe very fine, and I hope to flower it next year. Can anyone tell me of a variety I have called *gigantea*? Will "B." kindly say what species he has, and which he has been able to bloom? A. RAWSON.

Windermere.

STANDARD FUCHSIAS.

IN the revival of what may be termed the natural in gardens, the tall single-stem, and other more or less artificial styles of training, as applied to flowering plants, appear to be gradually falling into disuse. Most notably, perhaps, is this so in the case of the Rose. Plants, however, naturally of a pendulous character are never, I think, in elegant grown in the tree or standard form, and amongst such may be classed the Fuchsia. Fragrant-flowered subjects, too, such as *Mignonne*, *Heliotrope*, *Cytisus*, &c., are, when plants are arranged in pots on the floor level of high conservatories, far more enjoyable, as well as more lasting, when grown in this manner. Doubtless the maximum amount of utility and beauty of which the Fuchsia is susceptible may be best obtained by planting it out, and training it in single rods along the bars or rafters of plant houses, spur-pruning close in annually, vine fashion, while as a pot plant the most beautiful form it can be made to assume is certainly the not-too-formal pyramid. Still, standards have their uses, and well grown with handsome heads on stems varying in height they are especially suitable for the embellishment of lofty conservatories. These structures are often a source of much vexation when attached to large mansions, inasmuch as there must nearly always be a dark side. In their erection architectural harmony is of course, and properly so, the first consideration, but the

result is a house ill-adapted for the healthy growth of anything except Ferns, Palms, or Camellias. Place well-grown plants of any of the usual decorative subjects in it, and they quickly deteriorate. Perhaps the most satisfactory method of dealing with such houses is to employ for the shaded part plants of a dwarf evergreen character, chiefly Ferns, that will maintain a permanent undergrowth, as it were, so as to hide the pots, and among which flowering plants can be grouped or interspersed at all seasons. Here standard Fuchsias might be introduced with the best effect, their graceful drooping heads of bloom, rising above the surrounding foliage, at once attracting attention. As regards culture, if kept growing during the summer in a genial temperature, and shifted into larger pots as required, all the stronger growing sorts may be in two seasons made into handsome specimens. In the formation of standards it is only necessary to allow the leading shoot to grow without stopping until the desired height for the stem is reached, pinching off all the side growths as they appear, and leaving five or six at the top to form the nucleus of the future head. The shoots thus left must also be pinched above each pair of leaves until a sufficient number has been obtained to form a symmetrical head. The same plants may be grown many years in succession by cutting the old wood well back, and shaking out and repotting in the same sized pot each spring. Old dwarf plants also having straight stems may be easily in one season converted into very good standards by trimming up the stems; when they break, train up the strongest upright shoot, and remove all others. It is important that the supporting stake be strong and sound at the bottom, as should that give way, the weight of the falling head will instantly snap the stem. A. MOORE.

Cranmore.

Combretum purpureum.—Although this has never been a popular plant, it used to be grown in some gardens both as a climber planted out and in pots. It is very suitable for covering a small space under the roof of a stove, where its large, leathery leaves, of a bright shining green, set off to advantage its large panicles of deep crimson flowers. The latter, if not brilliant, are at least quite distinct from those of any other plant with which it may be associated, and I remember the time when they used to be worn in the hair, and for other choice purposes of decoration where light and elegant bits of colouring were required. Grown as a specimen in a 12-inch or 15-inch pot, it produces a fine effect, its leafage being abundant and not difficult to maintain in a healthy condition. It is not an easy plant to propagate, but cuttings made of the half-ripened summer shoots will emit roots in eight or ten weeks if subjected to a regular bottom heat and otherwise skilfully managed; the most suitable compost for it consists of three parts peat and one part fibrous loam, with plenty of sand mixed with it. When grown in pots it is important to thoroughly drain them and to pot rather firmly. Like most other hard-wooded plants, it should have a season of rest and a reduction in the way of water applied to the roots, the best time to rest it being from November to the end of January. It is not a very suitable plant for a wire frame; on the contrary, it shows itself off to the best advantage when not too stiffly trained on a few sticks.—J. C. C.

SHORT NOTES.—INDOOR GARDEN.

Cyclamens (*H. J. Elsley*).—Fine blooms of what is known as the *giganteum* strain. The light-coloured sorts are the best.

Bulbs (*J. A.*).—Gloxinias and Cyclamens ought certainly not to be exhibited as bulbous plants. Strictly, their roots are not bulbs, but corms or thickened stem bases.

Chinese Primulas (*J. Dave*).—The blossoms you send represent very fine varieties, particularly the deep crimson, white, and pink. If as free as regards flower and as sturdy in growth as you state they are well worth perpetuating.

ORCHIDS.

Cattleya Trianae alba.—Mr. M-Leod writes to say that in Mr. Smith's Orchid collection at Brentham Park, Stirling, there is a specimen of this lovely variety with fourteen blossoms expanded—a truly beautiful sight. A flower sent shows that Mr. Smith possesses the true kind, not one of the numerous spurious imitations that pass under the name of the white *C. Trianae*.

Phalænopsis grandiflora aurea is a strikingly handsome and distinct variety of one of the finest of all Phalænopsids. The flowers are larger than ordinary, the petals broader and more rounded, while its particular feature is the large blotch of rich yellow on both of the side wings of the labellum, and which replaces the pinkish tinge usually seen there. This scarce Orchid was the chief attraction of the Phalænopsis house at Messrs. Veitch's nursery, Chelsea, a few days ago.

White Dendrobium heterocarpum.—From Mr. Vanner's collection, Camden Wood, Chislehurst, comes a flower of this rarity among Dendrobes. It is quite distinct from the type, inasmuch as the sepals and petals are pure white, but the labellum is greenish yellow. This is another and valuable addition to the white-flowered varieties of Dendrobium. Mr. Vanner states that it was bought from Messrs. Low, Clapton, who have never seen another white flowered form among all the thousands of this Dendrobe they have imported.

Odontoglossum crispum.—There seems to be no end of the varieties of this Orchid, and some of exceptional beauty continually crop up. A variety received from the New Plant and Bulb Company, Colchester, is a very charming one of the stamp that wins so many admirers. It is remarkable for the heavy, irregular blotches of chestnut brown on the white ground of the petals, sepals, and labellum. Mr. Horsman informs us that it was selected from a large importation the company received some time since, and it is expected that all will turn out as fine as the variety sent.

Phalænopsis tetraspis.—Though this comparatively new species cannot compare in beauty with others of the same genus now in flower, it is nevertheless a pretty Orchid. It belongs to the *Luddemanniana* section, and possesses the free flowering character of that species. The flowers, about 2 inches across, have wax-white sepals and petals, a horizontally poised lip crested with a tuft of white down. It has a peculiar odour, not so pleasant as that possessed by many others. It seems to be grown well by Mr. Vanner, who sends us flowers.

Cattleya Trianae.—A flower of a glorious variety of *Trianae* Cattleya reaches us from Mr. Vanner's rich Orchid collection at Camden Wood, Chislehurst. It is the nearest approach to the superb and rare *Russelliana* variety that we have seen. The two petals are each over 2½ inches across, and, like the narrower sepals, are suffused with a delicate shade of lilac; the labellum constitutes its chief beauty. The lower half is of a glowing purple-magenta, beyond which is a bright blotch of yellow, while the throat is almost white. This is another instance of the extremely beautiful varieties that repeatedly crop up, and those who can obtain such from among imported plants are fortunate.

Orchids in flower at the Pine-apple Nursery, Maida Vale, include *Lelia harpophylla* and its near, but less showy congener, *L. cinnabarina*, besides numerous forms of the pretty *L. albida* and *L. pumila*. Among *Oncidiums* are *O. Rogersi*, a fine variety of *O. varicosum*, *O. pubes*, and the neat little *O. cheiroporum*, which is nearly always in flower. Of Dendrobes there is a large number in bloom, and among them the handsome *D. lituiflorum*, *primulinum*, and *Wardianum* in variety. *Cattleya Trianae* may be seen in its numerous forms, likewise many kinds of *Odontoglossum*, particularly *O. Rossi majus* and the rarely seen *O. constrictum*. *Trichopilia fragrans*,

with its long drooping spikes of large pure white blossoms, quite scents the whole house with its delicious perfume, which is something like vanilla, and another strongly perfumed kind is *Saccobium giganteum*, also fine here. *Cypripediums* include among others the scarce *C. conchiferum*, one of the *Selenipedium* section, with long twisted attenuated sepaline appendages. The list of botanical curiosities includes *Epidendrum verrucosum*, a very sweet scented species, and *E. purum*, graceful in growth and in bloom.

Odontoglossum Oerstedii.—A specimen of this pretty little species from Mr. Vanner shows well what a gem it is. The flower is not much bigger than a single bloom of *O. pulchellum* majus, to which it bears a resemblance at first sight. They are borne singly on slender stalks some 3 inches long, springing from the base of the tiny bulbs. The flower is nearly an inch across, and the sepals and petals are white, but the broad labellum is whiter, and as a set off the crest surmounting the lip is spotted with orange-yellow. There is a good deal of this *Odontoglossum* in cultivation, but nobody seems to be very successful with it, for one seldom sees more than three or four flowers open at a time even on big masses. Being a native of Costa Rica, it probably requires more heat than the majority of *Odontoglossums* grown in a cool house.

Angræcum sesquipedale.—I send you a spike of this Orchid with five fully expanded flowers. The plant from which the specimen sent was cut bore three flower-spikes, two of which had five fully expanded blooms; the other spike had four blooms, one of which was injured when in a small state; consequently it has only three perfect blooms—in all thirteen blooms on the three spikes. Some of the blooms on the spike sent have been fully open for about three weeks.—**DAVID KEMP, Dunlop Gardens, Ayrshire.** [The spike Mr. Kemp sent was a grand one and represented the largest flowered form of this remarkable Madagascar Orchid, having unusually broad sepals and long spurs. It would be instructive to learn the details of our correspondent's line of treatment with respect to this plant.]

A new *Spathoglottis* named *pacifica* is now in flower in Mr. Bull's nursery, Chelsea, having been introduced from the South Sea Islands. It is a pretty plant of elegant growth, having the habit of *Bletia hyacinthina*. The globular bulbs produce long plicate leaves contemporary with the flowers. The blossoms are borne on the upper part of a spike about 2 feet high, about a dozen on a spike. They are about the size of *Calanthe masuca*. The oval petals and sepals are white washed with lilac; the labellum, which is in form like that of its congener, *S. Lobbi*, is also white, blotched with yellow and reddish brown. The flowers have a delicate perfume. It is quite a distinct plant and one that specialists will welcome. It appears to be terrestrial in habit.

The Gunnersbury Phalænopsids.—The fine collection of *Phalænopsis Schilleriana* is again the chief attraction of Baroness Rothschild's garden at Gunnersbury House, Acton. Nowhere in the neighbourhood of London can this lovely Orchid be seen in such perfection as here, a condition which has taken years of skilful culture to attain. The plants, about a score in number, are all finely developed specimens with leaves a foot or more in length and spotless. Each of the plants is carrying one or more flower-spikes, some of which are widely branched, and carry some three or four dozen flowers. It is a beautiful sight to see these plants in hanging baskets in one line, throwing out their elegant long spikes crowded with flowers like beautiful butterflies. The effect is enhanced by the delightful carpet of foliage on the shelf beneath them and the other fine-leaved plants in the house. We have watched the progress of these plants for some eight or nine years, and each year they improve in size and gain in strength, quite contrary to what one usually sees in Orchid collections. They are grown in a warm, moist

house with East Indian Orchids, and are hung in a row close under the roof along the front of the house, and immediately above the rows of hot-water pipes, though a shelf intervenes. All are grown in baskets, and the way the roots protrude and fasten themselves on the surface of the wood, and insinuate themselves into every crevice, is a good sign that the plants are thoroughly at home. Mr. Roberts drew our attention to a singular monstrosity in this Orchid. It was the fusion of two flowers laterally, but so complete was the cohesion that they appeared to be one. There were two lips and ten segments, all symmetrically arranged.

Calanthe Stevensiana is the name given to a new Orchid recently introduced by M. Regnier from Cochinchina. It is apparently intermediate between *C. vestita* and *C. Turneri*. The bulbs are flask-shaped and necked as in *C. Veitchii*, and produce from their bases flower-stems from 1½ feet to 2 feet high. The flowers, about 1½ inches across, have white sepals and petals, a trilobed lip of a pale lilac, deepened towards the centre. It is a companion plant to *C. Regnieri*, and with it was exhibited at South Kensington on Tuesday last. *C. Stevensiana* was named in compliance to Mr. Stevens, the well-known plant auctioneer.

Dendrobium crassinode album may be seen in bloom in the Royal Exotic Nursery, Chelsea. It in no way differs from the original except that the petals have lost the characteristic blotch of purple at the tips, but the large spot of yellow on the labellum still remains.

Among flowering Orchids at Mr. Bull's which make a long list are the following uncommon kinds: *Odontoglossum Coradinei*, *O. Wilckeanum pallens*, *O. Halli leucoglossum*, *O. blandum*, *O. anceps*, *Pleurothallis scaphylla*, a very singular species with long attenuated sepals. *Masdevallia Shuttleworthii*, and a splendid variety of *M. ignea*, the finest we have yet seen in point of size and colour of flower. *Phalænopsis Stuartiana*, *Aerides Leeanaum*, *Lælia anceps Hillii*, *L. alba* in various forms, and numerous varieties of *Cattleya Trianae*, including a pretty one called *nivea*, which is almost as pure as *alba*. *Angræcum sesquipedale*, represented by flowering plants only about 6 inches high, is remarkably fine, as is also a large gathering of *Odontoglossum Rossi majus* in numerous varieties. Among less attractive species are *D. Ruckerianum*, and *D. brisbanense*, and *D. amulum*, the last a very sweet-scented plant.

Varieties of Cattleya Trianae.—Some flowers of this beautiful Orchid sent us by Mr. Fowler, Ash Grove, Pontypool, show well its variations. One is similar if not identical with that form known as *Backhousiana*, for it has broad lilac-tinted petals heavily blotched with rich carmine, which renders them very beautiful. The labellum, too, of this variety is very splendidly marked, being an intense velvety magenta. Another form seems to be the same as that called *Warszewiczii* delicate, the sepals and petals and lip being sufficed with a delicate lilac-purple. A third variety is deeper than the last in colour and much larger, and altogether an exceptionally handsome flower; while a fourth is remarkable for the splendid colour of the lowermost part of the labellum in contrast with the delicate soft hue of the sepals and petals. All these varieties, Mr. Fowler informs us, have cropped up from an imported batch of plants.

Flowers of Dendrobiums from Mr. Peacock's extensive Orchid collection at Sudbury House, Hammersmith, include the following beautiful kinds—*D. crassinode Barberianum*, remarkable for the colour which tips the sepals, petals, and lip, being several shades deeper than that of the ordinary form, hence much more attractive; *D. Ainsworthii*, the lovely hybrid between *D. heterocarpum* and *D. nobile*, flowers of which were also sent. Of the well-known *D. nobile* there is sent one of the richest varieties we have yet seen, the colour being a deep purple, and extending all over the sepals and petals, while the blotch on the labellum is almost black. When this favourite Dendrobe is seen in such a fine

variety as this it is scarcely equalled by any other cultivated Dendrobe. Among other blooms sent are *Odontoglossum hebraicum*, the beautiful kind figured in *THE GARDEN*, Vol. XXI., p. 386, and *O. crispum flaveolum*, distinguished by the soft primrose-yellow that suffuses the whole flower, rendering it very charming.—W. G.

SOCIETIES.

ROYAL HORTICULTURAL.

FEBRUARY 13.

THERE was a goodly number of exhibits on this occasion, and the council room presented quite a gay appearance, groups of *Cyclamens*, *Cinerarias*, *Primulas*, *Amaryllises*, and greenhouse *Rhododendrons* being abundant.

First-class certificates were awarded to

CALANTHE REGNIERI, a new species recently introduced from Cochinchina. It has the habit of growth of *C. vestita*, but it has necked bulbs, and the flowers are quite different in shape from those of that species. They are about 2 inches across, borne in a rather crowded spike on the upper part of stems from 1½ feet to 2 feet high. The reflexed sepals and petals are white with a medial line of carmine-rose. The lip, which projects horizontally, is tri-lobed, of a deep rose stained with a richer and deeper colour in the centre. From Messrs. Veitch.

ODONTOGLOSSUM SCOTTI, an extremely handsome variety of *O. crispum* and one of the finest forms yet exhibited. The flowers measure 3½ in., the petals are much jagged at the margins, and these with the sepals are of a soft creamy yellow marked with irregular blotches of chestnut brown. The lip is intermediate between that of *O. crispum* and *O. Halli*, being surmounted with a prominent crest. Shown by Mr. G. F. Wilson, Heatherbank, Weybridge, with whom the variety originated among imported plants.

AMARYLLIS ACHILLES, a grand variety, having flowers fully 8½ inches in diameter. The three outer sepals are each 2½ inches across, and their colour is a glowing deep scarlet, shaded with lighter and deeper tints. Though so large, the flower is not of such a handsome and refined form as that of the following:—

AMARYLLIS ACIS.—The flowers of this variety measure 6 inches at their widest diameter, and the petals being very broad, and all, except the lowermost, of equal size, make quite an ideal flower. The colour is a deep scarlet inclined to crimson, and conspicuously tipped with greenish white. This partakes of the *Leopoldi* type in a marked degree, and is as fine a variety of this section we have seen. Both from Messrs. Veitch.

ODONTOGLOSSUM CRISPUM AUREUM MAGNIFICUM.—A splendid variety, apparently midway between *O. crispum* and *O. Andersonianum*. The spikes are stout and erect, slightly branched at the base. The flowers are 3 inches across, the sepals and petals are white, edged with lemon-yellow, and blotched with cinnamon-red; the lip is also of the same colour. Each of the three spikes bore thirteen flowers, and, being closely set on the stem, produced a fine effect. Shown by Mr. C. Dorman, Laurie Park, Sydenham.

PHALÆNOPSIS LEUCORRHODA ALBA, a variety differing in no way from the original except that the flowers are pure white with copious spotting on the side wings of the lip and the lowermost sepals. It may be best described as having the foliage of *P. Schilleriana* and the flowers of *P. amabilis*. Messrs. Low, Clapton.

RHODODENDRON PRINCESS CHRISTIAN.—A greenhouse variety of the Javanese section. Its truss contains about a dozen blossoms, each over 2 inches across, with broad overlapping petals, and of a charming rosy pink colour, the most delicate tint we have yet seen among these varieties. A seedling raised and exhibited by Messrs. Veitch.

RHODODENDRON BARONESS SCHREDER.—Also one of the Javanese section, with flowers 2½ inches

across, of a uniform warm orange tint, harmonising pleasingly with the red stamens and glossy green foliage. Shown by the raisers, Messrs. Veitch.

CINERARIA VICTORY, a variety with flowers fully $2\frac{1}{2}$ inches in diameter, having broad overlapping florets of a deep velvety magenta. The plants shown by Messrs. Cannell, Swanley, bore huge broad heads of bloom slightly overtopping the masses of healthy green foliage. It is undoubtedly one of the finest varieties yet raised.

A group of seedling Amaryllises and Rhododendrons was shown by Messrs. Veitch, besides a fine group of Persian Cyclamen, numbering some eighty plants. Among the Amaryllises the following were remarkably fine: Pallas, very large, deep crimson, flaked with white; Fulgens, vivid scarlet, large flower, finely formed; Themis, with funnel-shaped flowers of a deep crimson; Argus, rather small flowers, but of fine form and of a glowing scarlet; Hera, large and of an intensely deep crimson; Ajax, with large flowers, poised, almost erect, deep blood-red, flaked with white; Leander, flowers large and showy, bright crimson; Lavinia, funnel-shaped flowers, scarlet, striped with white; and Orsino, flowers small, profusely spotted with crimson. A large silver medal was awarded for this group.

A similar award was voted to Mr. B. S. Williams for a large collection of his improved strain of Cyclamen persicum; also for Primulas rubro-violacea, Chiswick Red, Alba magnifica, and rubra, all superb varieties of the Chinese Primula. Mr. Williams also showed a plant with three flowers of *Cattleya labiata* Percivaliana, which, however, represented the variety in a poor form.

A silver medal was awarded to Messrs. Cannell, Swanley, for large groups of double Primulas and Cinerarias. Among the former those named *Atro rosea pleno*, purple-rose; *Earl of Beaconsfield*, deep rose-pink; *Alba plena* and *Alba plena fimbriata*, both pure white, were all extremely fine, and represented by large well-grown specimens profusely flowered. Cut blooms of such beautiful varieties as *Marchioness of Exeter*, *Annie Hillier*, *Emperor*, *Princess of Wales*, *King of Purples*, showed admirably how well double Primulas are grown at Swanley. The bulk of the group of Cinerarias was composed of the fine new variety called *Victory*, which was certificated, and one called *Marched Past*, a splendid sort with flowers $2\frac{1}{2}$ inches across, of a rich velvety maroon with white central ring.

Messrs. Carter received a vote of thanks for a fine group of Primulas, which included most of the fine sorts enumerated at the last meeting. Among new forms the most remarkable were *Holborn White*, a superb variety, with flowers $2\frac{1}{2}$ inches across, and not with Fern-like foliage, as in *White Queen*. *Holborn Ruby*, *Holborn Pearl*, and *Holborn Crimson* were among other other splendid sorts; likewise *Holborn Blue*, a decided bluer form of *Holborn Gem*, and bids fair to develop eventually in the much-to-be-desired true blue Primula. A charming panful of *Scilla sibirica* and the peculiar golden foliage of *Primula Gold Leaf* increased the effect of this group.

Orchids were numerous shown. A fine imported mass of *Cattleya Trianae* bearing several flowers was shown by Mr. Philbrick's gardener (Mr. Heims) from Oldfield, Bickley, as well as cut blooms of the same *Cattleya*, and a fine spotted variety of *Odontoglossum crispum*. Mr. Vanner, Camden Wood, Chislehurst, sent a plant of *Dendrobium heterocarpum album*, alluded to elsewhere. Messrs. J. Peed, Roupell Park Nurseries, exhibited a plant of *D. Wardianum grandiflorum* having flowers over 4 inches across. A cultural commendation was voted to Mr. P. Crowley, Waddon House, Croydon, for a plant of *Cœlogyne cristata* fully a yard through and a mass of white flowers. Messrs. Hugh Low & Co., Clapton, sent a fine panful of the pretty little *Angræcum citratum*, with long elegant racemes of white flowers; also a plant of *Calanthe Cecilia*, from the Malay Archipelago, has broad foliage like *C. veratrifolia*, and small mauve tinted flowers with a long projecting spur. Mr. James, Castle Nursery, Norwood, showed a

plant of *Cattleya Trianae* called *grandis*. It is remarkable for the intensely rich colour of the labellum. Besides the plant certificated, Mr. G. F. Wilson showed a variety of *Odontoglossum crispum*, having large flowers with broad petals delicately suffused with purple. The spike bore fifteen flowers, an evidence of good culture. Lieut.-Col. Berkeley exhibited a flowering specimen of the new *Phalaenopsis speciosa*. It is a pretty plant and may be best described as a high coloured variety of *P. Luddemanniana*.

A cultural commendation was accorded to Mr. Lyon, gardener to Sir E. H. Scott, Bart., Sundridge Park, Bromley, for four large and very fine basketfuls of forced plants, consisting of Hyacinths, double Tulips, Lilac, Jonquil Narcissus, and *Staphylea colchica*, the pretty shrub alluded to last week. These contributed in no small degree to the attractiveness of the meeting.

Hybrid Azaleas were shown by Mr. Todman, Bushey Down, Tooting Common. That named Miss Nellie Connell is a very free flowering sort, with rosy magenta flowers of medium size. Mrs. John Connell is a good free flowering white, and Duke of Albany is in the way of the old *A. obtusa*, but with larger flowers.

Mr. R. Dean, Ealing, showed a panful of the white-flowered *Myosotis dissitiflora*, which will be a valuable addition to spring flowering plants. It differs in no way from the original, except in the colour, which is pure white. Among Primroses shown by Mr. Dean were two called *Jeannette* and *Jeannot*, the former with flowers $1\frac{1}{2}$ inches across, of a purple-plum colour, barred with white, the latter a deep crimson, also barred with white. Cut blooms of *Abutilons*, shown by the raiser, Mr. George, Putney Heath, included some very fine varieties with quite new colours. A large group of double Primulas from the Society's gardens at Chiswick showed well how finely these plants are grown there.

Fruit.—The most important exhibit was that from Messrs. Rivers, Sawbridgeworth, which comprised about a hundred dishes of Apples in an excellent state of preservation, and representing most of the leading sorts, such as *Rymer*, *Stirling Castle*, *Mère de Menage*, *Braddick's Nonpareil*, *Lord Burghley*, *Betty Geeson*, *Tower of Glamis*, *Manks Codlin*, *Annie Elizabeth*, *Nelson Codlin*, and *King of the Pippins*. The same firm also showed a collection of Oranges, which, with the Apples, was awarded a bronze medal. Mr. Ford, Leonardslee, Horsham, sent fruits of *Pear Josephine de Malines*, and gathered from an east wall, and now in use. The same exhibitor also showed fruits of the *Seckle* and *Passe Colmar* *Pear*, both in good condition. Mr. Horley, Tooting, Dunstable, sent two seedling Apples, as did also Mr. Chester, Conington Castle, all of which were passed over by the committee. A second class certificate was awarded to Mr. Mann, Dunton Hall, Grantham, for *Apple Grantonian*, a large handsome culinary sort of good flavour.

Committees.—The members present were: **Floral**—Mr. G. F. Wilson (chairman), Rev. G. Henslow, Messrs. H. Bennett, J. McIntosh, J. Laing, W. Bealby, J. Fraser, H. Ballantine, G. Duffield, J. Dominy, H. Ebbage, J. Wills, J. James, S. Hibberd, H. Cannell, H. Turner. **Fruit**—Mr. John Lee (chairman), Messrs. P. Crowley, F. Rutland, S. Lyon, J. Willard, W. Denning, J. E. Lane, G. Bunyard, C. Silverlock, A. W. Sutton, R. D. Blackmore, G. Goldsmith, H. J. Veitch, T. Laxton, and Sir C. W. Strickland.

Scientific committee.—Sir J. D. Hooker in the chair.

Melon grown under electric light.—It appears that the specimen sent to the last meeting was done so inadvertently, as no scientific data had been taken. Dr. Siemens, however, informed the scientific committee that he hopes to test the growth of Melons on a future occasion.

Self-registering thermometers.—Mr. Glaisher remarked on the necessity of observers stating whether minimum temperatures are taken on the soil at an elevation above it, and also whether they have been properly compared with a stan-

dard. With reference to the Hon. and Rev. Boscawen's observations, he remarked that his thermometer registered 10° less than that at Truro. This is probably due to the fact that the position is in a valley. Mr. Boscawen believes that the *Lapageria* mentioned at the last meeting was subjected to only 5° of frost, but that the *Camellias* endured from 16° to 18° of frost, which slightly injured them.

Graft of Helianthus tuberosus on H. annuus.—Dr. Masters exhibited a specimen from Mr. Laxton with which the attempt had been made, but the graft showed only a slight adhesion and had perished afterwards.

Hypertrophy in Nut and Cabbage.—The Rev. G. Henslow exhibited a sucker from a Nut bush with a mass of buds arising from one spot; also a Cabbage leaf with innumerable small foliaceous excrescences from the midrib.

Orobanche (sp.) on Beans.—A specimen was sent from Marsala, Sicily, where it appears to be very destructive.

Anniversary meeting: Annual Report.—The judgment of the Court of Appeal, which was communicated to the Fellows in a special circular, has necessitated arrangements for the present year which have compelled the Council to modify to some extent the privileges of the Fellows. The Council trust that the Fellows will consider the advantages which have been secured for them in respect of the Great International Fisheries Exhibition a fair compensation for privileges surrendered. The Council hope to be able to arrange for an evening fête, and possibly for other additions to the programme which has been circulated among the Fellows, and which they have endeavoured to make, from a horticultural point of view, worthy of the Society. The Great Show was marred by the absence of exhibits which the Council believe would have been shown but for its length (three days). The Council have in consequence determined to limit the Great Show this year to two days. The useful work of the Society at Chiswick has been continued with regularity, and the Council hope that it will prove of permanent benefit to horticulture. The Chiswick Gardens have been maintained in a high state of efficiency. A greater number of Fellows than formerly have visited them and have appeared to take great interest in the work of the Society.

The fruit committee have had under examination very large collections of Peas and Potatoes, and the season proving favourable, the trials were highly satisfactory. Shallots, Lettuces, and Tomatoes were likewise tested, but owing to the cold, it will be necessary to try them again during the present year. Five of the society's certificates were awarded to new Peas on account of their improved qualities, and three certificates to new varieties of Potatoes. Facilities were afforded to the committee of the International Potato Society for growing and comparatively testing all the new varieties of Potatoes submitted to them. The floral committee trials of the past season included *Achimenes*, *Tydas*, other gesneraceous plants, *Begonias*, *Lantanas*, *Pelargoniums*, *Verbenas*, *Ceanothuses*, single and *Pompone Dablias*, and many other miscellaneous plants. The Tea Roses planted two years ago have made satisfactory progress. The rockery and the collection of alpine and hardy herbaceous plants continue to interest visitors. The applications by Fellows for plants of this description are steadily increasing. The collection of Raspberries formed last season is very complete, and promises well. A new collection of all the known varieties of *Rhubarb* has also been formed, which will this season be examined and reported on. The collection of Figs planted out in the old orchard house as an experiment a few years ago did not prove a success. It is therefore intended to resume their cultivation in pots. It is proposed to plant in the old orchard house a selection of the newer American Grapes and other varieties likely to succeed without fire heat. The crops of out-door fruit, although below the average generally, were interesting and instructive, a small quarter of young Apple trees

on the French Paradise stock being laden with fine fruit. Strawberries were abundant and very fine, the Strawberry fête held in the garden being a complete success. The crop of Grapes in the conservatory was up to the average, and that in the other houses unusually good.

The chairman (Lord Aberdare), in moving the adoption of the report, said that the expenses of the lawsuit had been somewhat mitigated by an increase of £500 in miscellaneous receipts, but the society was still left £379 to the bad. The number of Fellows paying four guineas had fallen from 449 to 427, while that of Fellows paying two guineas had increased from 956 to 970. By the result of the suit the Royal Commissioners for the Exhibition of 1851 became entitled to the possession of the grounds, which they had let for the year to the commissioners of the International Fisheries Exhibition. He wished to say in the most emphatic manner that the commissioners of the International Fisheries Exhibition had shown the utmost courtesy, consideration, and liberality in their dealings with the Society. The Society would still have the enjoyment of those parts of the premises which were required for its shows and fortnightly meetings, and would be relieved of the cost of doorkeepers, but would take three-fourths of the receipts on the occasion of its own displays, although some of those who entered might be attracted by the Fisheries Exhibition. The Fellows would be admitted on every day, and the chief loss of the Society would be from the daily admissions, a source of revenue which had been unusually great last year (amounting to £144), owing to the fine weather on the bank holidays. While the Fisheries Commissioners had granted personal privileges to Fellows of the Society, the Society had been unable to secure for its ticket-holders the same rights which, while it was itself in legal possession of the buildings and gardens, it extended to them. Fellows would be admitted to the opening ceremony of the exhibition on payment of 5s., the charge to the general public being one guinea, which admitted also for the season. Mr. H. Guedalla seconded the adoption of the report, and invited the chairman to make certain further explanations. In response, Lord Aberdare said that by the arrangements to which he had referred the Society would retain their standing at Kensington this year; and, as to the future, committees had been named by the Royal Commissioners of the exhibition of 1851 and also by their own body to negotiate. It was not, however, likely that the deliberations would be pushed on very fast during the tenure of the Fisheries Exhibition. It had been said that they had maintained the litigation with the commissioners with too much pertinacity, but the fact that in the first Court in which the suit was tried the decision was given in favour of the Society showed that there was at least a substantial question to decide, and they had felt it their duty to the debenture holders to try the case, although at considerable cost, as the Fellows might see by the item "Law charges, £911 0s. 4d." in the current account. In fact, a distinguished authority, who was conversant with the case, had said to him, "What you did, you were bound to do." The financial position of the Society was not due to any of the present council. It was due to the unfortunate disputes at the time of the International Exhibition, which had cost the Society the loss of Fellows representing £4000. They had done their best for the debenture holders, who, apart from what he might call their compassionate claim, were only entitled, as against the Society, to interest after the expenses of maintenance of the Society's property had been paid. In some years the interest had been paid prior to such charges, and the Society had gone into debt for the purpose. He was glad to say that new Fellows continued to join in considerable numbers, and he looked forward with hope to the future.

The report was unanimously adopted, and the retiring officers were re-elected, vacancies in the council being filled by the election of Sir C. Strickland, Sir P. Cunliffe Owen, and Colonel Beddome.

MEALY BUG ON VINES.

THERE is perhaps no insect which infests plants that is more dreaded by cultivators than mealy bug, its eradication when once it gets established being exceedingly difficult. Fumigation with tobacco, so fatal to aphides, has no effect upon this pest, and its woolly covering protects it from liquid applications unless applied with such force as to drive it from its stronghold—no easy matter. The rapidity, too, with which it spreads over a collection of plants is truly wonderful. Grape Vines are not particularly liable to the attacks of this insect unless plants infested with it are brought in contact with them, and when this is done it is by no means an unusual occurrence for a house of Grapes to be in a very short time rendered worthless. Mealy bug never attacks plants growing in the open air in this country, and it does not often attack plants in the temperature of an ordinary greenhouse. In none of its stages can it resist the action of frost, so that as far as the Grape Vine is concerned, there is no better remedy than exposure to the temperature of an ordinary winter. As an example of this I have a distinct recollection of a large viney, on the back wall of which was trained a fine plant of *Stephanotis floribunda*, which had occupied the same position for many years. It, however, became at last infested with mealy bug, which soon began to show itself upon the Vines, more particularly when the fruit was beginning to colour, and although syringing with the view of keeping it in check was continued much longer than would otherwise have been deemed advisable, it nevertheless ruined a large number of the bunches. The *Stephanotis* therefore was reluctantly sacrificed, and as soon as the Vines were at rest they were carefully dressed with some approved composition, the ingredients forming which I cannot now recollect. The inside of the structure was also thoroughly cleaned and painted, and a perfect cure was for a time supposed to have been effected. In the following season, however, the Vines again gave unmistakable indications of the presence of this unwelcome visitant, and in spite of every effort in the way of sponging and syringing, many of the finest bunches of fruit were again rendered worthless. At the end of the season exposure was tried, and resulted in complete success. The Vines, as soon as the leaves were about to fall, were pruned. The front lights were opened and the rods were drawn out and arranged lengthways under their shelter. A temporary front was formed to the house, excluding of course the Vines, and the house was used for wintering bedding or other plants. Had the winter proved very severe it was intended to have slightly covered the Vines with dry litter. But as no very great depression of temperature occurred, this was not considered necessary. Early in the following month of March the Vines were again taken into the house, and not the slightest indication of the insect was ever perceived upon them afterwards. This shows that in the case of such plants as the Grape Vine, which may, when at rest, be subjected without injury to a very low temperature, mealy bug in any of its stages may be thus got rid of.

P. GRIEVE.

Cheap winter dressing for wall trees.

—What a number of "best" insecticides we gardeners are constantly being solicited to try; it really is becoming puzzling to know which to use to destroy or prevent the attacks of insects and yet leave the buds and leaves uninjured. Soap-suds have both these properties, and why they are not used more largely than they are one cannot understand, unless it be that they are cheap. That is, however, the very reason why we use them, more especially as a winter dressing for wall trees. We apply them with a syringe to trees and walls alike, repeating the dose twice or thrice in the course of the winter, and they are so effective that we are rarely troubled with insect pests. Currant and Gooseberry bushes are treated in like manner, and as a consequence Moss or Lichen on the stems is all but unknown with us.

W. W. H.

Simplex glazing.—"T. C. W." speaks highly of this system, especially with reference to the ease with which the work can be done, even by those who have no experience. This opinion I can fully confirm, and can further add that the appearance is very neat and good; the cost of maintenance and repair is reduced to a minimum, and the whole of the work can easily be done by local workmen or even by amateurs. "T. C. W.," however, brings forward what he believes to be two faults in the system, namely, that the sheet lead is affected by heat so as to curl up, thus allowing the wet to get underneath, causing drip in the house, and permitting the glass to slip, and also that the action of soft water on lead causes an unsightly stain or deposit on the glass. With regard to the first point, it is evident "T. C. W." has not seen the printed instructions to builders, &c., sent out by the manufacturers with each order, and which contain the following: "Before placing the glass into position, the angles which are to receive it must be coated with best white lead paint, mixed very thick, and applied with a small brush. Place the glass in position, turn down the lead flanges, dress down the lead so as to follow the surface and close up against the butt end of the glass. Wipe off the paint squeezed out, and the work is complete." This simple process causes the lead to adhere to the glass, and counteract the bad effects imagined by "T. C. W." Even without the paint, however, drip from the outside is rendered almost an impossibility if the rafters are made with grooves, as shown in the section drawing in your advertising columns. I know many houses built on this system which have stood all the changes of temperature of our English climate for several years, but I never heard of an instance of a pane slipping. As to the second point, whatever the chemical action of soft water on lead may be, I can only say I never noticed any unsightly deposit, and do not see why a greenhouse should suffer in this respect more than a church window, glazed on the old-fashioned lead principle, after being exposed to the weather for a century or so. I may add that I am in no way interested in the manufacture or sale of these houses, and only write in fairness to a system which I consider a decided step in the right direction.—A. L. S.

Primula (Fernlea).—A very beautiful variety as regards colour. It is similar to that called Chiswick Red, considered to be the finest of its colour.

Angræcum sesquipedale.—Among the Orchids now in flower in Lord Crewe's garden, at Crewe Hall, is a specimen of this *Angræcum* bearing eight fully developed flowers.

Hardiness of *Dracaena indivisa*.—A plant of this *Dracaena* has stood out of doors here for two winters unprotected without a leaf being hurt. It is planted in the bole of an old tree root, and its graceful and healthy appearance is admired by everyone who sees it. It does well in a compost consisting of two parts peat, one of loam, and a little sand and manure. The drainage should be good, and if grown indoors it should have a fair amount of pot room.—W. RAMSHAW.

Rose buds by post (p. 126).—Certainly Rose buds will "take" two days and even more after removal from the trees. As many as fifteen shoots, each bearing six buds, may be sent by sample post. They should be packed in humid moss, enveloped in air-proof paper, and finally protected by cardboard. We post buds to most countries of the Continent, and they always take well. Even a journey of a week does not prevent growth. On their arrival the shoots should be inserted in the soil and the buds taken off as wanted.—SOUTPOT & NOTTING, Luxembourg.

Names of plants.—*D. P.*—1, Eucalyptus, probably citriodora; 2, Schinus Molle.—*Orchid.*—1, Dendrobium fimbriatum; 2, D. litiflorum; 3, D. Ruckerianum; 4, D. crassinode (good variety); 5, Calanthe Veitchi.—*A. B. S.*—1, Maranta zebra; 2, M. fasciata.—*Sub.*—Polypodium vulgare cambricum.

COMMUNICATIONS RECEIVED.

J. H. E.—H. H. C.—A. R.—C. W. D.—F. W. B.—J. G.—Vitis.—G. D.—A. D.—J. B. (next week).—A. B. W.—B.—T.—Alpha.—H. P.—R. A.—J. G.—Somerset.—Observer.—R. M.—W. E. B.—Peregrine.—J. R.—H. B.—J. H. B.—F. A.—A. V.—J. D.—J. B.—W. A.—G. S. S. (next week).—R. A. H. G.—W. E.—E. H.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

CATTLEYA LABIATA PERCIVALIANA.

IN reference to the above plant, and also in reference to what Mr. Crawshaw wrote in THE GARDEN, January 27, 1883 (p. 94), I have only to say that of all the flowers of *C. Percivaliana* I have yet seen, not one is in any way equal in beauty, or size, or colour to the worst form of *Cattleya Warneri* I ever saw. There are fifty varieties of *C. Mossiæ* superior to it in every way. *C. Percivaliana*, so far as I have seen and heard of it, has precisely the great fault of bad *Warneri* varieties—that is of making two growths in a year, and not seldom it fails to bloom from either of them. Both the red and the green-leaved forms of the true autumn or old *Cattleya labiata* bloom quite freely even from growths so weak that similar growths on *C. Mossiæ* or *C. Trianae* would never be expected to flower by the most sanguine of new beginners in Orchid culture. The one great characteristic of the true old autumn flowering *C. labiata* is that it grows vigorously under fair treatment, and blooms with more certainty than many others, I might say most others, of the *Cattleyas* now in cultivation. Mr. Crawshaw gives a good many measurements of *C. Percivaliana*, and a good deal of description not to the point, and which conveys no idea as to whether *C. Percivaliana* is better or worse than the "dark variety of the old *C. labiata*," of which he tells us he had two flowers in front of him when he wrote. He measures and praised *C. Percivaliana* (see GARDEN, p. 94), but had not the courage to tell us plainly which was the best *Cattleya* of the two, whether the true old *C. labiata* or the new *C. Percivaliana*. I have always doubted if *C. Percivaliana* was worthy of being added to the *C. labiata* section, even of the genus. Now that I have seen flowers I shall speak and write of it as a *C. Mossiæ*, and a very poor, little, crumpled-up, and disappointing *C. Mossiæ* it is! I say this much firmly and decidedly, although, of course, I am open to correction and even conviction; and, further, will publicly and frankly acknowledge that I am wrong if Mr. Sander, or Mr. Percival, or Mr. Crawshaw, or anyone else will convince me by fresh flowers. I distinctly refuse the evidence of a writer who acknowledges he had two flowers of "the true old *C. labiata*" before him and yet refrained from measuring and describing that variety also, as contrasted with *C. Percivaliana*, for the main point between Mr. Crawshaw and myself has ever been not as to sameness, but the main point superiority. As soon as my plants of *C. Percivaliana* came from the auction room, I at once knew they were not of the variety so many had supposed from the description for which Mr. Sander is responsible.

In the *Gardeners' Chronicle* for February 10, 1883, p. 178, Mr. Crawshaw will find an account of *Cattleya Percivaliana* which, I think, will take him some little trouble and time to reconcile with what he wrote in THE GARDEN, 1883, p. 94. The writer is Sir Trevor Lawrence, and this is his opinion of *C. Percivaliana* as therein expressed: "I consider this *Cattleya* to be a small var. of *C. Mossiæ*—possibly autumn flowering, but as to this it is too early to speak. It might fairly have been called *C. Mossiæ Percivaliana*. It is small in all its parts; the segments do not spread well, and the sepals are very poor and narrow. The lip is striped with yellow and brownish purple above, and ends in a patch of rosy purple below, of variable size and brightness. It is small and puckered up like an old woman's cap. On the whole, this *Cattleya* is decidedly inferior horticulturally to an ordinary *C. Mossiæ*. Like other *Cattleyas*, there are no doubt good and inferior varieties—I speak of those which have flowered out of the numerous plants I myself bought."

It is quite time a stern protest be made against auction sale advertisements, which—I do not say are intended and drawn up with any evil intent—are misleading. It is perhaps thought that so soon as a sale of plants is over the advertisements of it are forgotten, but this is not so. I have taken the trouble of saving a few of these specimens of trade literature now and then for the sake of comparing them with the plants sold when they bloom. One may thus compare romance with reality—imagination is tested by bare facts. Such announcements harm all concerned—importer, salesman, and purchaser; indeed, one result is that some amateurs make it a rule only to purchase plants in flower; some never venture near auction sales under any circumstances. I only ask any unbiased Orchid grower to compare Mr. Crawshaw's description of *Cattleya Percivaliana* with that of Sir Trevor Lawrence, to which latter I subscribe in every way.—F. W. BURBIDGE.

—From Sir W. Marriott's collection, Down House, Blandford, Mr. Denny sends us a flower of this *Cattleya*, by far the finest as regards colour we have seen. The outspread flower measures $4\frac{1}{2}$ inches across the petals, which are just over $1\frac{1}{2}$ inches in width and wavy at the edges, the sepals being three-quarters of an inch broad. Both petals and sepals are of a uniform soft violet-purple, veined with a deeper hue. The labellum is extremely handsome. It measures 1 inch across, and is exquisitely frilled at the margin. The inner half is of a rich orange, blotched and freckled with maroon. The outer half is a velvety maroon, edged with magenta, the frilled margin being a pale rose-pink, a gorgeous combination of colours, of which we have not seen the like in any other *Cattleya* or Orchid whatsoever. Those who possess such a variety as this need not trouble much whether it be a form of *labiata* or of *Mossiæ*, which some assert it to be. It seems to us that there has been a good deal of useless cavilling about this Orchid, simply because it was at the outset stated to be a form of *C. labiata*, but to compare it with the summer-flowering *C. Mossiæ*, whether it be a form of it or not, seems absurd. One might as well compare a spring flowering *Phlox* with an autumn flowering one; both are beautiful, but neither can be had in bloom at one and the same time. That there are inferior forms of this *Cattleya* we well know, and what Orchid is there that is not represented by good and bad varieties? When this *Cattleya* has had a fair chance, that is when it becomes fully established and well grown, even those who have prejudged it will probably have to alter their opinion respecting it.

***Laelia superbiens*.**—A glorious spike of this Guatemalan Orchid reaches us from Dr. Paterson, Fernfield, Bridge of Allan. It measures 7 feet in length, and is terminated by a charming cluster of blossoms fourteen in number. The flowers, which measure 4 inches across, are of a purplish lilac colour; the lip is of a deeper hue, and marked strongly with yellow—another instance of Dr. Paterson's skilful Orchid culture.

***Dendrobium lituiflorum*,** grown on a block with some Sphagnum over the roots, makes growth with us nearly 4 feet long and flowers from nearly every joint the whole length. When making its growth we hang it on the back wall of the stove and supply it rather liberally with water. In very hot, drying weather the plants are frequently dipped in a cistern three times a week. As autumn approaches we reduce the supply considerably, and from November until the end of January no water at all is given. About June, as soon as the new growth is well started, I always cut away the shoots that flowered a few months previously. As I am not an authority on Orchid culture, I do not know whether this practice is a good one or not, but I am satisfied with my practice, because the results obtained are quite equal to those in which annual pruning is not practised. I adopt the same rule of cutting out the exhausted flowering shoots on the other *Dendrobiums* which we grow, and which include *D. nobile* and *D.*

Pierardi, and I am quite sure the plants are benefited by it.—J. C. C.

***Angræcum citratum*.**—Among the smaller kinds of epiphytal Orchids this little Madagascar rarity is, indeed, a gem. According to the *Irish Farmer's Gazette*, two plants of it are at present in flower in the College Botanic Gardens, Dublin. The little plant is of a very dwarf habit; the gracefully curving flower-scape is from 12 inches to 15 inches long, and for the greater portion of its length is furnished with a symmetrically arranged double row of pure white flowers, each with a proportionally long spur, the double row of spurs below corresponding with those of the flowers above, and enhancing the beauty of the flower-scape. The plant is a native of Madagascar, from whence, we believe, it was introduced by Messrs. Veitch and Son. It is as yet rare, but no choice collection of these plants should be without it. Mr. Burbidge's plants are growing and flowering in extremely small, shallow pans suspended from the roof.

***Dendrobium Wallichianum*.**—There are several varieties of the beautiful old *Dendrobium* nobile more or less distinct from the type, such as *D. pendulum*, *elegans*, *intermedium*; but *D. Wallichianum*, one of the finest and one of the best specimens of it we have seen, is in Mr. Soper's garden, at 283, Clapham Road. This plant has a score or so of bulbs, and each of the old ones is completely wreathed with blossoms. These are larger in every part than those of the type, and, moreover, possess a firmer texture. The colour of the sepals and petals is half a waxy white and half a bright violet-purple white; the labellum is creamy white, with a large velvety maroon, in fact, almost black, blotch. The growth is stouter and taller than ordinary, and the plant is altogether distinct. Mr. Soper flowers this and other Orchids in a small stove in company with a miscellaneous assortment of flowering and fine foliaged stove plants—a sufficient proof that successful results may be obtained in Orchid culture even though a separate house is not set apart for them exclusively.

***Laelia harpophylla*.**—This is one of the most distinct and also one of the most beautiful Orchids in season, the colour, a glowing orange-red, being so attractive and so different from that of the ordinary run of Orchid flowers. Lord Crewe sends us from his garden at Crewe Hall a very fine example of it. From one sheath no fewer than seven finely developed flowers are produced, which make a beautiful cluster. We have never before seen so many flowers borne on one spike, and it shows what good cultivation may do. Probably Lord Crewe's gardener (Mr. Whitaker) could instruct us as to its treatment, for it unfortunately falls in the category of miffy Orchids. But perhaps it is because its requirements are imperfectly understood. Anyone who aims at possessing a representative collection of Orchids must have this one, as it is the best of its colour, much superior to the older and better known *L. cinnabarina*, the flowers being nearly twice the size in well developed specimens, and the colour much richer. As regards colour, however, it varies considerably; in some it is a pale, washy orange; in others, as in that before us, it is a rich orange-red, and some are even more brilliant. The deepest tinted form we have seen was one singled out the other day from a batch in Messrs. Shuttleworth and Carder's nursery, Clapham. The flowers were not very large, but the colour was equal to that of *Epidendrum vitellinum majus*, and the frilled white lip was a fine set-off for the glowing orange-red tint. It is a native of Brazil, and therefore succeeds best in an intermediate house, that is, in a temperature ranging between that of the East Indian and the cool houses.

Odontoglossum Ruckerianum will doubtless for some years to come rank among the choicest and rarest of cool house Orchids, as it is so seldom imported, and its propagation is necessarily slow. To those who know it not it may be described as being identical in habit of growth, size, and form of flowers with the better known, but still choice, *O. Andersonianum*. The flowers

are produced in tall and often widely-branching spikes thickly set with flowers, which are about 3 inches across. The sepals and petals, as well as the labellum, are somewhat narrow and attenuated. All the segments are flushed with a violet-purple hue, particularly on their exterior faces. The sepals are almost spotless, but the two petals are copiously spotted with cinnamon-red on a creamy white ground. The labellum is likewise blotched, and has a large blotch of yellow on its base. It is, therefore, a handsome plant, and at once distinguishable from any other kind. These notes were taken from a fine variety now in bloom in Messrs. Shuttleworth & Carder's nursery, Park Road, Clapham. It cropped up from an importation of *O. crispum*; but, singularly enough, from the thousands of this species imported by the firm, a *Ruckerianum* is of rare occurrence. Of the popular *O. crispum* there are some uncommonly fine examples in this nursery worth seeing just now, and we noticed two or three varieties of exceptional beauty. One had its flowers wholly suffused with rosy purple, which gives the spike an attractive and beautiful appearance. Others are remarkable for the perfect form of the flowers or the richness of the markings.

Twin-flowered Cypripediums.—I notice Dr. Paterson has had a twin-flowered *Cypripedium Harrisianum*. We have this winter had a great many varieties come double flowered, and have still some in bloom. The following are the names of what we have had, viz., *Cypripedium Argus*, *C. venustum*, *C. Ashburtoniae*, *C. villosum*, *C. Boxalli*, *C. insigne*, *C. barbatum*, and *C. pardinum*. I remember a good few years ago, when going through the late Provost Russel's houses at Falkirk, being much struck at the great number of twin-flowered *Cypripediums* which he had, and on remarking this to the gardener, Mr. Sorley, he said, "They always come so here."—W. THOMSON, jun., *Cloudfords*.

Orchids in bloom at Messrs. Shuttleworth and Carder's nursery, Park Road, Clapham, include the following: *Masdevallia militaris* is the brightest of the genus in flower. It is a near neighbour of *M. ignea*, but differs by the brilliancy of its colour, which is a glowing scarlet inclined to crimson. It seems to be quite as free a bloomer as *M. ignea*, and habitually flowers in winter and early spring. It is a valuable species, particularly for cutting from, as the flowers last so long in perfection. That little gem *M. Shuttleworthi*, originally discovered by a member of this firm, may be seen in great perfection. Some of the plants are carrying no fewer than a dozen blossoms, some of which measure as much as 4 inches across. The flowers are triangular in outline and with concave sepals beautifully grained with violet-purple on a yellow ground. The three long, attenuated tails give the plant a grotesque appearance. All the plants of this Orchid are grown in suspended pans, close under the roof, in a cool *Odontoglossum* house; under this treatment they thrive admirably. A very singular Orchid is *Gongora portentosa*. It produces from the base of the bulb a long pendulous spike of very curiously shaped blossoms, with widely diverging segments mottled with cinnamon-red on a creamy yellow ground. It is a rare species; at least we seldom meet with it. Among other noteworthy kinds in bloom are *Masdevallia Chimæra* and a similar, but quite distinct form which will probably prove quite new; *Odontoglossum Uro-Skinneri*, a handsome, but somewhat neglected species; *Cypripedium Spicerianum*, a fine form; and a handsome unnamed *Oncidium* in the way of *O. serratum* are all in bloom. We were interested in a very fine form of *Cœlogyne cristata* called the Chatsworth variety. Its flowers are fully a third larger than those of the ordinary type.

Cattleyas should be repotted (if they require it) just when about to emit new roots. This is the usual advice. Will one of your readers who knows say if this may be done while they are furnished with flower-sheaths, or must I wait until the plants have flowered? In some recently repotted the sheath has turned brown and withered. May root water be used to destroy worms in the case of *Odontoglossums*, &c., which it is not desired to repot at present?—W. B.

PLANTS IN FLOWER.

LATE CHRYSANTHEMUMS.—A correspondent sends flowers of *Chrysanthemum Elaine* and *M. Lemoine*, the latter a Japanese variety with straggly heads of bronzy red florets. *Elaine* is inclined to be pink, but still very pretty, and it is remarkable that it is one of the earliest as well as one of the latest sorts we have. A note should be made of both of these sorts for late flowering.

MONOCHÆTUM ENSIFERUM is a bright-flowered plant that deserves the attention of cultivators. It always flowers at the beginning of the year when most wanted, and it is of easy culture in an ordinary greenhouse. It is of dwarf shrubby growth, and produces an abundance of reddish purple blossoms between 1 inch and 2 inches across. Another similar and quite as desirable species is *M. sericeum*, differing from the preceding by its leaves being covered with a silky down. Both are grown largely in the Royal Exotic Nursery, Chelsea, where they are now in full bloom.

SINGLE CRIMSON ROSE.—Mr. George Paul sends us from his nursery, Cheshunt, a bloom of what he calls Paul's Single Crimson Rose. The flower is between 4 inches and 5 inches across, deliciously perfumed, single, showing no tendency to double. The petals are over 2 inches across, and of the richest satiny crimson-magenta hue imaginable. Such a splendid colour as this makes it highly attractive, and the golden tuft of stamens and broad healthy green foliage is a fine set-off to it. Those who have a predilection for single flowers would like such a one as this, and it is the more welcome at this season, though of course it has been forced into bloom. One great drawback to single flowers is that they do not last long when cut.

FICARIA GRANDIFLORA.—One of the brightest plants in bloom in Messrs. Barr & Sons' trial grounds at Tooting is this, a near relative of the lesser *Celandine* (*F. ranunculoides*), but altogether a larger and finer plant, being fully twice the size in every part. The flowers are nearly 2 inches across, and the petals are of the brightest yellow and very glossy; the flowers, borne singly on stalks some 6 inches high or more, just overtop the dense tuft of foliage. In this nursery there is a bed of it some few yards square, and the whole is a dense mass of flowers and foliage. Though so plentiful here it is not so in gardens generally; indeed, we very seldom see it. It has but few equals as a hardy yellow flower, coming in before the earliest Daffodils, or, indeed, any other hardy yellow flower. It is of the simplest culture in ordinary garden soil, and though it is said to be a native of Southern Europe and Northern Africa, it is perfectly hardy. It is grateful for a little shelter, and its golden blossoms seem to shine out brighter in a subdued light.

THE SNOWDROP season is now at its height. A few days ago we had an opportunity to make notes of almost every cultivated species and variety at present in gardens in Messrs. Barr & Son's trial ground at Tooting, where they are grown largely. The finest of all is *Galanthus Imperati*, which has flowers fully $1\frac{1}{2}$ inches long, with broad milk-white segments. Next in size is *G. Elwesii*, the new species introduced a few years ago from Smyrna. It may be at once recognised by the two distinct blotches of green on the lobes of the inner segments of the flower, and a large blotch of pea-green above them, separated by a band of white. The Crimean Snowdrop (*G. plicatus*) comes next in size. From all other Snowdrops it differs by the edges of its leaves being folded back. A major form of *G. nivalis*, the common Snowdrop, has flowers of about the same dimensions, but the outer segments are much narrower. The Dunrobin seedling Snowdrop is a large form of *G. nivalis*, quite distinct from any other form, the flowers being more globular, the outer segments broader and whiter than ordinary, and the green of the inner segments deeper. It is also a good deal earlier than the other forms of *G. nivalis*. A minor form of the latter, with narrow leaves and small flowers, together with the common double kind, are also in the collection, and to complete the list is *G. Redoutei*, or more

correctly, *G. latifolius*, which is the most distinct of all the Snowdrops, though some consider it but a form of *G. nivalis*. The flowers are almost identical with those of the common Snowdrop, but the leaves, instead of being glaucous, are quite green and fully twice the breadth.

LACHENALIA REFLEXA.—In the Heath house at Kew this plant is flowering for the first time in this country. It is an interesting species from the fact of its being placed by Mr. Baker in a sub-genus by itself. The leaves are borne in pairs on each bulb, are dark green, channelled, and recurved. Towards the tip the tissue seems to thicken, the extreme tip being almost horny, and turning inwards so as to form a sort of cup. The length of the leaves is from 6 inches to 8 inches, and the width 1 inch. The scape is some 4 inches in length, green, with a slight tinge of brown. The flowers are 1 inch long, bright yellow, tipped with green, while the unequal length of the segments suggests Mr. Baker's sub-genus *Orchiops*, though I observe he has omitted to mention this character as belonging to *L. reflexa*. This arrangement consists in one of the outer segments being longer than the other two, and having at the tip a green cup or sack. The inner segments, on the contrary, are 2 inches longer than the other, and the tips of these two are enclosed in the sack of the long sepal. This species is not a very ornamental one.—W. WATSON, *Kew*.

THE EARLY SAXIFRAGES are beginning to make themselves conspicuous. Already the neat little white-flowered *S. Burseriana* is in full blossom, and in the Exotice Nursery, Tooting, we noticed a few days since that *S. oppositifolia* and its varieties are fast expanding their bloom. The type seems to be the earliest, followed by a rich deep-coloured form called *splendens*, and succeeded by the Pyrenean variety (*pyrenaica*) and its high-coloured forms, such as *maxima rubra*. We observe that Mr. Parker grows *S. oppositifolia* and its allies in the open border simply planted as other hardy perennials, and without a vestige of rock or stone around the plants. Care is taken at the outset to put out strong plants in good soil and to keep them from being over-run by any other plant. Treated thus, it is grown with perfect success, and no doubt two-thirds of alpine plants may be grown in the same way; but pot culture, as regards specimen plants, is Mr. Parker's favourite plan, and he certainly possesses some remarkable plants grown in this way. He uses pots varying in size from 4 inches to 8 inches in diameter, and the plants of the encrusted-leaved section form dense healthy cushions, which during spring are studded with blossoms.

IRIS RETICULATA is decidedly the gem of the open border just now. No other flower that we know of can rival it in beauty—not even an Orchid, whether we look to its graceful habit and beauty of form or splendid colouring. The deep rich purple of both the petals and sepals, relieved by the bright golden crest on the falls, is quite unlike what is seen in any other flower, and the fact of its being as hardy as the hardiest of border plants makes it the more valuable. About a fortnight ago Mr. Barr sent us his first blooms of the early variety of *I. Krelagei*, and now we see in his trial grounds at Tooting that the type is in full beauty. It is pretty generally known that there are two forms of this Iris, the earlier *Krelagei* being at once distinguished by the flowers being of a more violet hue and shorter in the tube; in fact, scarcely exceeding the spathe. It is not generally understood, however, that it differs considerably in the important point of scent. *Krelagei* is quite inodorous, while the type, with the deepest coloured blossoms produced later, possesses a delightful perfume akin to that of Violet blossoms. Now that this lovely hardy bulbous plant can be obtained at a moderate price, everybody should possess it who cares to have bright early flowers. The finest bed of the true *I. reticulata* we have yet seen is now in perfection in Mr. Parker's nursery, Tooting, the flowers being unusually large and highly coloured—the result of allowing the bulbs to remain undisturbed for some years.

HERRENHAUSEN BOTANIC GARDEN.

SITUATED about a mile and a half from the town of Hanover are the famous royal gardens over which the Wendlands have so long and so successfully presided. In the town itself there is much to interest the visitor; its magnificent railway station, beautiful buildings and monuments, and what may not be without interest, the fact that both town and province of Hanover was once a British possession. Between the town and the Herrenhausen Gardens is a very fine avenue of Lime trees, or rather three avenues running parallel with each other, occupying the place where the fortifications of the town used to stand. On the left of these avenues is what is called the George Park, which, like many of the German public parks, is little more than a forest pierced here and there by a few paths. The village of Herrenhausen is quiet and secluded, something like what Kew possibly was before the inroads made of late by bricks and mortar. Here also, as at Kew, royalty spent its summer season, the handsome castle and its surroundings, which include the Botanic Garden, rendering the village of Herrenhausen exactly the sort of place in which one would expect to find a royal residence.

The Botanic Garden is laid out in a style that looks like a mixture of French and English, the formal style of the former being associated with the more natural expression of our own gardens. There are here many fine specimens of choice trees and shrubs to be seen out-of-doors, among them being trees of *Nyssa aquatica* and *N. triflora*, *Quercus imbricaria*, and many large and fine *Acers*. A poor specimen of *Wellingtonia* was pointed out as being perhaps the finest in the province of Hanover. Hollies, many of our *Coniferae*, and evergreen shrubs and trees are unable to stand the severe winters experienced here, so that during that season outdoor vegetation is very bare. A fine collection of *Hellebores* along with some of the finest and hardiest among the many beautiful species of herbaceous plants are admirably well managed at Herrenhausen. A fine *jet d'eau*, 3 feet in circumference, from which the water rises to a height of 80 feet, is one of the features of the outdoor garden. Loudon, I observe, speaks of this and two avenues of Lime trees as being the two principal attractions of the place at the time when he wrote his "Encyclopædia of Gardening." Things must have improved here wonderfully since then, for, apart from the well-known collection of Palms at Herrenhausen, the orangery, with its fine specimens of old-fashioned greenhouse and hard-wooded plants, its gigantic Orange trees, the Heaths, of which Mr. Wendland possesses perhaps the finest collection grown, Ferns, Orchids, and such like,

constitute for the plant lover attraction sufficient to make a visit enjoyable, while to the ordinary sightseer there is the Garden Theatre so beautifully decorated inside, once the scene of royal festivities, but now used as a wintering house for large tub plants. The mausoleum, too, which, from its beautiful interior and the figures in it done by Rauche, is a feature of special interest. It stands in a quiet part of the garden, tastefully surrounded

the requirements of the plants it was intended for. The only plants in pots are those on the side shelves—Palms, Cycads, Pandanads, Dracenads, Ferns, Erythrinas, Strelitzias, and similar material, being all planted out in beds on a level with the paths. Amongst these is an undergrowth of smaller plants, such as Begonias, Aroids, Eranthemums, and such like, growing as freely and looking as happy, aye, happier than such plants look

in pots near the glass, and these are 70 feet from it. The secret of all this is the mode of watering. Two galleries run round the inside of the house, one above the other, and from this there can be sent down, by means of an excellent arrangement, a good force of tepid water, a warm shower, in fact, over the whole of the plants, and this is done at least twice a day in summer and on all fine days in winter. Steam, too, is used for moistening the atmosphere, and Mr. Wendland believes that many of his finest Palms owe their luxuriance to the good effects of steaming. The Palms, as I have said, constitute the principal feature here. To this Order Mr. Wendland has paid devoted attention for many years, and he has now the finest collection of them in the world. The rarest and miffiest are at home under his care, and many are the specimens pointed to with pride by their grower as unique in Europe. To notice the whole of these would occupy more space than could be spared, so I must be content with a passing notice of some of the most attractive. *Pholidocarpus Ihur* is represented by a fine specimen, its beautifully striped rachis and large broad spines being singularly beautiful. *Licuala paludosa*, a yellow petioled species, is a magnificent Palm, as is also *Raphia Hookeri*, of which there is a very fine specimen and the only one known. It is an *Attalea*-like plant with the edges of the petiole bases split up into strips about half an inch wide and 3 feet long. These hang about the base of the plant in abundance, and as they are shining black they contrast well



Interior of the Palm house at Herrenhausen, showing a specimen of *Stevensonia grandifolia*.

by trees and shrubs. Turning our steps towards The Palm house, we behold a tall, massive angular structure of not very great architectural beauty, yet doubtless the sort of house preferred by the director for his pets, the Palms. The severity of the Hanoverian winters necessitated double walls of glass. Its height is about 70 feet, and it covers an area about as large as that covered by the temperate house at Kew. On entering this house one is at once struck by the luxuriance and health of the collection of ordinary plants, while gigantic and graceful Palms tower up towards the top as happy looking as if they were in their native habitats. Mr. Wendland is not only a botanist, but an excellent cultivator, and doubtless fashioned his house to suit

with the green of the foliage. *Gronophyllum microcarpum*, a Pinanga-like Palm, with black petioles, *Socratea exorrhiza*, *Archontophoenix Veitchi*, *Veitchia Johannis*, *Wallichia disticha*, and many others equally rare and beautiful are represented here by fine specimens. The broad-leaved Palm, shown in the accompanying view of a portion of this house, is a very fine specimen of *Stevensonia grandifolia*—the thief Palm, as it is called, from the fact of its having disappeared from the Kew collection directly after its introduction, and shortly afterwards revealing itself in a Continental establishment. Owing to this the name *Phœnicophorium*, which means stolen Palm, was first given to this Palm, but Sir William Hooker, not desiring to have anything of so disagreeable

a nature as this theft commemorated in such a way, altered the name to *Stevensonia*. Mr. Wendland uses abundance of cow manure for his Palms both to heal the sick and feed the strong. To both he applies the same material, and I saw an instance of the action of cow manure on sick plants in the case of a Tree Fern (*Hemitelia integrifolia*), a species not often met with, and, as Mr. Wendland said, difficult to grow. At first it appeared impossible to get this plant to recover, yet on applying a plaster of fresh cow manure over the whole of the stem, the plant quickly revived, and when I saw it roots were growing through and running down the manure as thick as Orchid roots, and the head was quite bushy with healthy fronds. For Orchids, Ferns, Palms, and almost all other plants, Mr. Wendland uses large quantities of this manure. The collection of Cycads at Herrenhausen are, of course, very fine, almost equal to those at Kew, and in *Zamia* even richer. A fine specimen of *Renanthera Lowi* was bearing three spikes of its large and handsome flowers, one spike having thirty-eight and the two others thirty flowers. This plant flowers every year and generally bears four spikes.

Orchids are well grown at Herrenhausen. The treatment in favour here is one of plenty of heat, light, and moisture during summer and cool rest in winter. Mr. Wendland looks after the health of his plants, but the arrangement of them is not by any means of so much importance with him as it is in some botanic gardens where the plants must stand with their kind whether they are happy or not. In the Victoria house, the ferneries, the Palm house, anywhere where a plant is likely to do best, there it is placed. Some of the best coloured Gymnogrammas I have seen were on a shelf above the second gallery near the top of the Palm house. They were doing well there, and the director knew that although they would make a fine display among his other Ferns, it would not last long. And so it is with Orchids. Schomburgkias are hung up in the Victoria house along with *Dendrobiums* and other heat-loving Orchids, where they make good growth in the summer time, after which a cool temperature is found to be best for them. *Arpophyllums*, *Cypripedium Stonei*, *caudatum*, *Pearceli*, and *Lindeni* were the healthiest of plants in a cool greenhouse. The pretty little *C. Fairrieanum* was flowering nicely in the same house. *Paphinias*, *Catasetums*, *Stanhopeas*, *Acinetas*, and many others were in a remarkably fine condition grown in a cool house near the glass. Of Ferns Mr. Wendland has many fine specimens, some of them rare, while of the usual miscellaneous stove and greenhouse plants there is a rich and well managed collection. Heaths are well represented, and are grown out of pots planted in beds out-of-doors in summer and taken up and potted for winter. In this way many kinds are kept in health that when in pots have been found difficult to manage. Adjoining the Botanic Garden is a large piece of ground devoted to the

Propagation and rearing of fruit and forest trees. This also is under Mr. Wendland's management, and the well-stocked beds of young healthy trees showed that he is as much at home in the nursery as in the botanic garden proper. Herrenhausen Botanic Garden is perhaps one of the two finest botanic gardens in Germany, and, so far as one can judge, for skilful management and good cultivation it stands second to none in Europe. W. K.

Forcing Almond blossom.—Our attention was directed the other day by Mr. Soper, Clapham Road, to the plan which he practises in order to get Almond blossoms for room decoration long before the flowers expand naturally. He cuts off twigs—last year's shoots—a foot or so in length just as the flower-buds begin to show colour, and places them in water in a warm, moist greenhouse, where, in the course of a few days, each shoot is wreathed with beautiful open blossoms of a delicate pink colour. These twigs, placed in a vase by themselves, have a charming effect and last

a long time before fading. No doubt the same could be done in the case of other spring-flowering trees and shrubs.

THE CHRYSANTHEMUM AND ITS CULTURE.

Chrysanthemums as cut flowers.—"While cutting some Chrysanthemum blooms recently," says a correspondent of the *Journal of Horticulture*, "the thought occurred to me that a note on the varieties which are yielding flowers at this season might be useful. The following gave their first flowers—that is, from the end of the leading shoots—Princess Teck and Mr. Gladstone, both incurved; *Fleur de Marie*, Miss Margaret, and Empress, Anemone-flowered; Cry Kang, Purple Prince, Japanese, and Julie Lagravère, reflexed. The following yielded a second crop of flowers from side shoots, viz., Lady Slade, Venus, Mrs. Shipman, and General Bainbridge, large-flowered; Criterion, Tokio, Peter the Great, Elaine, Marie Lemoine, Fair Maid of Guernsey, and Bouquet Fait, Japanese; and Beauté du Nord, reflexed; George Sand, Marginatum, and Princess Louise, Anemone-flowered; Baronne du Prailly, Red Dragon, and some of Cry Kang, Japanese, have yet unopened. Of Pompones, Golden Cedo Nulli, Antonius, President, Perle, Madame Montels, and Mustapha afforded flowers for cutting. Four hundred fresh flowers have been gathered this week, 1200 from Christmas week, and we have still many hundreds to gather as required."

"The Chrysanthemum has occupied a very prominent place for several years in the houses here, both as a decorative plant and as a producer of flowers for cutting, nor has it ever been known to fail to respond to our simple treatment. Though I should not recommend so many varieties as we have here to gardeners whose sole aim is to procure flowers for cutting, as I have been placed in this position, that variety and large blooms up to the florist standard were as much requisite as the flowers themselves for furnishing purposes. However, were cut flowers alone a requisite and plenty of them, the varieties I should select would be these—viz., Mrs. George Rundle, Mr. George Glenny, Elaine, Beauté du Nord, Julie Lagravère, Peter the Great, James Salter, and probably Miss Margaret for very late blooms. If purple flowers were in request I would add Prince of Wales and Purple Prince.

"With the exception of the cluster of buds at the ends of the main shoots of some of the varieties, I would allow the plants to bear as many flowers as they could. Rich feeding would bring the flowers to a good size. If small flowers are not objected to, some of the Anemone Pompones might be grown; these are very pretty. Golden Cedo Nulli in its way is quite as beautiful as Mr. G. Glenny. Madame Montels is a lovely flower, and Antonius is also worth growing for cut flowers.

"The cuttings may be struck at any time up to May, but December is the time to insert them if the largest possible quantity of flowers is wanted. I employ very little heat, use short healthy cuttings, and when rooted grow the plants in a cool and airy position. I cannot obtain too strong soil for them, nor press it too firmly into the pots, nor injure the plants in any way with liquid manure, when once the roots have a firm hold in the soil."

Select Chrysanthemums.—A good selection of decorative varieties is a great want on the part of amateur growers. Mr. Samuel Barlow writing in the *Gardener's Magazine* says, "For the guidance of others I add a list of the plants I have selected and am growing for the coming season's bloom. I have discarded many well-known varieties for their habit of growth, mainly because they are too weak to support the blooms in an erect position; such are Prince of Wales, Dr. Brock, Beverley, and others. The selection is based on twenty years' experience in growing the Chrysanthemum, carefully noting them each season. The number of plants of each variety indicates

the relative positions which they hold in my estimation. The list is fairly representative, and includes all classes and colours, except the very early bloomers:—

Incurved varieties.	
10 Mrs. George Rundle	4 Lady Talfourd
6 George Glenny	4 Jardin des Plantes
6 Mrs. Dixon	3 Princess Teck
6 Pink Venus	3 Hero of Stoke Newington
6 Blonde Beauty	2 Lady Slade
6 Barbara	2 Beethoven
6 Empress of India	2 Lady Hardinge
4 Antonelli	2 Prince Alfred
4 Nil Desperandum	2 Little Pet
4 White Eve	2 Queen of England
4 Golden Empress of India	2 Golden Queen of England
Recurved varieties.	
6 Sœur Melanie	2 President or Dr. Murray
4 Progne	2 Ariadne
4 Julie Lagravère	2 Jewess
2 Dr. Sharpe	
Japanese varieties.	
10 James Salter	2 Fair Maid of Guernsey
6 Elaine	2 Ethel
2 Peter the Great	
Pompones.	
6 Mrs. Dix	3 Golden Ste. Thais
6 Argentine	3 Aurora Borealis
4 Model of Perfection	3 Snowdrop
4 Saint Michael	3 Miss Wheeler
3 Mlle. Marthe	2 White Cedo Nulli
3 Golden Mlle. Marthe	2 Golden Cedo Nulli
3 Bob	2 Lilac Cedo Nulli
3 Sainte Thais	
Large Anemone-flowered.	
2 Glück	2 Miss Margaret
4 Fleur de Marie	
Anemone-flowered Pompones.	
4 Madame Montels	3 Antonius
4 Jean Hachette	3 Mr. Astie
4 Dick Turpin	2 Marie Stuart

Chrysanthemums for market.—The Chrysanthemum is peculiarly suited for what is called "market work," that is, for culture as a decorative plant to bloom in small pots or for the supply of cut flowers during November, December, and the beginning of January, at a time when they are a particularly scarce commodity, and so all the more certain of sale at a remunerative price. By growing the dwarf early-flowering kinds a supply may be kept up for three months, or even longer; and as almost the entire growth of such plants may be made in the open air, few plants yield a better profit on the outlay for cultural appliances.

"Were Chrysanthemums grown only for the production of exhibition specimen plants and show blooms," says a writer to the *Gardeners' Chronicle*, "it is very obvious that the culture of this fine race of autumn flowers would be very restricted. The autumn exhibitions, at which the Chrysanthemum is the chief feature, are, as compared with summer shows, comparatively few, the greater portion relatively being found only in the neighbourhood of the metropolis and in large towns. Still farther, these particular exhibitions extend over a very limited period of time, at the most perhaps a couple of weeks, and just at the present moment we are in the midst of the season. A week ago it began, in another week it will end, and the growers of show Chrysanthemums will retire again for another year into seclusion, till the short, but active time of the show period brings them into public notice again. But only the few grow our queen of autumn flowers for exhibition, and the many cultivate her for various decorative purposes. Visits just now to nurseries and to many private gardens, not omitting the famous gardens of the Templars and our public parks, show how the Chrysanthemum displays varied and beautiful decorative qualities—nay, in almost every garden, be it ever so small, we see the favoured autumn flower doing its best to lend beauty when most other flowers have for the season passed away.

"But it is in the market growing establishments, literally huge manufactories of flowers, that we see the Chrysanthemum in bulk. Here it is grown by tens of thousands, and too often under conditions such as would stagger the humdrum cultivator who has ample glass room at his disposal, and knows nothing of those emergencies which are as familiar to the trade as shifts and privations are to the hungry. We looked in the other day at the Royal Nursery, Feltham, where Mr. Roberts has truly enormous numbers of plants

growing under every possible and almost impossible condition. Every inch of space is utilised, whether it be on stage or beneath stage, by the side of walks narrowed now almost to obliteration, and in any and every position there are found Chrysanthemums, both in and out of pots, giving up their beautiful flowers in vast quantities to satisfy the demands of the great flower-loving British public. Of course, we look in vain here for show flowers. One or two growers have devoted houses to their production; not for exhibition, but growing them as show flowers are grown, for sale in the market. That it is not a very remunerative aspect of Chrysanthemum culture is evident from the fact that few care to embark in their production; but, without doubt, in favourable seasons plants grown naturally to produce naturally developed flowers do pay very well, because the Chrysanthemum is singularly amenable to rough and ready treatment when that most critical period of its culture, the blooming period, arrives.

"But the market grower has the advantage of being able to extend the blooming season far beyond the capacities of the show cultivators. The new late summer or true autumn-blooming race of Chrysanthemums open the season in the month of August, and bring it on to the end of October. Then the older strain of what may properly be termed winter blooming kinds begin their season of flower, which is by them carried right on to the end of the year; so that we have a period of five months, the last months of the year, over which Chrysanthemums florally reign more or less supreme. Owing, no doubt, to those market traditions which always favour decided colours in flowers (whether the public is or is not consulted in this matter we know not), we find in this huge collection of Chrysanthemums that whites, yellows, and crimsons predominate. Thus the season opens with early struck plants of the soft white and compact habited *nanum* and the clear yellow *Hendersoni*; whilst a handsome addition is being made in *Madame Destrange*, a near likeness of the most popular *Elaine*; but it is dwarf and early, and under glass very pure and beautiful. Then come the wonderfully floriferous *Aigle d'Or*, so productive of clear yellow trusses of bloom; a huge patch of this pushed on early in the open ground is there cleared without the necessity of taking any under glass. *Elaine* is, of course, most abundant. It is seen not only in pot plants trained low to make pretty little specimens, but in thousands of big ones lifted from the open ground and blocked into every available space, and then overflowing into sheds and between the houses, so that all possible shelter may be utilised. It is found that *Elaine* is in November hardier than in the month of October, when the buds are small and the wood young and sappy. Even 10° of frost has not done so much harm in the open to the buds at this time of the year as 4° would do a month earlier. *Elaine* is now the white market flower *par excellence* in the esteem of the grower. It is very free, robust, does well, the flowers are of good size, exceedingly pure, and generally elegantly formed, presenting, indeed, a very marked contrast to the formal rotund blooms of *Mrs. George Rundle*, a variety that, once so favoured, has now been relegated to the background, and which has sinned beyond pardon in giving origin to yellow and sulphur coloured duplicates, which with their white mamma are yet unpleasantly prominent at exhibitions.

"Perhaps next to *Elaine* in popularity comes the pretty, though very full flowered, *Mdlle. Marthe*, because its trusses are so neat and even, and when well developed the flowers are so pure. It is a capital pot variety, as the large number found in the regulation 4½-inch pots show. Of the *Anemone*-flowered section (for these have their admirers) one of the most pleasing of whites is *Lady Margaret*, the finest blooms of which will come of great size; and where that is the case they are sold individually, whilst in all other cases the blooms are sold in big bunches at prices varying from 9s. to 12s. per dozen. Of all white kinds grown for market, or, indeed, for any purpose,

probably none excel in elegance and rare beauty the pretty feather-edged *Marabout*. This is a true reflexed or tasselled flower, of the finest form, rather small than otherwise, and becoming pure white as it ages, though in its developing stage tinted with pink. *Marabout* is not a free kind, and its habit is not of the best; but its striking and lovely flowers compensate for other defects. Of yellow later kinds the most favoured ones are *Jardin des Plantes*, rich, free, and robust; *Chevalier Damage*, bright golden yellow; *Peter the Great*, pale straw yellow; and *Mrs. Dixon*, though the latter is mostly grown in pots. *Golden Cedo Nulli* is also largely grown for the same purpose, as, indeed, is its older white form, because so dwarf and free.

"The bronze section, a hue of colour so abundant in the Chrysanthemum, is not largely in request. A few sell well at times, and the most favoured kinds are *Barbara* and *Antonelli*. Then of crimson hues none excel *Julie Lagravère*, which is seen everywhere, and is so striking in its rich crimson colouring. Cut in large quantities for bunching, it then becomes wondrously effective, whilst in the gaslight its brilliant hue is intensified. *Dr. Sharp*, too, is a very useful and striking kind, though not nearly so free. Of all the intermediate hues, few are more pleasing than is the rosy lilac *Adèle Presette*, a variety that has a neat dwarf habit, and produces compact trusses of flowers, admirably suited for bunching. Of course, late kinds make just now little display. The very latest is the pure white *Fleur de Marie*; for though so dwarf and full of growth, the flower buds are but just forming, and may be expected to expand about Christmas. Another good late sort is *Princess Teck*, so well known as a Christmas decorative kind. It is in the production of late or true winter bloomers to which raisers should direct their attention. Kinds that will help to extend the blooming period through the gloomy month of January will, indeed, prove invaluable, not only to the general grower, but specially to the producer for market."

Chrysanthemum Calendar.

January.—Prepare a compost of sound red turfy loam, well rotten manure, and sand. Where good suckers are short, stout basal shoots can be obtained, with a few rootlets attached; pot them off singly, picking out all eyes below the soil.

The following directions by Mr. Douglas are quoted from the *Gardeners' Chronicle*: "Still continue to take off cuttings if the required number was not put in in December. Some varieties are shy in producing suckers, and it is necessary to wait until March sometimes before they are ready. Slugs are troublesome, and eat over a considerable number, but we must search for them at night with a good lamp. Place the pots containing the cuttings over a gentle hotbed. As soon as they are rooted the young plants may be removed to a frame or cool greenhouse, where air can be admitted more freely than it can be to a frame where cuttings have not formed roots. Some cuttings are so stubborn that it may be necessary to renew the heat for them." Root suckers make the best cuttings. Stem cuttings rush into bud and flower early, and rarely yield good flowers. One good cutting in the centre of a 2½-inch pot is a good way of rooting them. "Mildew is a very troublesome parasite; it would, perhaps, be difficult to get a large collection into the blooming state without it. Continue to dust the leaves with flowers of sulphur, and keep it off as much as possible. The only work that can be done now is to attend to the plants with water, and to remove decaying flowers before they injure the others. Some time during this month the cuttings must be put in. I prefer to put one in a small 3-inch pot, using light sandy loam. If very large specimen *Pompones* are desired it is quite necessary to put in the cuttings very early in December. The best way to get large specimens of the large-flowered section is to select old plants that have been grown to produce exhibition blooms. Those that have formed from three to six growths 2 inches or 3 inches up the stem are the best. The plants should be taken up, and

have nearly all the soil shaken from the roots, and be potted in 6-inch or 7-inch pots. Place them in cold frames, or on a shelf in the greenhouse. *Pompones* seldom do well treated in that way, but it is best to propagate them from cuttings. Some varieties, including *Mrs. Rundle*, and its forms of the large-flowered section, can be grown into good specimen plants from cuttings put in early." Late sorts will remain in flower until near the end of this month. Give ample ventilation and a little fire-heat in wet or cold weather. Cut over the old flower-stems of plants which have ceased blooming, and store the plants in cold frames, plunging the pots as a security against frost.

February.—Chrysanthemum seeds may now be sown in pots, pans, or boxes on a slight bottom heat, taking care that so soon as the young seedlings appear they are placed quite close up to the light. Still continue propagation by suckers or cuttings, which will quickly emit roots on a genial hotbed, give air on fine days to prevent damping. Cuttings or suckers already rooted may be potted off and stored in a cold pit or frame; protect with mats in frosty weather; give air freely if mild. If green-fly appears dust with snuff or tobacco powder. A solution of tobacco and soft-soap in warm (80°) water will kill green-fly. Plants still in flower should have a little fire heat and ample ventilation. Prepare compost, pots, &c., for forwarding on cuttings next month.

March.—Pot on all early rooted cuttings as they require it. Many fail through allowing the cuttings to become root-bound in the small cutting pots. This is fatal to good blooms. Keep the frames close for a couple of days after potting, and shade if the sun is powerful, after which give air whenever possible. Cuttings may still be inserted in heat. Early sown seedlings may now be selected from the seed pans, each being carefully potted off into a 2½-inch pot in a light compost of leaf-mould, loam, and sand. Place near the light, but shade from hot sunshine, and keep close for a day or two until they establish themselves. Small seedlings may be pricked out in rows in pans or boxes. Seeds may still be sown as before directed. Towards the end of the month the cuttings potted some two weeks ago may be stopped.

April.—Cuttings may still be inserted for late blooming and for ordinary decorative uses. Cuttings potted off last month should have air on all favourable occasions. Syringe morning and evening, and leave air on the frames all night in fine weather. Attend to stopping or pinching and training of "specimen" plants as occasion demands. Harden off plants ready for placing outside next month. Syringing once a week with clear soot water will prevent the appearance of green-fly and add colour to the leaves. Pot on all strong early rooted cuttings as they require it, and also early seedlings, so as to get them strong and hardy for placing outside next month. Pricked out or potted seedlings may now be brought into cold frames or pits. Remove decayed leaves, stop as may be essential about once every fourteen days, but never immediately before or after repotting. Prepare beds and borders and positions out of doors where pot plants are to be placed.

May.—Little or no artificial protection will now be necessary for Chrysanthemums until the plants are sheltered or finally housed in the middle of October. Cuttings rooted now in a cold frame make nice dwarf specimens for small pots in the greenhouse or window for November flowering. Place all plants out-of-doors in mild weather. Stop and thin out the shoots, leaving only one to three on a plant where large blooms are desired. Train specimens and secure or stake the tallest growths to prevent wind breakages. Watering and syringing must now be performed with punctual regularity. Pot on such plants as require it. Prick off or pot later seedlings. Make open-air plantations and plant the strongest seedlings out at the foot of walls or fences, where they are to remain for blooming. Seedlings should be allowed

to grow away with one shoot only, and may be planted 9 inches or 12 inches apart. Prepare compost heaps for final shifts, and also 8-inch and 12-inch pots; procure crocks or oyster shells for drainage, and mix manure water in tubs or tanks. Provide stakes and trellis for tall plants. Destroy green fly, caterpillars, earwigs, and "cuckoo spit." Insects will now begin their ravages; syringe with clear soot water as a preventive. Dust with snuff or tobacco powder, or syringe with tobacco water and soft soap mixture. Earwigs will soon appear and may be entrapped in hollow stalks or in little rolls of brown paper into which they like to creep for shelter.

June.—As the pots become filled with roots liberal supplies of water will be requisite. Syringe morning and evening, and keep insect pests at bay as already recommended. All stopping should now be performed for the last time. If aphids are an annoyance, dust the tips of the growths with tobacco powder, snuff, or immerse them in a decoction of soft soap and tobacco. Tie down shoots of plants intended for trained specimens. The most vigorous and forward plants may now be potted for the last time into 8-inch or 10-inch pots. One plant in each pot will give far finer flowers than where root-crowding is induced by placing two or three plants in a pot. Place the plants out in a sunny, airy position and water freely. If the pots are plunged in coal ashes to economise labour in watering, turn them frequently so as to prevent the plants from rooting through the bottoms of the pots.

July.—Watering will now be the chief factor in Chrysanthemum culture. As the pots become filled with roots weak manure water must be given every alternate watering. See that tall-growing shoots for the production of large blooms are properly supported, or a gust of wind may destroy one's hopes for a season. Where there are three main shoots to each plant they should be secured by a triangular bast tie; mutual support is thus obtained and breakage prevented. See that the earth is pressed down firmly around the edges of the pots in dry, hot weather. The July bud will now appear at the points of the strongest and earliest shoots, and must be at once carefully removed. From below two or three shoots will appear, and the terminal buds of these shoots produce fine shapely flowers. If green-fly appears dip the tips of the shoots in a solution of soft soap and tobacco, an effectual remedy.

August.—A mulching of well rotted sheep manure may be given to the tops of the pots during hot weather, and more liberal supplies of liquid manure will also be needful. Never forget that the Chrysanthemum is of all other plants a gourmand. Syringe frequently and watch for greenfly. Earwigs and caterpillars will also now be plentiful. Destroy as before advised. Growth will now be in full swing. Cleanliness and watering are the main items of culture. About the end of August, or beginning of September, the flower buds begin to show at the ends of the strong young shoots. Beneath each terminal bloom bud will be noticed three or four prominent growths breaking from the axils of the leaves immediately beneath the flower bud. These axillary or side shoots if allowed to remain would draw considerable nutriment away from the flower buds; hence they must be removed while in the bud stage by picking them carefully away with the point of a knife. After removal of these the bloom buds swell rapidly, and must be assisted by liberal and repeated applications of liquid manure.

September.—Syringe and water freely; disbudding will likewise require attention. Specimen plants will also require tying out with a view to their future effect. High winds must be provided against by careful tying to stakes or wire trellises. Liquid manure of a substantial kind will now be required. First water with clean water, then give a strong dose of manure water, thus enabling it to permeate the entire body of soil in the pot. "Disbudding" and "setting" the buds as directed last month will still be necessary as the plants vary in forwardness. Specimen plants now re-

quire great and continual care in watering and staking. Mildew must be banished by dusting with sulphur. Specimen plants may now be staked, regulating each shoot in its final position. Disbud as already directed in case of large flowered kinds.

October.—Tying specimen plants and watering are the main operations. Disbudding must also now be continued and insect pests watched carefully, or they will mar the symmetry of some of the finest buds. Secure weakly shoots from rude winds. Feed the plants liberally until the colour shows in the buds. Neglect in timely watering and mildew are a fertile cause of annoyance now among specimen plants. Early flowering kinds must be taken under shelter before the end of this month. Wet and frost are alike fatal to blooms showing colour. The insertion of cuttings for next year's plants will now be commenced by taking off all short, basal shoots of rare kinds. Prepare for housing general collection.

November.—Water as before, withhold liquid manure as the flowers expand. Carefully remove the plants indoors early this month if not already done. Frosts of some severity may now be expected. Give ample room to each plant and admit air freely. If mildew appears, apply sulphur dusted from a coarse canvas bag. A little fire heat should be applied on cold or wet nights. Early kinds will now be in full beauty. This great fog month is made genial and sunny by the smiles of our "winter queen." Remove all suckers as they appear, retaining rare kinds for next season's growth.

December.—At the latter end of last and beginning of the present month Chrysanthemum-tide is at its height, and the careful grower is rewarded for his year's labour, that is if he has made it a labour of love. Fire heat should be applied during cold, wet weather, and air freely admitted on all fine days. Any suckers which appear now on good or rare kinds should be removed and potted. Many kinds and some of the finest do not sucker well or even afford good cuttings in the spring. Mind that the plants do not suffer for want of water. Give late blooming kinds a little weak liquid manure and the lightest position possible. Remove dead flowers and leaves as they appear.

F. W. B.

GARDEN DESTROYERS.

HORNETS AND WASPS.

(VESPA CRABRO AND V. VULGARIS)

THERE are few insects which are better known or more cordially disliked than the common wasp. The hornet is by no means as common, and is fortunately comparatively a rarity, as its large size and powerful sting make it indeed a formidable insect to meddle with. Both, however, have many good qualities. They are remarkable for their boldness and pertinacity. If driven away, they will return again and again, and are by no means the useless insects they are generally supposed to be. They are often of considerable service in destroying grubs, caterpillars, and flies. They also kill daddy-longlegs, spiders, and bees, though killing the latter cannot in any way be considered a service. It is said that in some parts of America the farmers hang hornet's nests in their sitting rooms to get rid of the flies. One would imagine that this remedy would be worse than the disease. Unfortunately these insects do not confine themselves to animal food, but attack ripe fruit of all kinds. Some persons imagine that they do not touch fruit unless it has already been injured by some other insect or means, but this I cannot think is the case, as the jaws of a hornet or wasp are quite strong enough to cut through the skins of such fruits as they feed upon. Wasps are very hard-working insects. One which was watched by Sir John Lubbock made 116 journeys in one day from its nest to some honey in Sir John's study. It was at work when he entered the room at 4 a.m., and did not cease working until 7.47 p.m. Each visit was duly noted, and during the whole

time, except after the two first visits, it was not away from the room for more than 10 minutes minutes together. One hardly knows which to admire most, the industry of the wasp or the observer. Hornets are said to work even harder than wasps, as they will at times work all night, particularly if it be moonlight. Many persons imagine that insects can communicate freely with others of their own kind, but it seems almost certain that wasps cannot. Sir John Lubbock several times marked wasps and watched them, noting the number of journeys they made, and in very few instances did other wasps come to the honey, which undoubtedly they would have done had they known of its existence, and those who did would have communicated their knowledge to the others if they could, as it would have been for the benefit of the nest generally.

The sting of a wasp is a very complicated apparatus, and consists of several parts, as shown in fig. 3. The actual sting (A) is smooth, somewhat curved, and of a horny substance; it is channelled beneath, in which groove lie two hair-like organs, that can be protruded beyond the point of the sting, called spiculae; one of these (C) is shown withdrawn from its proper position. These hairs are barbed at their points (fig. 4), and are the chief factors in making the wound; they are separated at their bases, and are brought round the swollen termination of the sting, where they are attached to the muscles which move them. The poison bag (D) is connected with the sting by a fine tube, and is composed of muscles, which can evidently contract with great force. When not in use the sting is moved forward and protected by the two sheaths (B). When the wasp uses the sting it is thrown quickly backwards, the two barbed hairs are rapidly worked in and out with a saw-like motion, the poison is ejected at the same time, and enters the wound as it is made. When stung the best thing to do is to suck the place well or to make it bleed, and then rub in hartshorn or ammonia in some form, sweet oil, washing soda, or the juice of an Onion; if the sting is very painful, keep as quiet and cool as possible; anything which tends to make the blood circulate freely should be avoided. It is useless trying to kill wasps on a small scale if a nest is near at hand; when we consider that a nest, when in full working order, probably contains from 20,000 to 30,000 inhabitants, what difference shall we make if we kill a few hundreds? Later, however, in the autumn queen wasps may be found about houses and out-buildings, searching for sheltered places to winter in, or early in the spring, having just left their winter quarters; these should always be destroyed, as each queen will make a separate nest. Windows in lofts or lumber-rooms to which wasps have access (and they will creep in anywhere) are capital places for finding them in the spring. The wasps, having found snug quarters, remain torpid until aroused by the warmth of the first mild sunny weather; they then naturally fly towards the light, and may be found vainly trying to get out through the windows. Probably one of the chief reasons that wasps are so much less plentiful in some years than in others is that the queens are killed soon after leaving their winter shelter; tempted out by a warm day or two, they fall victims to a sudden change of weather against which they have no protection, unable to regain their winter shelter and not having commenced a nest. Insects when hibernating seem able to stand a great amount of cold, but when in full animation cold seems to paralyse them. As soon as the nests are found, by far the best means of

Killing wasps is to destroy the nests at night when all the inmates are at home. Various methods have been devised for effecting this; among the best are the following: Rags dipped in coal tar, pushed into the entrance of the nest, and then lighted; cotton wool dipped and well saturated in a solution of cyanide of potassium (use just enough boiling water to dissolve the cyanide) and thrust with a stick into the hole, will kill the wasps, or 2 ounces of cyanide of potassium dissolved in one pint of water, poured

into the nest. This drug is a very violent poison and should be handled with great care. A lighted squib, composed of about equal parts of brimstone, gunpowder, charcoal, and saltpetre in a stout brown paper case, pushed into the entrance of the nest; rags dipped in melted brimstone, or flowers of sulphur thickly sprinkled on cotton wool, lighted, and kept burning if necessary by means of bellows so that the fumes must enter the nest, or hot gas tar poured into the nest. A turf should be placed over the mouth of the nest as soon as possible afterwards to prevent the fumes from escaping, whatever plan may have been tried, and the nest should be dug up the next morning to ensure the entire destruction of its inhabitants. Wide-mouthed bottles filled with beer and sugar,

contains as many as 16,000 cells, and as each cell is supposed to be used three times in the course of the season, it has been calculated that a large nest before the close of their year will contain some 30,000 individuals at least. It must always be remembered that wasps do not store up honey or pollen, as bees do, so that their cells are only used for rearing their grubs in. The cells in the lower tiers are larger than those in the others, and in these are reared the males and females. As the mouth of the cells is downwards, the egg is attached to the top of the cell by a glutinous secretion. The young grubs are also kept in the cells in the same manner, but when they are more mature the size of the front segments of the body prevents them from falling out. The grubs are hatched about a week after the eggs are laid. At first they are fed with the sweet juices of fruit or honey, but afterwards animal food is also given them. Those who have had an opportunity of watching them describe the grubs as opening their jaws to be fed just as a young bird does its beak. The grubs are full grown in about a fortnight, after which they become chrysalides. From these, in the course of a week or ten days, the perfect wasps appear, who within a few hours begin to assist their mother in enlarging the nest, adding fresh combs, and feeding the grubs. The early wasps are all neuters, or rather imperfectly developed females. The males and females do not appear until September. They take part in the work of the nest like the neuters; the males, however, do not build or feed the grubs, but act as scavengers at the end of the season. There may be 200 or 300 females in the nest, who do not in any way interfere with one another as queen bees do. Before the cold weather sets in the females are impregnated by the males, who die soon afterwards. About this time the neuters, who seem to know that the grubs still in the cell cannot live long enough to become wasps, drag them out and destroy them. The females then disperse in search of winter quarters, and the neuters gradually get fewer and fewer. Hornets in their economy much resemble wasps, but they usually select hollow trees or the eaves of hothouses, barns, &c., to build their nests in. There are two species of wasps which are equally common in this country, *Vespa vulgaris* and *Vespa germanica*. They resemble one another so closely that it is by no means easy to distinguish them apart; besides the two species there are four others which are not so common.

Vespa vulgaris (fig. 2) may be described as follows: The females measure from five-eighths of an inch to six-eighths of an inch in length, and nearly $1\frac{1}{4}$ inches across the wings; the neuters are half an inch or rather more in length, and a large male is about the same size as a small female. The colouration in all is the same. The head is black, with two yellow spots on the face—one between the antennae, which are black, and one behind and in front of each eye. The thorax is black and hairy, with a yellow line on either side, and two pairs of yellow spots near the base. The body is yellow, each joint having a black band in front, which is widest in the middle, where it is produced into an angle; it then narrows very rapidly to the sides. Behind this band on either side is a round black spot. Wasps have four wings, the lower pair being furnished with fine hooks, with which they can be attached to the upper ones. The upper wings, unlike those of bees and most insects, are capable of being folded longitudinally, and the wings are generally so folded when they are not in use. The legs are of moderate length. The thighs are black, except at their tips, which with the rest of the legs are yellow. The grubs when fully grown are nearly three-quarters of an inch in length, and are fat and fleshy with their joints very distinctly visible. They have no legs, their heads are small, and are furnished with a pair of jaws. The chrysalides much resemble the perfect insects in form with their limbs closely folded to them. The hornet (*Vespa crabro*—fig. 1) is much larger than the wasps, and may at once be distinguished from them by their general reddish brown colour, having no black or pale yellow markings. The females are from 1 inch to

$1\frac{1}{2}$ inches in length and measure nearly 2 inches across the wings, and the neuters five-eighths of an inch to seven-eighths of an inch in length. The general colour of the insect is reddish yellow with darker markings. The eyes are nearly black, and the antennae reddish brown. The thorax is of the same colour, with a darker triangular patch on either side. The first joint of the body has a dark reddish brown band behind the middle, and the second has a curved irregular band of the same colour. This band is almost wanting in the third joint, only a small triangular spot being visible, on either side of which is a small round spot. The fourth and fifth joints have a dark spot on either side. The legs are reddish brown, and the wings yellowish with brown veins. G. S. S.

Hydrangea insects.—My Hydrangeas in the conservatory have had their leaves mutilated of late by semi-circles being bitten out of their edges. No enemy is visible during the day, but last night the enclosed beetles were found eating the leaves. Kindly say what these beetles are, and how best to get rid of them.—R. MILNE-REDHEAD. (The insects attacking your Hydrangeas are the clay-coloured Vine beetle (*Otiorynchus picipes*). They feed at night, and will generally fall to the ground if the house be entered after dark with a bright light. If they do not, a sharp tap or two on the stem of the plant will bring them down. Place the pots on a white cloth before dark; this will enable you to see the fallen insects better. The grubs of these beetles are very destructive to the roots of plants. They are particularly fond of Primulas and Cyclamens.—G. S. S.]

INDOOR GARDEN.

CANNELL'S SYSTEM OF TOP-HEATING.

IN referring to this system (p. 146), "A. D." seems to be under the impression that the great success achieved by Messrs. Cannell at Swanley in the cultivation of winter flowering Pelargoniums is chiefly due to their adoption of this system. Lest there should be any misapprehension in the matter, allow me to quote a paragraph from "A. D.'s" remarks: "Some day, perhaps, Vine growers, and especially those who want to ripen early Muscats, may give a trial to this plan of top-heating; in fact, two or three 2-inch pipes running along at regular intervals, just beneath the rods, might be productive of marked success in securing not only a free set, but rapid development of the berries as well as rich colouring." After reading this paragraph, there can, I think, be no doubt as to the implied position of the top-heat pipes in the Swanley houses. Perhaps Mr. Cannell will be so good as to inform your readers interested in the question in what number of his new houses appropriated to Pelargoniums he has introduced this system. He would also confer upon us an additional favour by stating the extra per-centage of dryness he obtains in the air in those houses where it is in excess of that in houses where no root pipes are present, and where the pipes run along the sides in the usual way, assuming, of course, that the same amount of heat be maintained in each case, that the heat radiating surface from pipes be nearly equal, and that the two houses or sets of houses be as nearly alike in pitch, situation, and other respects as practicable, so as to render the comparison an equitable one.

It may be thought that I am somewhat sceptical about the existence to any extent of these roof pipes in the Swanley houses, and also of their being the great cause of the undoubted success to which the Messrs. Cannell are so justly entitled. To this I unhesitatingly plead guilty. My impression is that the worthy veteran at the head of this establishment is too able and experienced a general to point to this particular manoeuvre as the chief one amongst the numerous tactics he has resorted to in securing the palm of victory in the cultivation of Pelargoniums. No doubt Mr. Cannell has experimented with, and to some extent advocated, this somewhat novel method of arranging pipes, but I scarcely think he is sufficiently impressed with its few supposed merits to recommend it very strongly, even for the purpose

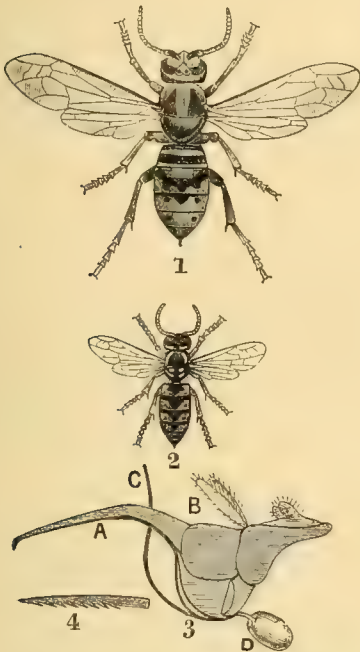


Fig. 1, the hornet (*Vespa crabro*); 2, the wasp (*Vespa vulgaris*); 3, sting of wasp (magnified); 4, barbed point of one of the spicules.

or treacle and water, hung on trees or walls which have ripe fruit on them will catch a great many and attract them from the fruit. A female wasp which has survived the winter and the perils of early spring begins looking about for a suitable place in which to make her nest. She usually chooses a convenient hole in a bank, and at once commences a few combs under an umbrella-like covering, entirely unassisted. The nest, both covering and combs, is constructed of a grey paper-like material, formed of fine fibres of wood, which she gnaws from palings, gateposts, or any woodwork which may be most convenient. These fibres are mixed with an adhesive secretion from her mouth. The nest is begun from the top and built downwards. The first cells are not finished at once, but as soon as they are large enough an egg is laid in each, and they are enlarged from time to time. By this means the young wasps are reared some days earlier than they would have been otherwise, and are thus able all the sooner to assist in the construction of the nest.

The combs, unlike those of the honey bee, which are vertical, are horizontal, and the mouths of the cells are downwards; the nest when finished is oval, and measures 16 inches or 18 inches from top to bottom, and 12 inches or 13 inches in width, and contains from twelve to fifteen tiers of combs, which are placed about half an inch apart, and are attached to one another by small columns. The outside of the nest is a casing of several thin papery layers, with spaces between them, which keeps the combs dry and prevents any intruders from getting into the nest except through the entrance. A large nest sometimes

of growing winter flowering Pelargoniums, to say nothing of early Muscats, and even if he did so, I fancy he would so arrange the pipes just under the glass, and not just under the rods of the Vines, as suggested by "A. D." To be placed between two fires is said to be an unenviable position, and to be placed immediately between frost and fire would, I fear, be almost, if not quite, as destructive.

For the purpose of economy, convenience, and good results I imagine Mr. Cannell would prefer to recommend for this purpose a rather sharp pitched roof, and the pipes situated at the lowest convenient level, where the air is said to be the coldest and most dense, and so endeavour to imitate Nature's wise law and example.

W. C. T.

DAMPING OFF IN PITS.

A MILD winter often causes greater destruction amongst half-hardy plants in cold pits or houses than a frosty winter. Frost may be kept out by warm coverings. Straw in any form is an excellent protector when kept dry. Straw mats or hurdles lined with straw, or light wooden frames covered with it, are some of the forms in which it may be cheaply and effectively employed. But damp comes from no one knows exactly where, and is difficult to guard against. It rises up out of the ground; it comes in through the walls and cracks in the glass if there are any. It makes the plants look delightfully, almost preternaturally green at first, then little brown spots appear round the edges of the leaves, old wounds decay and become gangrenous and mildewy, the bottom leaves fall, and when this stage is reached, if something is not done, and that quickly, the whole collection becomes a mass of rottenness. Wood ashes in a dry dusty state are good to drop in among plants suffering from damp in cold pits, so also is dry dusty peat; and if a dry day comes, lift the plants out, pick them carefully over, put an inch of dry ashes in the bottom of the pit, and set the pot on this dry bed. This will do more to banish damp and restore health than anything else that can be done. Ventilation may do much, but in a mild, wet winter something besides careful ventilation is needed to keep plants from damping off which are dug up from the border or even soft cuttings struck in August. Then, again, most people, especially if at all enthusiastic about flowers, are apt to aim at too much. Planting too many cuttings in a pot and placing the pots too close together is one of the causes of damping off; it prevents all circulation of air, and as a consequence in such places the damp settles and works its will.

E. H.

LEAD-BAR GLAZING.

THIS method, to which two of your correspondents have referred, has only recently been made publicly known in the horticultural world, owing, doubtless, to the fact of a lead-bar system having obtained the only award at South Kensington last May. "T. C. W." speaks of the tendency of the lead strips to curl up from exposure to sun heat in summer, and so admit wet and cold air afterwards. This is what takes place, too, with the many zinc bars in use of late years, and is causing patent glazing systems to be looked upon with suspicion, and in many cases to be replaced with the old putty glazing, as the lesser of two evils. In the Simplex this curling up is due to the thinness and softness of the strips, which weakness also causes the glass to be insecure during violent winds, which force the glass upwards from underneath. The remedy, "A. L. S." says, is to bed the glass in thick white lead paint; but if this is necessary, what is the use of the lead strips at all, for a good layer of white lead on an ordinary sashbar with a couple of sprigs in it above the glass and another brush over the top will be as secure glazing as the other without its trouble and expense. The replacing a broken pane bedded in white lead on a lead bar will be as difficult as the hacking out of old putty. The other or prize

medal method of glazing (called the Eclipse) is effected by means of a strong small bar of a patent composition of lead and tin, which is not open to any of the objections named by "T. C. W." It is no heavier than its rival, and does not require the wood bars or rafters underneath (which make the other roofs so heavy), nor does it require any bedding of paint; it can be used with any glass, straight, angular, or curved, and is the nearest approach with which I am acquainted to the old-fashioned church window bars that have lasted for centuries. A roof here glazed with these bars last spring has not shown the slightest sign of curling in heat or bending in storm; in fact, it is impossible to push a piece of note paper anywhere between the dry lead and glass. I am interested in the sale of both these methods, but am old-fashioned enough to prefer good putty glazing for most work. One of the chief objections to these patent systems is that they are generally used with a cheap class of wood framing (in order to reduce the total expense), and therefore cannot possibly last many years exposed to the moisture and heat of a greenhouse. In fact, this failure of the woodwork is a thing to be desired by the so-called builders who supply it, as an evidence of the superiority of their metal bars over the wood they use; but a house built of properly selected wood by a skilled horticultural builder will last longer than any of the metal ones, and in the long run give more satisfaction.

B. W. W.

ADHATODA CYDONIÆFOLIA.

THIS was introduced to this country, from Brazil, by Messrs. Veitch many years ago, and it still retains its position in several choice collections, doubtless because of its exceptional merit among allied plants. It may, according to the treatment it receives, drag out a comparatively useless existence for years, or it may grow into one of the finest ornaments of the warm conservatory. I am not aware that it can be made to flower well or symmetrically in a small state; therefore it would not be suitable for what is termed a "furnishing" plant. To make it appear in its truly handsome character, it is best treated as a pillar plant, or it may be trained as a climber near the glass in the way in which many plants of it are grown around the sides of the Palm house at Kew. The secret of success as regards culture seems to be chiefly in liberal treatment. It must be made to grow freely, and a convenient means of securing strong healthy growth is to plant it out in a prepared border, when success may almost be guaranteed. If grown in pots it must be shifted on from small pots gradually to large ones, in order to avoid the weak growths which are produced by pot-bound plants. With these considerations kept in view, it will not be found a difficult subject to cultivate. It does not really require peat, but so much may be used with good loam as will make an open compost, so that with good drainage there may be no stagnant water, of which during the growing season it should have a good supply. Like the majority of the Acanthaceæ, it strikes freely from cuttings at almost any season of the year, but best in spring. It blooms in October and November. The corolla has a white tube; the upper lip is also white, tipped with purple, and the larger lower lip is deep purple with a white streak down the centre. In habit the plant is somewhat straggling, thus indicating the position we have recommended for it. The stems are obtusely tetraginous, and the leaves softly pubescent. Well grown, this plant, whether in flower or not, will invariably justify its position in the stove or warm conservatory.

R. I. LYNCH.

Botanic Gardens, Cambridge.

Hybrid Heaths.—Does not the success which has attended the crossing of some of our hardy Rhododendrons with the Indian kinds suggest the possibility of good results being obtained from carefully hybridising our hardy Heaths with

some of the Cape kinds? We have almost thousands of hybrids in the latter class, but so far as I know little or nothing has been done with a view to raising plants which shall possess the rich beauty of the Cape species and the hardiness of our own mountaineers. This work, if undertaken in an intelligent and patient way, might be productive of some good results.—B.

Cyperus alternifolius variegatus.—With me the foliage of this lovely variegated plant has been almost white. I would advise all when shifting their Cyperus plants to try the experiment of potting them in nothing but cinder ashes or silver sand; then place them in a brisk stove, and keep them well up to the glass; take care, however, to keep them well watered at the roots, but never syringe them. Thus managed the variegation of this becomes nearly white, and the plant is most lovely when placed amongst Ferns on a dinner table.—G. H., *High Leigh*.

Combretum purpureum.—"J. C. C." is quite correct in stating that this plant "is not easy to propagate" from cuttings; in fact, so far as my experience goes, it requires "very skilful treatment" indeed to increase it in that way. I do not think it is usual to attempt to propagate it from cuttings, grafting on its own roots being the surest and quickest method; or if there are no roots strong enough, some of any other strong grower would answer. If I find a plant at all difficult to increase by the usual method, I have recourse to this plan of grafting on roots of the same plant, and often succeed. Sometimes it does not answer, and then layering or Moss is tried. Most growers know that *Daphne indica* does well on and always unites with roots of *D. Mezereum*, and many other instances of the usefulness of this plan might be mentioned. I think Mr. Lynch said he struck cuttings of the *Combretum*, but it seems to me quite an exceptional case.—B.

Steam heating.—The statement that the cost of this is one-third less than that of hot water, an assertion doubted by "P. G." may be, and doubtless is, quite correct, considering the country in which it is used, as the winters in North America are terribly severe, and to keep up a temperature of only 35° Fahr. in a glass-house where the outer air is 30° below zero (as mentioned in a letter just received from Iowa, where the writer threw a cupful of warm water into the air and saw it fall a lump of ice) is something more than ordinary hot-water pipes are capable of doing; therefore the more intense heat from steam pipes is necessary, and at the same time more economical than from three or four times the quantity of hot-water pipes, especially in a country where the materials cost more than in England—the home of cheap iron and coal. In ordinary circumstances, heating by steam or by the high pressure system of super-heated water is neither cheap nor satisfactory for the purposes of either plant or fruit culture.—B. W. WARHURST.

Saxifraga ligulata.—At Chiswick there are now in flower some handsome specimens of this plant in pots. As an early spring flowering subject for the herbaceous border this Saxifrage is in great favour in most gardens, but I am not aware that its usefulness for indoor work has yet been recognised. *S. pyramidalis* is a beautiful plant whether grown on the rockery or in pots in the greenhouse, and the same may be said of *S. ligulata*, whose large bouquets of bright rose-coloured flowers, brighter and cleaner-looking when flowered under glass than out of doors, are exactly the sort of thing to prove highly serviceable for cut-flower purposes and the decoration of the conservatory. At Chiswick cuttings of this plant are struck in the autumn and kept in pots in a cold frame until the following spring when they are plunged in ashes out of doors and treated liberally as regards water and food. As winter approaches the plants are placed in a frame again, where they are allowed to remain until their flowers begin to open, and then placed in a greenhouse. They remain in flower for some weeks, and when cut and stood in water they keep fresh for some days. I was informed that too much heat

causes the flowers to come washy; therefore it would not be advisable to force them.—B.

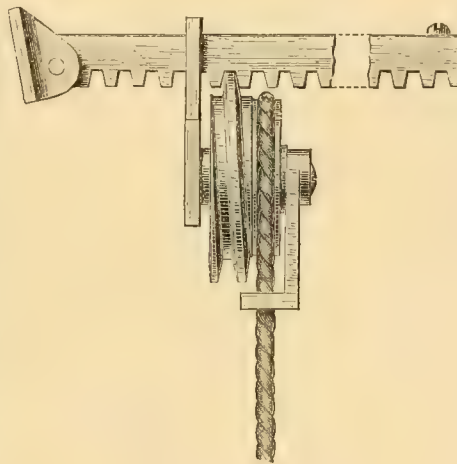
Seedling Heaths.—Seedling-raising is not often resorted to for increasing any of the kinds of Heaths, but still this method of propagating them might be useful. The best time for sowing the seed is in spring, though it would germinate freely if sown at any season. The danger of losing the seedlings if weak in the winter months is, however, against sowing Heath seeds, or, in fact, any seeds of plants which in the seedling state are very delicate during the late autumn or early winter. Pots prepared in the same way as for cuttings, but without sand on the top, will answer for Heath seeds. The soil should be well saturated with water and allowed to drain before the seeds are sown. A little dry sand sprinkled over the seeds is sufficient to keep them moist and covered. A square of glass should be placed over the pot, which may then be set on a shelf in a warm greenhouse and shaded from bright sunshine. As the seedlings grow the glass may be removed, and on their becoming large enough to handle they may be pricked off and treated in the same way as cuttings.—B.

Rogiera gratissima and its culture.—How seldom does one meet with a healthy well-grown specimen of this beautiful greenhouse shrub in gardens; and yet, judging by a grand specimen of it grown in one of the plant houses in Messrs. Backhouse's nursery at York, it is not so difficult to cultivate as one would infer judging by its general scarcity. The plant in question is planted out in a brick enclosure about 2 feet square at one end of a span-roofed house, the centre bed of which is occupied with healthy Camellias. The side stages are filled with Heaths and Lapagerias, thus pointing to the fact that a cool, moist greenhouse is the most suitable place for it. The soil in which it is growing is a mixture of equal parts fibry peat and turfy loam, with a liberal admixture of coarse silver sand resting on a well-drained bottom. It is trained up the end and partly over the roof above the pathway, though not tied down stiffly. When I saw it last October I counted fully a hundred trusses of beautiful flesh-coloured blooms on it either fully or partly developed. I had the opportunity of again seeing it a few days ago, and there were quantities of blooms still on it, though many had been cut in the meantime for bouquets and for other purposes of indoor decoration.—H. J. CLAYTON, *Grimston*.

Pleroma elegans.—When skilfully managed but few hard-wooded plants are more beautiful than this Pleroma. Many will remember the time when this was looked upon as a test of the cultivator's skill as a plantsman, because it was not always seen in the best condition. The most successful cultivator of this plant I ever knew was Mr. William Kail when gardener at East Horsley Towers; he used to grow and flower it in the most satisfactory manner. An intermediate temperature is unquestionably best for it, and it must be very carefully shaded from the time when it commences to make its growth until the wood and leaves get somewhat hardened. It also dislikes cold draughts at any time. I have known a fine healthy plant of it to be seriously disfigured by standing for a few days exposed to currents of air from open ventilators. When properly treated it should flower in May and June. As soon as it has done blooming it should be encouraged to make growth in a rather close house, carefully shaded, and where the internal atmosphere is somewhat moist, or red spider and thrips will be very likely to attack it. It will also bear the free use of the syringe while it is making its growth. In regard to moisture at the roots, it requires to be as carefully watered as a choice Heath. The best soil for it is a good fibrous black peat and a fair proportion of silver sand. When larger pots are needed, they should be given directly the plants go out of flower. If large specimens are required, the plants should not be allowed to flower when young, and the points of the shoots should be stopped twice during the summer. A few neat sticks is all that is required

to make a large plant presentable in shape. In growth it is short-jointed, and the habit is branching and somewhat stiff. Cuttings of the half-ripened wood, if put in about the middle of July and placed under a bell-glass and the pot plunged in bottom-heat, will strike in a few weeks.—J. C. C.

Leggott's adjustment for ventilating lights.—This simple and efficient arrangement for ventilating purposes has been patented by Messrs. Leggott, of Bradford. Its appearance will at once commend it to gardeners and hothouse builders. It consists simply of a toothed arm or rack, worm, and rope or chain. It is made of malleable iron or brass, in four or more sizes as required. It can be fixed to lights opening in any position; the lights may be regulated to the greatest nicety by simply pulling the cord, and perhaps the greatest advantage is that they remain perfectly locked



Ventilating apparatus.

whether open or closed. It is a decided improvement on the cranked arm, as the thrust is always straight. They are easy in action, compact in form, neat in appearance, and the cost reasonable.—T. C. W.

Cassia corymbosa.—This hard-wooded greenhouse plant is by no means difficult to cultivate. Indeed, it is a capital exhibition plant for the months of July and August. Owing to its flowers being bright golden yellow, a fairly large plant of it has a striking appearance, and under ordinary management it will last in good health and vigour for many years. It is propagated by means of cuttings made of the half-ripened shoots; if half-a-dozen cuttings are put into a 6-inch pot and plunged in bottom heat in a close frame they will be rooted in about two months. The quickest way of making a large plant is not to pot off the cuttings singly, but in the spring following that in which they were struck they should be shifted into a pot 2 inches larger without disturbing them. A little artificial warmth at this time would help to give them a longer season of growth, but that is not absolutely necessary. A light position on the stage of a greenhouse devoted to similar subjects will suit this Cassia best, but as red spider is rather partial to it, it should be syringed twice a day in hot, dry weather when not in flower. After it has completed the first summer's growth, and before it commences to grow again in the spring the young shoots should be shortened back to within 4 inches of the pot, or at least shortened to such an extent that there will be three buds left. From these buds young shoots will start next year, and in all probability the strongest of them will flower. Every winter the previous summer's growth should be cut back more or less according to the strength and condition of the wood. In February, if necessary, the plants should have a shift into larger pots. The soil to be used should consist of three parts loam and one part leaf soil,

with a good proportion of coarse sand, and I may add that a moderate amount of pot room is necessary, or a weak growth will be the result, and the length of the flower-spikes will be in proportion to the strength of the plant.—J. C. C.

Tuberoses.—I would recommend "A. B." (p. 123) to prepare a compost for these as follows, viz., one part peat, one part turfy loam, one part well-decayed cow manure, and one part sand, the whole to be well mixed together and used moderately dry. Having selected and divided the bulbs into threes of uniform size, pot them rather firmly in 7-in. or 8-in. pots, three in each pot, allowing the tops of the bulbs to just show above the soil. When potted plunge them, if required for early blooming, in a bottom-heat of about 75° in a temperate house; keep them shaded from the light and perfectly dry at the root till they exhibit signs of growth, when they should be gradually exposed to light and receive moderate supplies of water. They should be very gradually removed from the plunging material and placed as close to the glass as possible in a pit or house where the temperature ranges between 55° and 75°. As growth proceeds an occasional watering with liquid or artificial manure will be advantageous, especially at the time when the flower-spikes begin to develop themselves. Their greatest enemy is red spider, which should on no account be allowed to injure the foliage. Should a succession of bloom be required a portion of the bulbs may be kept unpotted for another three weeks in a dry atmosphere of medium temperature, after which they should be treated like the others. When, however, they have made a moderate growth they may be placed in a somewhat lower temperature in May or June in a cool pit or frame, so as to prolong their blooming season, and in order to keep them as dry as possible, which is a very essential point in their cultivation. The Italian bulbs have hitherto been the most in demand, but now the American Pearl variety is the favourite.—W. C. T.

—Tuberoses should be put in 6-inch pots in a mixture of equal parts turfy loam, peat, and leaf mould, and placed in a pit. They need very little water at first, but as they begin to grow freely increase the supply and keep them near the glass. When they begin to push up their flower-spikes they will of necessity require to be placed where they will have sufficient space for the proper development of their tall spikes. They will come into bloom from August to October, when they will require a temperature ranging from 60° to 70°, the latter being preferable. If wanted in bloom earlier, the pots should be placed in a warm pit, and on a hotbed the temperature of which should be about 75°, so as to start them into growth more quickly. American Pearl is a dwarf variety with large double flowers and deliciously fragrant.—T.

Hyacinthus candicans forced.—"G.'s" remarks (p. 109) may be advantageously supplemented by a note on the adaptability of this plant for forcing. For this purpose a few bulbs that have not flowered should be taken up early in September, and laid on a shelf in a cool dark place, as it is important that they should have as long a season of rest as it is possible to give them. Bulbs so treated may be potted in the way in which "G." suggests, but it must be done about the middle of December, and they should be at once placed in a temperature ranging from 55° to 60°. Bottom heat is not absolutely necessary, but they will start into growth quicker if supplied with it than they otherwise would do. If treated as here recommended they will be making vigorous leaves by the middle of February, when they require rather careful treatment. They must be in a light position and have a reasonable amount of fresh air given them. Under the best management it will be found, however, that the leaves grow longer than they do in the open air, but that cannot be avoided. Under favourable conditions, viz., slow forcing and as much air as the season of the year will admit, they will be in flower about the beginning of May. In order to secure successional supplies they may be potted at intervals according to the demand. To the bouquet maker this must be a valuable plant, for

when the blossoms are well expanded it is only necessary to nip out the dark anthers to secure perfectly white flowers.—J. C. C.

SOUVENIR DE LA MALMAISON CARNATION.

MR. GROOM, writing about this Carnation to THE GARDEN a week or so ago, says that it will not bear forcing—words of wisdom that anyone wishing to grow this beautiful plant would do well to bear in mind. I know of no plant more impatient of heat and damp. I take my knowledge of the plant from close observation of Mrs. Mark Wood's collection, and I always attributed her success in a great measure to an entire absence of heated houses. To grow this Carnation well the following points must be strictly observed, viz., good and effectual drainage; be careful to exclude worms at all times; stand the plants in the open air fully exposed to the sun from directly after flowering until the commencement of the autumn rains; for soil we have always used a very close sandy loam brought from the neighbouring forest of Hainault. Though fairly easy to grow, some few plants will generally rot off, and though in a large collection, like Mrs. Wood's, of 300 plants, these are not missed; amongst a few plants the loss of two or three good ones makes an ugly gap. M. LOCKWOOD.

Harlow.

FRANCISCEAS.

"W. G. B." enquires if the flowers of these plants are useful for cutting. I have grown most of the kinds, and have used some of them in a cut state, such as *F. Hopeana* and *F. confertiflora*. The latter is much the best species existent when brought out as well as it can be, a condition in which it is rarely met with. To bloom it really up to the mark the plant requires to be treated differently from anything else. The flowers of all the kinds are very soft in texture, and correspondingly easily bruised, and on that account, if required for market, would want exceptional care in packing. Blooms of both the above-named sorts are very effective, especially when young, when the colour is of a deeper shade than that of older flowers. Those of *F. confertiflora* is a lovely shade of deep violet-purple, and wonderfully effective in bouquets when rightly managed; but as usually seen they have a poor, faded appearance. The individual blooms have very short stalks and require to be mounted, otherwise the shoots would have to be cut, which would cause a great waste, as when vigorous they bear from one to three dozen flowers on the extremities of each, and keep on opening in succession for a considerable time. The flowers of *F. Hopeana* are much smaller individually, paler in colour, and not produced near so many on a shoot, but the plant is much more branching in habit, and on that account the shoots along with the flowers could with more advantage be cut. Francisceas have been seen little, if any, in Covent Garden, and it takes some time for any flower new to the buyer, no matter how beautiful it may be, to make its way. In form, size, colour, durability, and general appearance it may differ no further from old-established favourites than might be supposed to afford a pleasing, and yet it will have a very cold reception, and I should have little confidence in the flowers of any of the Francisceas meeting with a demand in the market such as to repay the grower. *F. eximia*, *F. calycina*, *F. Lindeni*, and *F. violacea*, the other species more or less grown, are not so suitable for cutting as the two above named. For decorative purposes, or for exhibition in a group of specimens, *F. confertiflora* has few equals when properly done in the whole range of either stove or greenhouse plants, its charming violet-purple colour affording a contrast to everything else. T. B.

Leschenaultias and their culture.—I remember the time when the *Leschenaultia* was grown so large that one plant would tax the strength of two men to carefully place it on an exhibition stage, and I can unhesitatingly assert

that for rich colour and quiet effectiveness there is not now another plant grown that can surpass it. A plant from 3 feet to 4 feet in diameter and studded thickly with blossoms shines in the distance like a ball of fire; yet, like many other hard-wooded plants, it seems to be dropping out of cultivation. Cuttings of it strike readily in what may be called a dry heat, and, except that at all times watering must be carefully attended to, their management is by no means difficult. When struck the young plants may be placed on the front shelf of a greenhouse stage free from cold currents of air, and where they can be shaded when in flower, which is generally in May and June. A shift once a year into a larger pot early in August will be necessary in order to keep them in health. Thoroughly clean pots are essential, and the drainage must be more carefully attended to than is necessary in the case of stronger rooting plants. The best compost for them is a fibrous peat, to which must be added more than the usual quantity of silver sand.—J. C. C.

Saundersonia aurantiaca.—Mr. A. Rawson asks for information as to the treatment required by this plant. We flower it yearly, and that without any extraordinary care. If Mr. Rawson grows *Gloriosas*, then, with a degree or two less heat than what is necessary for the well-doing of these closely-allied plants, he has the treatment enjoyed by *Saundersonia*. The *Gloriosas*, *Littonia modesta*, and this *Saundersonia* we have just brought out from their winter quarters (under the stage of a warm greenhouse), and shaken them out of the old soil, repotting in a mixture of loam, peat, and manure. Although the two last-mentioned plants require less warmth than the *Gloriosas*, it is a good plan to start all three together in a warm house, as, indeed, it is for most greenhouse bulbous or tuberous-rooted plants that are rested through the winter. If they get a good start, and are carefully hardened off they keep on as the summer advances. We grow our *Saundersonias* in a warm house until about the middle of April or when the shoots are some 2 feet long, after which the cool greenhouse, Heath house, or conservatory is a suitable place for them. Trained up a rafter or a long stake they soon make headway, and by midsummer their yellow cup-shaped flowers are hanging from the axils of the leaves as thick as Solomon's Seal almost. Precisely the same sort of treatment suits the *Littonia*, which is as like *Saundersonia* as—two Peas, I was going to say, but not quite so near as that. Still, leaving out botanical characters, these two plants are very similar, and as they thrive together here and hail from the same habitat (*Natal* and *Kafraria*), they may be recommended as a pair of good plants for the greenhouse. No doubt M. Max Leichtlin grows the *Saundersonia* out-of-doors. I must warn Mr. Rawson against pinching out the ends of the growths to cause them to branch, as these plants—all three genera, in fact—are like *Liliums* in this respect—they do not branch when stopped.—B.

—A lovely plant with golden flowers, which remind one of the pendulous globes of *Urceolina*, and yet how rarely seen. Once only, I saw stems of it 6 feet long laden with blossoms near their apices, in the old lean-to *Begonia* house at Kew (1867 or 1868), and I have never forgotten it. I have tubers of it here from Mr. Thompson's seeds. *Gloriosa* (*Sierra Leone* tubers) does well; *Littonia modesta* does moderately well; *Saundersonia* is a failure. And yet my memory of the plant at Kew in days gone by reminds me that there is a way to grow it if we can find it out. It was in a pot at Kew, the stems being trained up the rafters quite near the glass.—F. W. B.

Lachenalias.—There is a slight mistake in the paragraph about these in THE GARDEN (p. 167). In line nine the word "nitida" should be "rubida." There is no *Lachenalia nitida*. A. RAWSON, *Fulbarrow, Windermerc.*

Peat moss.—Good peat is both dear and difficult to procure here. Would some of the readers of THE GARDEN, therefore, kindly state their experience of peat moss litter, either used fresh or out of the stable as a substitute for it? —W. S. L.

GARDEN FLORA.

PLATE CCCLXXVII. THE GREAT ROSES.

(With a coloured plate of *La France*.)

To all lovers of delicacy rather than glare *La France* has long been one of the most highly prized of Roses. In colour, form, and fragrance it has no equal. The colour seems to play over rather than to be fixed in the bloom; hence the difficulty of describing it and the variety of descriptions given. Almost as well try to arrest a sunbeam as to fix the colours of *La France* by any cut-and-dried description. Pink, pale pink, silvery peach, lilac, rose, silvery rose, rosy lilac—these are but samples of language struggling to do what the coloured plate or the Rose itself can do—exhibit all the exquisite softness of peachy pink and pale lilac shading of the original. But the original itself also varies widely in colour, according to the age of the flower, the season of the year, locality, culture, stock, &c. In regard to age of bloom, the younger the more colour, and *vice versa*, may be pretty well accepted as an axiom. The buds possess a mine of undeveloped pink beauty that dissolves into silvery rose as the petals get more fully developed. This transformation of colour is admirably illustrated by the artist. *La France*, also like not a few objects even more fair, changes colour under undue excitement. Brilliant sunshine, hot, dry air, rough winds, long journeys in close boxes, the stifling atmosphere of exhibition tents, play havoc with its delicate colours, cause them to run or bleach out the major portion of their exquisite pink, leaving in its stead a misty, washy residuum of French white. The earliest and latest flowers are also, as a rule, the best coloured. The necessary data are lacking to enable us to pronounce authoritatively on the influence of locality on colour. But one can hardly note the wide difference in colour that distinguishes the exhibits at our shows without being convinced that some localities pronounce more strongly in favour of certain tints than others. Of course such peculiarities are more strongly marked in the case of such soft coloured Roses as *La France* than in the more lavishly coloured Roses such as *Duke of Edinburgh* and *Charles Lefebvre*.

Culture also exerts a disturbing influence in colours, and in our spasmodic efforts to develop size colour is not infrequently sacrificed. What may with much propriety be called the battle of the stocks, has never, so far as I am aware, been fought on colour lines. But I have sometimes thought that *La France* is, as a rule, more richly coloured on its own roots than worked, and it would be pleasing as well as profitable to have the testimony of rosarians on this point.

Next to the colour, perhaps the form of *La France* is its chief charm. In bud, as the coloured plate shows, it resembles the best *Teas*. As it expands it is, however, more like the most chaste and charming of all the Hybrid Perpetuals. The form bears some resemblance to such popular favourites as *General Jacqueminot*, *Monsieur Noman*, *Marquise de Castellane*, and a few others. Globular with pointed centre is the adopted definition for lack of a better. It is so far unsatisfactory that I should prefer founding a class

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



on the base of *La France*, and would venture to submit to the National Rose Society that it might, with much propriety, eliminate the first of their five types of exhibition Roses, viz., the flat, and substitute *La France* in its stead. The class would include some of the best Teas and a few of the more exquisitely formed Hybrid Perpetual Roses that can hardly be correctly described as merely "glo-bular," cupped, or imbricated. But if our vocabulary of adjectives has been severely taxed to describe the colours or define the form of *La France*, it is a still more hopeless task to give any adequate idea of the surprising delicacy and satisfying fullness of its fragrance. Suppose, for instance, we had a bouquet composed of some of the more fragrant Roses, such as *Pierre Notting*, *Mdme. Victor Verdier*, *Beauty of Waltham*, *Alfred Colomb*, *Camille Bernardin*, *Boule de Neige*, *Devoniensis*, *Mdme. Margottin*, *Maréchal Niel*, with a dash of Sweet Brier, and a suspicion of *Gardenia*, *Jasmine*, *Stephanotis*, and *Mignonette* to boot—*La France*, single and alone, would probably be preferred to the fragrant combination.

La France has not yet attained its majority, nor, it must be added, the popularity it deserves. It was raised in 1867 by M. Guillot, the younger, who has enriched and enlarged the Tea Roses with such welcome additions as *Catherine Mermet*, *Comtesse de Nadaillac*, *Madame Angele Jacquier*, *Madame Camille*, *Madame Margottin*, and others. Singularly enough, however, though *La France* is now sixteen years old, and so fragrant and beautiful, it does not seem to have been fruitful of good seedlings, nor to have exerted its potent influence in modifying the colour, improving the form, or increasing the fragrance of our Roses. A whole family of this class would prove extremely welcome to rosarians. True, the texture is thin, but this but adds the charm of a more exquisite refinement and greater delicacy while it permits a perfect prodigality of petals to be piled up within a reasonable compass, and moulded in perfect form. Hardly any Rose can be more floriferous, nor can better deserve the character of perpetual in the sense of continuity of bloom. Grown on its own roots against a warm wall, it is not only one of the first Roses to open, but the last to close, while it is seldom without a flower or a bud from May to November. It also does well on the Brier or the Manetti, though buds and bark being somewhat thin, *La France* does not take quite so freely as many other varieties. Its growth is often described as vigorous. That depends a good deal on culture, site, and climate. On the average its growth is moderate rather than vigorous. It also grows more freely as a dwarf than as a standard. Worked low on the Manetti, so as to root independently above the bud or graft, seems the best way of growing this fine Rose.

Few Roses yield a better return than any others for high culture and liberal feeding, especially on walls; frequent soakings of sewage, soap-suds, or other manure water not only assist them to climb, but stimulate and support them to a thorough continuous blooming; the more they bloom the less pruning will be needed; only the weaker shoots should be thinned out, and those left moderately cut back. Dwarfs in beds or border may be pegged down to cover the ground, and even root into it where practicable. A great future is probably before *La France* for forming beds and masses in gardens and pleasure grounds. A dry base, a rather warm site, and a soil somewhat lighter than

that used for Hybrid Perpetuals in general, seem to suit *La France* best. This fine Rose is also admirably adapted for pot culture, and in cold localities well merits the protection of glass. Growth indoors but adds to its refined delicacy of tint and gracefulness of form without sensibly lessening the amount or lowering the quality of its inimitable fragrance.

D. T. FISH.

ROSE GARDEN.

PRUNING ROSES.

THIS phrase is a convenient rather than a correct one, for the tendency of modern practice is to prune when required rather than defer it to any particular time; hence every year shows more summer and less winter or spring pruning. And yet it is needful to supplement or complete summer pruning after the plants start into new growth. In many cases, too, the prunings are converted into cuttings or scions, and thus the exigencies of successful propagation introduce another disturbing element into the time and extent of our annual prunings, for if four prunings are to be converted into rooted plants either in the soil or on the stocks of wild or other Roses, it goes almost without saying that they should be removed as soon as may be after the 1st of October. No doubt cuttings will root and scions take for months after that date; but the earlier ones have a coign of vantage wholly impossible to later ones; their sum total of vital force is complete, and they can afford to wait for favouring conditions for its development. Later cuttings are already emptied of some of their growing force, while top growth is prone to impoverish them still further, and thus enfeeble their capacity for forming roots. Hence those who prune for the purpose of propagation prune early, whether best for the well-being of the permanent plants or not. Then, again, the daily increasing demand for two or more crops of blooms in the year, or rather continuous blooming, leads to what many would designate untimely pruning. As flowering shoots fade they are cut back, and thus forced to break nearer home than they otherwise would, and to produce a succession of blooms. For this reason not only are different Rose bushes pruned at different times, but even different shoots on the same plant.

Another disturbing effect on the general pruning consists in the removal of weakly or misplaced shoots at any season. This, and the thinning out of superfluous shoots, and the stopping of those left to more fully fill their base buds, reduces the winter or spring pruning to a minimum. The fact is the practice of summer and autumn prunings has become so general among rosarians as well as pomologists, that less and yet less is being left to be cut away in the winter or spring; and but for the growing excitability of Roses, largely fostered by our modern innovations in culture and pruning, as well as by the infusion of more Tea and Noisette blood into our Roses, probably no spring pruning would be needed. But we have to reckon with this danger and guard against it as best we may. Hence a certain amount of superfluous material is left on our Roses throughout the winter. This acts as the safety-valve to the steam boiler. When the pressure of vital force is prematurely applied the terminal buds burst, and the lower ones remain in a semi-dormant condition. Novices, noticing these growing buds fresh and green to-day, maybe blackened by the frost to-morrow, cry out, "What a prodigal waste of force!" But the prudent rosarian is content to waste the forward samples that he may save the main bulk of buds. Thus pruning, instead of becoming a mere mechanical operation or cutting back to so many buds all round, becomes a rather complicated vital problem of the deepest interest and highest importance. He will solve it best whose practical knowledge of the character and habit of each Rose is most minute and special. So much is this the case, that the time will probably come when almost each Rose will have its special mode and time of pruning.

At present, however, a large amount of generalisation must still be indulged in. Our first caution in reference to general pruning is to prune not at all; cut not a single twig or bough unless it be necessary, and it is by no means always necessary. Probably summer pruning and thinning may have already proved sufficient. And, besides, some sorts of Roses, such, for example, as *Maréchal Niel*, may need no pruning, their shoots breaking full length when left intact, and each break is one or more Rose buds in embryo.

The next point is to cut no more away than is necessary. Contrary to what might have been expected, the stronger the shoot the less should it be shortened back—the weaker the more; for much material and vital force are sacrificed in deference to the phrase, "keeping the Roses at home." Why, the home of the Rose is the largest space it can fill with fragrance and beauty in field or garden. But the phrase means cribbing, cabining, and confining the Rose to the narrowest limits consistent with its health. There is a grain of sense and reason in this phrase, as practical Rose growers will see; but to cut to the best bud is a far safer rule than to cut home. As to the time for the general pruning, much depends on soil, season, and locality. Could we depend on the weather after March, this general pruning might be completed in February; but as our seasons go, perhaps the four weeks included, from the middle of February to the middle of March is the best time for the pruning of Hybrid Perpetuals. Teas in the open may be deferred till three weeks or a month later. Those on walls, however, should be pruned early, and be protected against weather severities should they come. Where abundant space be provided for Teas, the less most of them are pruned the better. To loosen them and let them go free alike from the pruner's knife and the trainer's hard and fast lines would not merely enlarge the area, but enhance the character of their beauty. As for varieties such as *Niphetos*, protect vigorously against severe pruning. The wood buds are mostly developed contiguous to the flower buds. If these are cut off, the lower buds that are mostly rudimentary not seldom refuse to break, and the pruner draws a blank, shoots as well as flowers refusing to follow the sharp, severe cuts of the knife. Fortunately, however, *Niphetos* has few imitators in this respect, and the majority of Teas thrive and flower well under infinitely varied modes of pruning. The novice, however, had better not prune his Roses at all than prune them too often or in excess. More freedom, larger liberties for our Roses will probably be the next great step in advance. Perfection of individual flowers has probably almost reached its limit and had its day, and a day full of rich and glorious beauty it has been. The time for the emancipation of the plants from this unnatural thralldom and the cruel slavery of the pruning knife in excess is at hand, and when that day comes the place and power of the Rose in our gardens and landscapes will be revealed and made fully manifest.

D. T. FISH.

Rose buds by post.—In reply to "R.'s" queries respecting Rose buds travelling by post and keeping fresh two days in a state fit for budding, allow me to say that all depends on the way in which they are packed and sent. To be in good condition they must not be sent as buds, but on the wood, which should be firm and of fair length, to admit of the buds being taken off properly, with half an inch or so of bark above and below the shield. The packing should be done in a little damp moss or wadding, and then the bundle rolled in gutta-percha tissue or placed in a close-fitting tin box so as to prevent any drooping or shrivelling of the bark, which would be fatal to getting the buds off successfully, as the rind could not be slipped from the wood.—S. D.

Rosa berberifolia.—Can anyone tell me where this beautiful species is procurable? It has, I believe, a single yellow flower with a large blotch of crimson in the centre.—K.

SEASONABLE WORK.

FLOWER GARDEN.

Amarantus.—Several varieties of *Amarantus* are extremely effective in the summer flower garden, but on this occasion we shall only allude to two, viz., *A. caudatus* (Love-lies-bleeding) and *A. hypochondriacus* (Prince's Feather). The latter in good soil grows 5 feet high and produces its erect plume-like flowers in great profusion. Given plenty of space for full development, this kind makes a strikingly effective bed; but perhaps the best of all positions for it is as a dot plant in large basket beds. We have also used it alternately with *Humea elegans*, the light feathery flower-stems of which show off to the greatest advantage the more formal and stiff plumes of the *Amarantus*. *A. caudatus*, as its name implies, produces long drooping racemes of flowers frequently 30 inches in length; under good cultivation the plant will grow 4 feet high and erect, but the heavy inflorescence renders it necessary to keep it tied to supports. Treated in this manner it makes an excellent front or outer line to large beds of *Cannas*, and is unequalled for basket-bed planting, near the outer edge of course, in order that the long racemes of flowers may droop over the sides, and when thus used no supports are needed. Seeds sown in warmth any time during March, and the young plants pricked off into small pots two or three together as soon as they can be handled will make large plants by the middle of May, at which time they may safely be transferred to the open ground.

Roses and climbers.—The mild winter puzzles one to know what to do with *Roses*, for the wood is as succulent as it was in September last, and new shoots are, in some cases, several inches long. Such untimely growth must, to say the least, injuriously affect the future well-being of the plants. If pruned now, the buds as soon started might be crippled by sharp frost, and if left to grow as they now are doing, they must of necessity be constitutionally weakened. In such a dilemma it is best of two evils to choose the lesser, and this, we think, would be to prune forthwith, and also closer than usual, i.e., to the lowest prominent buds which, as a matter of course, will be the latest to start, and may consequently escape injury from frost. The mulching should still be left on the beds. Newly planted standard *Roses* should be tied to supports, and also mulched. The weather and state of the wood are this season both in favour of late planting, so that any *Roses* yet to be planted may be expected to do as well as those put in in November. Prune and nail, or tie in climbing *Roses*, *Clematises*, *Wistarias*, *Viginian Creepers*, and all other deciduous climbers. If the principal shoots are well secured to the walls, wires, or trellises at this season, they will give but little trouble all the summer, and may with greater certainty of safety be left to grow somewhat loosely from the wall or trellis, an infinitely better plan than that of keeping the young growths closely tied in. Ivy on buildings should be trimmed up before the plants start into new growth. Such annual trimming is necessary to ensure a bright green surface of foliage in summer, and equally so to prevent vermin effecting a lodgment in the Ivy. Similar remarks are applicable to banks and edgings of Ivy; the latter soon get out of form, and become objectionable unless they are trimmed up twice a year at least.

Fernery and rock garden.—If other work is pretty well advanced attention may now be directed to a general overhaul of the hardy fernery and rock garden—both departments that, because they can be neglected without seriously injurious consequences, are, as it were, too frequently left to take care of themselves. If the Ferns are at all overcrowded a general re-arrangement and extension of the fernery may take place, the present being a very good time for moving the plants; others will be benefited by being given a top-dressing of fresh peat or light loam. Dead fronds, Couch Grass, and other weeds should be forked out, and bare spaces furnished with mossy

Stonecrops, the tufty-growing wood Mosses, and clumps of wild Hyacinths, Scillas, Daffodils, Snowdrops, Wood Anemones, and Primroses. The addition of these hardy wildflowers produces a natural effect which is desirable, and the flowering kinds for the most part bloom at a time when deciduous or herbaceous Ferns are destitute of fronds, an additional reason for using them in such a connection. Much the same attention is required in the rock garden; there should first be a thorough clearing out of weeds, and next every plant should be well firmed in its place, and, if needs be, fresh soil given. Strong growing kinds should be prevented from encroaching on weaker ones by cutting away any portions that are likely to do so, and any spare plants so obtained can be utilised for filling up vacancies, or for furnishing any new addition that may be made to the rockwork.

INDOOR PLANTS.

Utricularia montana.—In every garden where there is the convenience of a warm stove and a disposition to cultivate something beyond the commonest plants this *Utricularia* should have a place. Its handsome and singular flowers, and its Orchid-like habit of growth render it doubly attractive. It is one of the best of small growing basket plants, requiring treatment as to soil, heat, and moisture similar to other West Indian subjects. It thrives well in a rustic wood basket in a mixture of peat, Sphagnum, and potsherds, keeping the collar well up above the surface of the soil. Its white, yellow blotched flowers are produced freely, and are very pretty.

Chrysanthemums.—Where the propagation of these is not done before the close of the year it will be well to at once put in a sufficient stock of cuttings, which will root if kept moderately close under a propagating glass in a little warmth, or even in a greenhouse, only the rooting process will be longer in the latter. Cuttings that were put in before Christmas should, as soon as struck, have enough air to prevent their being at all drawn. With a selection that includes the earliest and latest bloomers, as well as those that come in at the usual season, *Chrysanthemum* flowers may be had from September to the middle of January. In addition to the Japanese varieties, which are greatly liked by those who object to the formality of the show kinds, there are a number of free flowering sorts, of which the dark crimson *Julie Lagravère* and the blush coloured *Hermione* may be named as examples that are much more useful than the largest flowers.

Forced *Roses*.—Where *Roses* have to be forced along with a miscellaneous collection of other plants they cannot be expected to succeed nearly so well as when accommodated by themselves, and where such shifts have to be made there will always be a difficulty in keeping up a continuous supply of flowers through the winter not experienced when they have a house to themselves. The *Rose* under natural conditions requires plenty of air to keep it in health, but when forced the foliage cannot bear the admission of external air to an extent that most other things require without its leaves continually becoming a prey to mould. Where mixed forcing is carried on, and *Roses* form a part, the air given should be confined to admission at the roof ventilators, and only in small quantities, at the same time giving the plants plenty of light. In forcing *Roses*, especially the Tea varieties, the quantity of flowers produced will always be dependent on the strength the plants have in them; consequently from the time of their introduction to heat they should be regularly supplied with manure in some form, giving it either in the shape of liquid or in a solid state applied to the surface to be washed down to the roots in the ordinary process of watering. The Tea varieties are much the most under the influence of such feeding as here described, for so long as there is enough strength in them they at once start into fresh growth after one or two crops of flowers have been produced, which growth will bloom if not too weak. Plants of the Tea kinds that were put in heat in the autumn

and have been at work ever since will now require a rest. Assuming that they are grown in pots, they should be accommodated in a house or pit where they can be kept moderately close and not subjected to cold draughts or frost, for upon their being well treated now in this way depends their yearly gaining strength and ability to give an increased amount of bloom the ensuing winter. They should be kept as free from mildew and insects all through the spring and summer as they have been during the time of forcing. Another lot of plants ought to be put in to take their place, and if strong and in good condition, with fair treatment they will yield a succession of flowers that will keep on until the spring is far advanced. In *Rose* forcing during March and April a good deal of forethought is required in firing. The sun by that time gets powerful, and if the fire is not stopped early in the morning whenever there is a likelihood of bright weather, the temperature runs up so as to necessitate the admission of much more air than the tender foliage will bear; it is better when such occurs to let the heat rise even to 85° or 90° than to let in cold draughts on the plants. The use of thin shading in an emergency of this kind is preferable. Hybrid Perpetuals that have been prepared by a season or more's growth in pots may now be put in heat, and if not hurried will give a much better return than if started earlier. Even plants that were potted up in autumn from the open ground will yield a moderate quantity of flowers; but where no further preparation has been given than this, unless allowed to come on with little, if any, above a greenhouse temperature, the plants will be of little use for pot work, as the bloom they give under their unprepared condition is produced at the expense of the strength that was in them when taken from outdoors. Where *Roses* are wanted all the year round the right course is to get a sufficient quantity of plants strong and well established in pots, when with proper attention they will keep on gaining strength to produce many more and much finer flowers than partially established or non-prepared examples. If any of the plants are affected with worms, a little soot laid on the surface of the pots, where it will be washed down into the soil, will drive them away; their presence in the soil of pot *Roses* has a worse effect than with most things.

Pelargoniums.—Where considerable quantities of cut flowers are regularly required, a sufficient stock of early large-flowering *Pelargoniums* should be grown, selecting such varieties as are cultivated by the market growers which are naturally early and free bloomers, and will bear a good amount of fire heat without running to growth. The flowers of these are mostly of the frilled, or crimped petalled type, and on that account from their less formality are greater favourites for cut purposes than the even-formed florists' varieties. Where well prepared plants are at hand with their pots filled with roots, they will bear a temperature of 50° in the night without becoming drawn, provided they are kept close to the glass in a light house or pit. They may be had now in colour from almost pure white up to dark crimson.

FRUIT.

Pines.—The secret of success in modern Pine culture is rapid growth from the sucker to the fruit; the means to this end is the selection of one strong sucker from each plant after the fruit is cut, or perhaps two where stock is scarce. The best medium for the expeditious rooting of the young plants is the old-fashioned bed of fermenting leaves or tan, which should be well worked and placed in a close, compact pit, and when the heat has settled down to 90°, the suckers may be taken off, trimmed, and potted at once into pots ranging from 5 in. to 8 in. in diameter. From the middle of February to the middle of March is a good time to start with the first batch, and if the compost is rough, warm, and dry, there will be little danger of potting them too firm. Plunge at once into the bed with their leaves well up to the

glass, give them plenty of room, and defer watering until they begin to make roots into the new soil. Let the temperature of the pit range from 55° to 60° at night, with a rise of 10° by day, and damp the walls with a fine syringe after closing on bright afternoons. The stock of winter fruiters having by this time been greatly reduced, those left may be plunged into a sweet, fresh bottom-heat in a smaller compartment, or well-heated pit to finish off. The house they have hitherto occupied will then require a thorough cleansing and scalding preparatory to getting in fresh plunging material for the second batch of summer fruiters; meantime keep the plants steady and on the dry side in a bottom-heat of about 70°. Keep the air about fruiting plants generally moist and range the temperature from 70° at night to 85° or 90° after closing, with solar heat. Plants now throwing up fruit must be closely watched, and if, as is sometimes the case, the bed shows signs of a rapid decline from exhaustion of moisture, water between the pots with tepid water, and turn on more fire-heat to prevent it from descending much below 90°. This, with the aid of generous liquid in the pans and an abundance of solar heat, will help the fruit well out of the hearts of the plants without having recourse to continuous hard firing at a critical period when our uncertain climate does not always favour steady ventilation, and a liberal use of the syringe to counteract its drying influence.

Vines.—Remove all surplus bunches from the early Vines before they come into flower, leaving the most compact and best placed for the crop, and fertilise with Hamburgh pollen when they are dry and the temperature of the house has reached the maximum. All the Muscat-flavoured varieties, with the exception of Madresfield Court, require a little more heat than Hamburghs to set them properly, and on this account they should be grown at the warmest end of the house. But the mixed system is a bad one, and the sooner the large houses in private places give way to compartments for the different kinds of Grapes, the better will our culture be. The thinning of Grapes is a very important operation, and requires great care both in the manipulation and selection of the berries intended to make up the perfect bunch. If insufficiently thinned the berries become wedged and distorted, and seldom keep well even in summer, while, on the other hand, too much thinning results in a large-berried, straggling bunch, which never travels well, and spreads all over the dish as soon as it is cut from the Vine. To avoid these two extremes, so well illustrated in one of the classes at Manchester, a thorough acquaintance with the capabilities of the Vine is the first essential, the rest is a matter of mechanical skill; but in all cases the early and complete thinning of free-setting kinds as soon as they are out of flower should never be neglected. With increasing length of days and a continuance of mild weather, good progress may be made by shutting in plenty of sun heat, but 60° to 65° for Hamburghs, and 65° to 70° for Muscats through the night will be quite sufficient.

Succession houses containing such kinds as Black Morocco, Mrs. Pince, Gros Colmar, and some of the best white varieties, exclusive of Muscats, should be helped forward with fire heat and fermenting material to insure an early break and a long-growing season. If Hamburghs are not grown with them for fertilising purposes, see that a stock of pollen is collected from the early house when in flower. The much neglected Black Morocco, one of our best January Grapes, when left to itself is an invariable failure, but careful fertilisation with Hamburgh pollen for several days in succession secures to us a set equal to the most prolific Hamburgh. Provision should also be made for fertilising the Muscats when in flower, not with their own, but with foreign pollen, which may be kept for several weeks in a dry, warm place after it is collected. An important adjunct in the setting of all shy kinds of Grapes is the maintenance of fresh, active roots in a warm, well-drained internal border, and where these conditions do not exist the vigorous

application of steel forks, new drainage, and fresh compost will be found the best remedy.

Late houses.—The worst managed Vines in many gardens are the late ones. They are expected to accommodate themselves to a house full of bedding plants through the early spring, to break into growth, and set with a minimum of fire heat, to ripen their fruit and wood by September, and support a full crop until Christmas, the usual time for bottling. Another drawback is the inconvenient season for renovating the borders, but this should not stand in the way, as first-rate old Grapes which will keep up to the advent of new ones cannot be expected where the roots are not in the highest condition. Internal borders may be renovated at any time after the Grapes are ripe; the month of February is perhaps the best for lifting and relaying the roots outside, and quality, being of more importance than quantity, the borders should be elevated on good drainage, with a run of 6 feet to 9 feet inside and out. Good sods of turf built up as the border is made make the best retaining walls, as they are dry, warm, and elastic. Rich turfy loam, burnt earth, and about 12 per cent. of crushed bones make an excellent root-producing compost, and frequent mulching with rotten manure will keep them in full activity near the surface.

Melons.—Former directions having been followed, the first batch of plants will now be taking to the compost, in which they have to grow until they have matured a crop of fruit. If in 16-inch pots keep the fermenting leaves in which they are plunged frequently turned and renovated with a little short horse manure to prevent the bottom heat from falling below 85°. Place a stout stick to each plant, and train up to the trellis as growth proceeds. When this stage has been reached remove all side shoots at the first bud from the main stem, and carefully preserve the leaves for the twofold purpose of increasing the vigour of the plants, and the prevention of canker when the time arrives for shutting up with strong heat and an abundance of moisture. To secure an early set of fruit free kinds may be stopped when they have extended from 3 feet to 4 feet over the trellis; they will then throw out a great number of side shoots, bearing female blossoms, which must be fertilised, thinned out, and pinched when a pair of equal size have been decided upon. Although Melons are gross feeders when swelling off a crop of fruit, they require careful watering through the early stages of growth, particularly where the pots are plunged up to the rims in moist leaves, and unless the compost is very poor they never require feeding until after the fruit begins to swell. To keep up a steady supply of fruit a few seeds should be sown singly in small 3-inch pots every fortnight, and all surplus plants should be destroyed before they become pot-bound and infested with red spider.

Cherries.—As a precautionary measure in the management of these and Plums the fumigation of the trees just before the blossoms begin to expand should never be neglected. Some growers syringe with a strong decoction of Quassia, but Tobacco smoke permeates every cranny and makes short work where the liquid might fail. If inside borders were well watered and mulched at the time of starting the roots should be in good growing condition, but with success in all matters of artificial culture depending upon attention to minor details, this important point must not be overlooked. Pay particular attention to ventilation, as Cherries, like all other kinds of stone fruit, cannot be expected to set in a close, humid atmosphere. Syringe regularly until the flowers begin to unfold; give a little air at 50°; gradually increase it through the fore part of the day until a free circulation is secured; close again at the same figure, and allow the temperature to recede to 40° when fire-heat is needed, and 45° with a chink of air when the weather is mild. When the flowers are fully expanded and a sharp shake sets the pollen free, fertilise with a camel's-hair brush about noon on fine days. Discontinue syringing, but damp the floors frequently when there is a circulation of air strong enough to pre-

vent condensation of moisture on the glass and petals of the flowers.

KITCHEN GARDEN.

WE have just sown our first spring seeds, including Dean's Snowball Cauliflower, Carter's crimson Incomparable Celery, Paris Cos and Hick's selected Lettuce, and a few Onions, to be pulled green for salads. The best Rhubarb which we get through the year is that grown in early spring by merely laying a little long litter on the crowns. The same may also be said of Seakale, but this should be covered with burnt refuse to exclude light, finishing off with a few half-rotten leaves. This is ready to cut in the end of March, and is truly delicious. Early Radishes we grow in boxes, 6 in. deep. They are placed in gentle heat until well up, when they are thinned out and transferred to cold houses close to the glass. Tarragon, Mint, and small salading we grow in the same manner. Early Potatoes in boxes should now be earthed up to the level of the box, giving no more water than is absolutely necessary. We know nothing so impatient of water as early forced Potatoes. As a matter of fact our early frame Potatoes only receive one watering during the time they are growing, and that is before they are earthed up. By watering at that time and earthing up immediately afterwards the soil about the roots keeps sufficient moisture for their wants. We planted our first house of Tomatoes February 12. The young plants grow much stronger when planted out than in pots; keep the house humid and warm, say from 55° to 60° at night, with a proportionate rise in the daytime, admitting air on all favourable occasions. The general work just now is to keep well ahead with digging. Every vacant inch should be turned up, so that the soil may get well pulverised by frost. All kinds of spring Broccoli will this year be a great success in more ways than one; it will give us an opportunity of selecting for succession the best varieties; here Snow's Broccoli heads the list for early work. We have been cutting a full supply of it since November. It is now (Feb. 12) finished. A variety called Hoskin's Broccoli is likely to prove a capital kind, coming in after Snow's; the heads are not large, but white and solid. Lymington will be the next, followed very closely by Watt's variety. These two last for some time, and are followed by Cattell's Eclipse and Burghley Champion, giving a succession until the second week in June.

Cottagers' shows.—In a valuable article on cottage garden associations, bearing the name of Mr. William Paul, and published in THE GARDEN of December 9, I particularly noticed the following paragraph: "Cottagers' shows of vegetables, &c., are very useful in stimulating the cottagers to exertion, but they should be so managed that no one exhibitor can take all the leading prizes." I have been secretary to a cottagers' society for some time, and in my experience I am bound to say that this very thing does take place in a more or less degree. I have also noticed the same sort of thing in reading reports of annual shows, both horticultural and agricultural, year after year, finding the principal prizes divided amongst four or five exhibitors. How to bring about an alteration so that the prizes could be a little more evenly divided, I am unable to say, but, seeing the fact mentioned, I am induced to ask if there is any remedy. I have known societies disqualify an exhibitor (first prize winner) for two or three years; others have limited the amount of prizes, and the consequence has been that a cottager so situated loses all interest—well, not altogether in the cultivation of his plot—but certainly in the welfare of the society. May I also ask the opinion of the readers of THE GARDEN as to what class labourers should be placed in who have sons living at home (or jointly in the same cottage), and whose daily occupation is in private gardens as labourers, the father being the occupier of the cottage for all intents and purposes, as far as the landlord is concerned.—D. G.

AMERICAN NOTES.

Thawing pumps.—It is not often that the water in pump tubes is frozen on cold nights if care is taken to let the water run down on the approach of evening by raising the handle. Pumps out-of-doors, or those not frequently used, may be secured from freezing by means of a small opening a few feet below the surface of the ground, allowing all the water to run out from the upper portion in the course of a few minutes. This small opening does not interfere with the ordinary use of the pump. But when the water in the pump becomes frozen solid, it is difficult to remove the ice unless right means are adopted. If hot water is poured in it only remains at the top, and scarcely thaws half an inch down. A contrivance which shall drive the current of hot water directly against the ice will melt it rapidly. For this purpose procure a small tube, which may be of lead (or even the hollow stem of a reed), place a small funnel in the upper end, and let the lower rest on the ice. Now pour hot water into the funnel, when its weight will carry it directly through the tube on the ice, which will be quickly melted, the weight of the settling tube keeping it all the time in close contact with the ice. A foot in length will be thus melted in a minute or two, while merely pouring in hot water from a pitcher would not effect as much in an hour.

Sheltered avenues.—Every footpath in the rear of the dwelling which is frequently traversed during the day in winter may be easily made more comfortable by flanking on one or both sides with evergreen trees, feathered with branches to the ground. If these trees are tall or rapid growers they may be easily kept of moderate size by cutting or pinching back, while they may be allowed to form a roof overhead even if standing a few feet from the walk. If planted from 3 feet to 6 feet apart they will soon form a good screen against winds and drifts. Health and comfort are sacrificed when feeble persons are compelled to expose themselves daily for want of this cheap and effectual protection.

Warm cellars.—An awkward and too common way to keep cellars free from freezing is to bank earth against the walls outside before the ground freezes in autumn, or to heap up manure instead of earth if not done till later. Both of these have a repulsive appearance, and are attended with a good deal of labour. A better way is to build the underpinning with double walls, with a space of air, with or without tan bark filled in, if the material of which the wall is built will admit it without losing strength. If the wall is not double, frost may be excluded with a few inches of sawdust kept in place by boards. Where neither of these modes can be adopted, an effectual exclusion of frost has been effected by banking against the underpinning with leaves, which are held in their place and kept from blowing away by forming a thin roof for them of evergreen branches laid in an inverted position to throw the rain downward. The leaves are raked from the lawn where shade trees have dropped them; and the evergreens are obtained by shortening in the trees on the ground which are spreading too wide or running up too high.—*Country Gentlemen.*

Absorption of water by roots.—Professor Goodall, in a recent lecture, says: "Aquatic plants absorb water through the surface of all submerged parts. Plants fixed in the soil absorb water through the superficial tissues of the youngest roots, and chiefly through root-hairs. Leaves of such plants absorb no moisture, even when wet by rain. When a plant is torn roughly from the soil, nearly all these root-hairs (which are delicate, elongated cells, thickly clothing a short portion of the youngest roots just behind the root tip) are left behind, and the power of the plant to absorb water is ended. The idea that the tip or spongole absorbs water has been exploded by experiments, as also the idea that when these root-hairs, or the portions of the root which bear them, are torn off, water is absorbed by the wounded part. The whole work (except in the

case of coniferous trees, which have no root-hairs, and absorb water by the newer parts of the root, but never by the tip) of forcing water into the plant, against a pressure of three to five atmospheres, is done by these minute and delicate root-hairs.

A new Water Lily.—Mr. E. Sturtevant has raised a new variety of Lily from *Nymphaea devoniensis*, which, though not a species, Dr. Asa Gray thinks may be called *N. Sturtevanti*, provided a cross (x) is placed before the name in writing it. According to the description the flower is paler than the original. *N. devoniensis* was produced from *N. dentata*, which is a white flowering species, *N. devoniensis* being dark red.—*Gardeners' Monthly.*

Wearing natural flowers.—A St. Louis florist says: Probably more ladies would wear natural flowers if they knew how to fix them without danger of staining the dress by moisture. How can it be done? Easily enough where the spray has a background of Fern or Smilax, neither of which is moist. Roses, Carnations, and the Bouvardia, that spiked flower that looks like Jessamine, never stain. Any or all of these placed on Smilax, for instance, and the ends wrapped in tinfoil, could be worn with safety. If the spray should be at all damp, laying it on white unglazed paper will soon absorb the moisture. With a little care of this kind flowers could be worn on any dress.

Native Potatoes have been discovered in Arizona by Prof. Lemmon. They were found in a cleft of one of the highest peaks north of the Apache pass, under a tangle of prickly bushes and Cacti. Eager to know if the *Solanum* found was bulb-bearing, he carefully uprooted the little tuber, which proved to be an undoubted representative of the true Potato family. According to the researches and reasonings of Humboldt, this was the location to look for the home of the species from which our first Potatoes sprang. In May last Prof. Lemmon again set out in search of more specimens, choosing the Huachuca Mountains as his point for exploration. These mountains have two peaks over 10,000 feet high, with sides furrowed into deep canyons, those of the north-east being filled with trees, among which are Maple and Ash. In July last he discovered the Potato plants he was searching for on the south-west side of the range, hidden among the rich bottom soil of a dell in a high valley. A few plants of the white species were found in full bloom, and farther on blue blossoms were found. The white-flowered specimens formed tubers on shorter subterranean stems than the blue ones. The blue-flowered Potato plants sent off their runners from 18 inches to 2 feet. July 12 they were in full bloom. The blossoms were large and the white-flowered were of a creamy white colour, with greenish midribs to its corolla lobes. The subterranean stems were not longer than those of our common Potato. The blossoms of the blue-flowered are smaller, bright purple, with pale white midribs to the corolla, with fifteen to twenty flowers to a head. They are found at an altitude of about 8000 feet in Tanner's canyon, and some of the plants were 2 feet high. Later in the season they produced Potato balls of unusual size, comparatively speaking. These native species of Potatoes, which may have been and very likely are the original native stock from which all our Potatoes now used have sprung, deserve a fair trial and careful propagation to develop them to the size now attained by our best Potatoes. By the 1st of September the blue-flowered plants formed bluish-coloured Potatoes, oblong, about 1½ inches long by half as wide and a third as thick, with from four to ten unmistakable Potatoes on each plant. The white-flowered plants produced white Potatoes, nearly round, from half an inch to 1 inch in diameter. These Potatoes are unquestionably indigenous. Still another variety was found near the summit of a peak 10,000 feet high, under the shade of Fir, Pine, and Poplar trees, growing in soil kept moist during the greater part of the year by melting snows. Its nodding balls of ripened seeds were surrounded by Golden Rods and brilliant

Asters. Their tubers were tinted with purple, and seed-balls were either solitary or in pairs. Prof. Lemmon brought back with him over three quarts of these small Potatoes, comprising the different varieties, beside some seed-balls. A hermit in these mountains, whom Prof. Lemmon interested in his discovery, has recently written him that in digging up the bed of an old pond he has secured a lot of these Potatoes, perfectly white, as large as hen's eggs, which on being cooked tasted well, and have all the appearance of very fine Potatoes. Various cultivators have manifested the utmost interest in Prof. Lemmon's discovery, and are making careful preparations to cultivate the specimens he has forwarded them.—*Pacific Rural Press.*

NOTES.

The Rush Lily.—One of the most dainty and graceful of all early spring blossoms for contrasting with the Snowdrop is *Sisyrinchium grandiflorum*, rich claret-coloured, or white bells trembling in the wind at the apices of slender rush-like stalks. Before the flowers appear the whole plant is distinctly rush-like, indeed quite unlike most other early blooming bulbous plants.

The Killarney Butterwort.—Of all native bog plants this is one of the prettiest and easiest to grow in pans of peat, surfaced with living Sphagnum moss, kept constantly wet by placing the pan in a saucer full of water. Its botanical name is *Pinguicula grandiflora*, and in Norway it is sometimes used in place of rennet in cheese making. Apart from any economic interest, however, it well merits careful culture, and its mode of hibernating in the shape of little buds or green bulblets is of additional interest. In some localities it has been observed to become very scarce



Bulbils of Butterwort.

betimes, more especially after one or two mild winters, and this, as a friend is good enough to tell me, is due to the birds being fond of the green hibernating bulbils. When winters are severe and protracted the snow covers and protects them, but during mild wintery weather the birds make great havoc amongst them.

Prickly Ivy.—I forget just at this moment whether it is Herodotus or Pliny, who, writing of Smilax, says it is like unto Ivy, but has prickles upon its stems and leaves. Of the kinds most commonly seen *S. aspera* is one of the hardiest and best, and seldom fails to establish itself on a warm, dry border, or near a wall or tree stump. It has thong or quill-like roots, and throws up numerous shoots bearing grey blotched leaves of a dark glossy green tint. Its long, leafy stems cling to each other or to any supports near to them by means of numerous tendrils, and when cut are very useful for entwining into wreaths, or the leafy twigs endure fresh in water for many days, and are especially serviceable for associating with cut flowers because of their endurance, as also for their distinctive beauty.

Rare Pitcher plants.—The English home of the *Nepenthes* at Chelsea is always worthy of a visit, but at this season perhaps more especially so, just as the plants are producing their new crop of urns. *N. sanguinea* (red variety) still remains a beautiful rarity, so also the distinct *N. Veitchii*, but I am inclined to think that the new hybrid *N. Mastersiana* will be, when sent out, one of the best, and, moreover, most easily grown of all the Pitcher plants for some time to come. Its parents are *N. sanguinea* and *N. distillatoria*, and to the rare beauty of the one parent seems to have been added the free growth and robust constitution of the other. The extreme length of time during which its pitchers remain fresh and perfect alike in form and colour is worthy of remark; indeed, I am almost afraid to say how long

this is actually the case, but a specimen now before me has on it fresh urns considerably over a year old.

Hellebores are becoming more popular every day, their gracefulness of form and delicacy of colour during the earliest months of the year becoming more and more apparent. *H. colchicus* is a charming kind, its rich claret bells dangling on stout stalks a foot in height. *H. olympicus* and *H. orientalis* are also very attractive. The pink-flowered Dr. Moore is, when well established, very showy and distinct, as are also *H. atro-rubens* and *H. purpurascens*, with its mouse-coloured flowers. *H. cyclophyllus*, *H. odoratus*, and the evergreen *H. argutifolius* bear apple-green blossoms in dense clusters, which contrast well with those of the white and purple kinds. The great thing with all Hellebores is to plant them well in deep rich soil in sheltered positions and then leave them alone.

Orchis longicalcarata is one of those Algerian Orchids with which M. Durando rewards his patrons, and it well merits the most careful of culture wherever hardy terrestrial Orchids are appreciated. Its leaves are tufted and green, and from the centre of each little group



Orchis longicalcarata.

curves upwards a slender scape bearing from ten to twenty flowers, the sepals, petals, and spur of which are white, lilac, or purple, the lip being of a bright claret-purple tint. The white variety is the prettiest, and it is that shown in the illustration.

No words could well describe the graceful way in which the buds and blossoms are poised and clustered around the stem; there is a sense of animation about them very pleasing to notice, and a subtle fragrance enhances the other charms. Buds and long-tailed flowers alike are suggestive of a shoal of dolphins at play; no other simile seems to give any idea of their airy gracefulness of form, and certainly no epiphytal Orchid could well be more lovely than this Algerian beauty, which blooms thus early in the year.

A good wall shrub.—*Forsythia suspensa* is of all quick growing shrubs one of the best for sunny walls, its warm-tinted twigs and shoots being just now a light, airy mass of dangling yellow bells. A cloud of its gold-flecked branches is peculiarly attractive as seen thrown and tossed up by the wind against a bit of blue sky. The plant grows so freely from cuttings or layers, that one the more wonders why it is so rarely seen at this dull season.

A correspondent of the *Irish Farmers' Gazette*, speaking of the Chilian Pine, *Araucaria imbricata*, says, "The Woodstock *Araucaria* which, next to the Dropmore, is the finest specimen in the kingdom, was in 1881 52 feet in height; diameter of branches, 29 feet; girth of stem at 3 feet up, 7 feet 1 inch. The height of one of the common silver Firs growing in the woods is remarkable in this climate—107 feet high; diameter of branches, 59 feet; girth at 4 feet up, 14 feet 9 inches." These facts speak well as to the climate of Ireland, and more especially as to its being well suited to the growth of Conifers and other forest trees.

Hepaticas and hardy Cyclamens are now lovely in the spring sunshine, single blue and double rose Hepaticas being especially pretty. No hothouse flowers could well be finer in colour or freshness. I saw a lovely bouquet entirely of hardy blossoms the other day made for a lady who especially wished to have one so made, because, as she said, everyone else would be sure to have theirs made up of hothouse rarities. Snowdrops, Violets, Daisy buds and pink Hepatica blossoms, sprays of winter Heath (*Erica carnea*), and snowy white buds of the best Christmas Rose were used with great effect. Some day we must offer prizes for bouquets of hardy flowers at our horticultural exhibitions; it will be a "new departure" and might possibly do much to increase the popularity of hardy flowers and foliage.

Rare Nepenthes. The *Irish Farmers' Gazette* remarks: "That of that latest and most marvellous of the Messrs. Veitch's introductions in the way of Pitcher plants from Kina Balu Mountains, in Borneo, *Nepenthes Rajah*, there is a small specimen at Glasnevin (one of Messrs. Veitch's seedlings) now growing admirably, and giving promise of, at no distant day, showing the remarkable amplitude of its wonderful pitchers. Mr. Moore appears to have hit on the right treatment and right temperature (much cooler than that in which its fellows are grown) for this denizen of the mist zone of Kina Balu." This bears out what Mr. Baines wrote, that so soon as the cultural treatment of the species was adapted to its requirements, there would be no difficulty in securing as large, if not larger, pitchers in our hothouses as those it is known to produce "at home."

Garden catalogues.—Amongst many, two of these just to hand are so distinct and interesting, that all plant lovers should at once get a peep at them if they have not already done so. The one is Mr. W. Thompson's annual list of new and rare seeds; the other is M. Max Leichtlin's list of rare plants, which includes many not elsewhere procurable. Among other rarities in the latter list we especially note *Corbularia citrina*, the large sulphur-coloured Hoop Petticoat *Adonis*, the three rare Snowdrops, also of Torch Lilies, *Tecophylæa cyanocrocus*, a gem some time ago figured in *THE GARDEN*, and good kinds of *Yuccas*

and of *Anemones*. A rare old plant, *Calceolaria Kellyana*, is mentioned, as also the giant umbellifer *Euryangium Sumbul*, and two or three rare *Ferulas*. I wish M. Leichtlin would get up a stock of *Ferula persica*, of which Mr. John Bain had for years an unique specimen in the College Gardens at Dublin. *Narthex asafetida* is another much wanted plant. Botanical gardeners will be delighted to see that *Rheum Ribes*, one of the rarest of all the Rhubarbs, is offered in this list, as also some rare species of wild Roses.

Vanda furva is an old East Indian Orchid now but rarely seen. No doubt it has been banished from many collections because not showy



Vanda furva.

enough for modern taste. Among all cultivated Orchids, however, its colour is unique; but, colour apart, its sweet odour alone ought to secure it a place. Especially is its fragrance perceptible at night when it diffuses a subtle odour of Cowslips. One or two of its glossy brown flowers (behind they are whitish) in a glass of water are a great treat, and endure fresh and sweet a fortnight or even longer. The plant is robust and easily cultivated in any ordinary warm plant house, and is very graceful even when not in blossom.

Of all Pinguiculas, perhaps *P. caudata* (*P. Bakeriana*) is one of the most distinct and peculiar of cultivated kinds. It is quite *Echeveria*-like in habit; in fact, a friend tells me he had some sent to him which arrived in his absence, and his men unpacked and potted them off immediately, and then placed them in the greenhouse, imagining them to be plants of *Echeveria canariensis* in a small state. It grows well in an intermediate temperature on a shelf near the glass. It is said to be easily increased by means of its fleshy leaves inserted as cuttings. If anyone who has succeeded in so increasing the plant should chance to see these notes, I hope they will tell us how best leaf-cuttings may be induced to grow into little plants. Its long spurred, *Masdevallia*-like flowers are so beautiful, that any trouble would be amply repaid by its successful culture. Some day the bog plants and aquatics will become the fashion in our gardens, and then we shall introduce the shrubby *Droseras* from the Cape and the giants of their race from Australia, and the South American Bladderworts, including that lovely *Utricularia Humboldtii* and its allies, of whose beauty all travellers speak highly.

VERONICA.

Boundary fence.—What need is there for "W. J." (p. 72) to bother his head about a fence, unless he needs one for the protection of his own property? If he puts up an iron or wood fence he

may place it on the boundary line; but a hedge must be planted sufficiently far from the boundary to admit of being cut and dressed or otherwise repaired without trespassing upon one's neighbour's land; 3 feet 9 inches is the usual distance in this county (Durham). "W. J.'s" neighbour cannot be compelled to fence in his ground so long as there is nothing objectionable or dangerous on it or about it.—OLD MORTALITY.

FERNS.

THE BEST KINDS.

Asplenium.—This genus, one of the most extensive amongst Ferns, is composed mostly of evergreen species, nearly all of easy culture, and is represented in all parts of the globe by numerous subjects varying from a few inches, as in *A. alternans* or our well-known British *A. Rutamuraria* and *A. Trichomanes*, to several feet in height, as in the equally popular *A. dimorphum* and *A. lucidum*. It is very rich in highly ornamental plants suitable for decoration, and while some are very distinct and really interesting from a botanical as well as from a commercial point of view, the majority of them make grand specimens for exhibition, and those with long, drooping fronds are, on account of their leathery texture, particularly well adapted for growing in hanging baskets. *Aspleniums*, as a rule, are not fastidious in their habits; most of them succeed best in a mixture of fibrous loam, peat, and sand in equal proportions. In potting them great care must be taken that the drainage should be as perfect as possible, as if it is at all defective the plants soon become flabby and begin to show evident symptoms of ill-health. Above all, they dislike being potted hard. Certainly many of them will stand the full rays of the sun under glass, but although I have seen that mode of culture advocated in their favour and have been able to appreciate its results at their full value, I fail to find it beneficial in any way to the plants, which instead of being of a bright shining green colour, as nearly all of them are when enjoying good health, have a yellowish tint, although they are perhaps more hardy than those grown in partial shade. Nearly all the *Aspleniums* are either viviparous, with the upper surface of their fronds studded all over with young plants, or at least proliferous at their apex, producing at the extremity of each of their fronds one or a couple of bulbils, which later on develop into young plants. In either case if there is any desire to increase the stock of any particular proliferous or viviparous species, the parts of the fronds bearing the rudiments of young plants should be fastened down to the soil by means of wooden pegs and kept moderately moist, when they will soon root and make plants partaking of all the characters of the specimens which produced them.

A. alatum.—A very handsome species from Tropical America, producing from a thick, fleshy crown an abundance of fronds of a cheerful, light green colour, which often attain 15 inches to 18 inches in length; they are pinnate, with pinnæ deeply serrated on their upper margin, whereas their inferior part is perfectly smooth; the fronds have their stalks winged the whole length, and are proliferous at their extremity; they arch over gracefully and make the plant very valuable for suspending in baskets. Stove.

A. alternans.—This distinct and interesting dwarf-growing species from the Himalayas at first sight resembles very much our British *Ceterach*, of which it possesses all the outside appearance with the exception, however, of the dense scaly covering of the underside, which is quite a peculiar characteristic of the species above named. The fronds are densely produced from a crown, and reach about 6 inches in length; they are pinnate with pinnæ roundish and of a very pleasing light green colour. Its best place is in the crevices of rocks in the fernery, but it is essential that it should be situated where no drip or constant moisture is likely to be brought in contact with it; there it will be found to do best if planted on stone with a little peat only. Greenhouse.

A. apicidiens.—A very interesting species from the South Sea Islands, and closely related to *A. schizodon*, also from the same habitat, but from which it is readily distinguished by its sori being much shorter and set at a much more obtuse angle with the mid-rib. It is an evergreen Fern, producing from a thick caudex its smooth pinnate, firm, but scarcely leathery fronds growing to about a foot high, with smooth greyish brown stalks. The pinnæ attain 3 inches in length and about 1 inch in width; they are borne on stalks and shortly lobed at the anterior base; their margin is toothed; the teeth near the base shallow, but elongated and more conspicuous near the extremity. It is altogether a most distinct species. Stove.

A. auritum.—This evergreen species from Tropical America and the West Indies produces from a thick decumbent caudex its very graceful fronds 15 inches to 18 inches long and tapering to a point; they are pinnate with the exception of the pinnule at the base, which is divided at the bottom, and is besides strongly auricled. The whole of the plant is of a lively light green, and capable of standing very well in the close atmosphere of a Fern case. Stove.

A. Baptisti.—A species recently introduced from the South Sea Islands, the habitat of so many good Ferns already in cultivation. This is a very distinct-looking Fern, perfectly evergreen, producing from a stout decumbent caudex broadly ovate fronds about 1 foot long, furnished with rather distant pinnæ, each of them provided with a distinct stalk a quarter of an inch or rather more in length. The slender stalks of both pinnæ and pinnules give a very open appearance to the centre of the fronds, which are also thick and leathery in texture. The basal part of the pinnæ is split up into a few distinct narrow-stalked pinnules, bearing on their margins and at distant intervals a few linear-pointed teeth projected forward, which greatly add to the elegance of the plant. Stove.

A. Belangeri.—This handsome and deservedly popular species from Java is also known under the synonym of *A. Veitchianum*, but whichever name might receive the preference, no collection, large or small, should be without it on account of its distinctive characters, its compact and even growth, and the elegance of its general appearance. Its graceful feather-like long fronds are produced in great quantities from an erect and succulent caudex; they grow to about 18 inches or 20 inches long, are bipinnate, the pinnules being narrow and linear, and of a pleasing deep green colour; they are, besides, proliferous on all their length. It is a beautiful evergreen plant, and does not require any special care in its cultivation, but it must be borne in mind that slugs and woodlice, the latter especially have a particular liking for it when within their reach. Stove.

A. bifidum (A. lineatum).—A very pretty evergreen species from the Mauritius, and one of the best adapted for growing in a Fern case, although it will make a very handsome specimen grown either in the fernery, on rockwork, or in a pot. Its fronds, dark green in colour, are produced from a short decumbent rhizome covered all over with dark chaffy scales; they are from 15 inches to 18 inches in height, erect, tripinnate, and lanceolate in form, and the extremity of each pinnule is cleft or bifid. Stove.

A. brachypterum.—This is a very interesting little species from Fernando Po, where it is found at a great elevation. Although of remote introduction, it has not been so widely distributed as it really deserves. Perhaps the fact of its being a native of West Africa has caused it to be kept in a warmer temperature than it requires, and it has been in many instances lost after a short trial. The warmest end of a greenhouse or the coolest end of a stove suits it best. It is a dwarf, bipinnate evergreen Fern, whose finely cut fronds, about a foot long, of a bright green colour, are produced abundantly from an upright short stem; they have also the peculiarity of growing perfectly horizontal, on which account they are very useful for baskets of small dimensions.

A. bulbiferum.—This handsome species from New Zealand, perhaps the best known and most universally grown of all the *Aspleniums*, on account of its robusticity, is of a very rapid growth and easy management. Its handsome, pale green fronds are produced in great numbers from a scaly, fleshy rhizome; they reach from 18 inches to 2 feet in length, are very floriferous, so much so, in fact, that although being naturally of an erect habit, they are made quite pendulous by the great quantity of young plants to be seen upon them at any time of the year. Greenhouse.

PELLÆA.

Bouquet Ferns.—What are the best Ferns to plant under a trellis on each side of a conservatory door for bouquets and for wearing in the hair? The house is heated with hot-water pipes.—C. W. [The following will probably answer your purpose, viz. :—]

<i>Adiantum emulium*</i>	<i>Davallia tenuifolia stricta</i>
<i>cuneatum*</i>	<i>Microlepia strigosa</i>
<i>fulvum*</i>	<i>Nephrolepis exaltata</i>
<i>formosum</i>	<i>pectinata*</i>
<i>gracillimum*</i>	<i>Onychium japonicum</i>
<i>mundulum*</i>	<i>Polystichum flexum</i>
<i>Asplenium bulbiferum</i>	<i>Pteris cretica</i>
<i>dimorphum</i>	<i>c. albo-lineata</i>
<i>laxum pumilum*</i>	<i>longifolia</i>
<i>auritum*</i>	<i>scaberula*</i>
<i>Davallia bullata*</i>	<i>serrulata</i>
<i>canariensis</i>	<i>s. cristata major</i>
<i>dissecta*</i>	<i>straminea</i>
<i>Mariesi*</i>	

Those marked (*) are plants of comparatively dwarf growth. —S.]

KITCHEN GARDEN.

A SCARCITY OF PARSLEY.

How many gardeners are there who can conscientiously assert that they have never been without a sufficiency of Parsley? I should say very few indeed, and I may also safely remark that any who have experienced the worry attending a scarcity of Parsley will not readily render themselves liable to a similar recurrence. Parsley cooks must have, and we must grow it in sufficient quantity to meet the demand, and, further, instead of haphazard culture, it is imperative that we take such pains with it as it both requires and merits.

Small sowings of seeds made in any out-of-the-way spot may result in a sufficient plant to meet the needs of a small establishment, but if this practice is resorted to, even on a larger scale, where a good sized bunch of Parsley is required daily, failure will sooner or later be the result. The breakdown, as a rule, happens during the winter, spring, or early summer months, and unless extraordinary measures are taken to regain lost ground, the chances are that the scarcity will extend over many months. When scarce, every little bit of growth is closely pinched off, and no headway is made. Such a state of affairs existed here when I took charge of the garden. This was in mid-winter, but as I had previously "bought my learning," I knew what was best to be done under the circumstances. My first proceeding was to prepare heating material, consisting of leaves and stable manure in sufficient quantities to form a hotbed about 3 feet high at the back, and large enough to hold two 3-light frames. These were duly placed in position, and in them, when all danger from over-heating was past, was put a depth of 9 inches of good soil. In one frame Parsley seed was sown in drills about 6 inches apart, and into the other as many Parsley roots as I could buy or beg of the cottagers were thickly dibbled. In a short time the latter became established, and by keeping the frame rather close, we were enabled to maintain a fairly good supply till such times as the seedlings in the other frame were available to pick from. These seedlings were only slightly thinned out when they were in rough leaf, but when slightly hardened off, a considerable number, about the middle of April, were pricked out at the base of the warmest garden walls, and many more on a south border. They succeeded admirably both in the frame and transplanted, and since that time we have invariably sown Parsley

in heat, and pricked out a large breadth. Last summer especially we had good reason to congratulate ourselves upon the success attending this practice, as

Seed sown early in the open ground either failed to germinate, or the plants were cleared off by slugs before they could make any progress. Nor were we at all singular in our experience, as Parsley has been, and will be for some time to come, extremely scarce in this neighbourhood. A dripping season seems altogether unfavourable to Parsley, at any rate on heavy soils. It grows slowly, and will not keep after it is fully grown. In such a season it also appears to be more liable to bolt, but, strange to relate, that transplanted from the frame did not behave badly in this respect; in fact was no worse than the earliest sown in the open ground. We are frequently directed to sow Parsley at intervals from February to the end of May. This may be advisable in some cases, but I have never found it really necessary to sow more than twice, viz., once in the frame, the plants from this sowing being pricked out 6 inches asunder in rows 10 inches apart, and to succeed these a good breadth is sown in the open early in May, the plants resulting eventually receiving the same space as those transplanted. Should there be any gaps in the rows these are made good by dibbling in during showery weather plants obtained by thinning out where crowded. We consider Parsley both requires and deserves good open and well manured ground, this, for convenience, being selected near a pathway. Every plant should have room and time to develop, but the thinning out should be done gradually in case of accidents or rather attacks from insect pests. Any plants that run to seed prematurely are closely pinched back and continue to yield serviceable leaves.

W. J. M.

A LASTING HOTBED.

THE following description of a hotbed refers to the plan which we adopt in order to secure a crop of early Cucumbers, and as it has been in use here for many years I have no hesitation in recommending it. I should, however, state at the outset that it is not adapted for gardens where fermenting materials are limited. We use a three-light frame 12 feet long and 6 feet wide and of the ordinary depth. As a foundation for this frame a pit is dug out 2 feet deep and 2 feet larger in every way than the frame. A drain is connected with the pit to carry away any water that may accumulate there, for it is indispensable that the materials forming the bottom of the hotbed should be kept free from any excess of moisture. Brick piers are provided in the pit to support the frame; for a three-light frame four piers back and front are necessary; the piers are 1 foot square and about 6 inches higher than the surrounding level. A piece of plank projecting 6 inches inside the frame and of the same length as the frame is then placed on each line of piers. On these planks the frame rests, and when put in position there it remains; there is no sinking, nor is it placed, like the ordinary hotbed, high up in the air where the wind has so much power as to considerably reduce the inside temperature when most wanted. When once such a pit is formed and the piers built it will last for many years without requiring any attention; at least, so we find it in actual practice, and as I have had to grow early Cucumbers under all sorts of conditions in pits and in frames, I must say that by this plan not only are earlier crops secured, but the work is accomplished with less trouble and greater certainty.

Preparing the fermenting materials.

--We use fresh manure from the stables, prepared in the ordinary way by placing it in a heap and turning it over once a week until it gets thoroughly heated, when it is fit for use. Before the frame is put on the pit is filled up to the top of the piers with the hot manure; the planks are then placed on the piers, as has already been stated, and the frame is put in its place. To support the soil in which the plants are grown, boards must be provided to fit the inside of the frame; these rest

on the projecting sides of the planks. Our boards are 7 inches wide and 2 inches thick, and we find that good Larch boards will last for a period of ten or twelve years. Thus it will be seen that after the fermenting materials sink away from under the boards, which they do long before the season is over, the bed of soil remains intact, and suffers nothing because of the outside linings, which are above the level of the surrounding ground. The construction of the bed may now be said to be complete, and all that is wanted is to keep up a regular temperature inside.

Linings.—Supposing operations for the production of early Cucumbers or Melons are commenced at the beginning of the new year, the heat supplied by the manure in the pit will suffice with just a thin lining outside to keep up the temperature for three or four weeks, but as soon as the heat declines in the frame the linings must be attended to, the thickness applied depending upon the heat required. We make our linings 4 feet wide all round the frame; we do not like thin linings through which every puff of wind can blow. The manure for the linings does not require much preparation. If very long and dry, as brought from the stables, we place it in a heap and turn it over once. We never turn the old linings, but simply add to them as the heat in the frame declines, and by commencing early in January, and by putting out small plants raised from seeds sown and placed in the stove a month before that time, we have in favourable years been able to cut Cucumbers as early as the 8th of March. It is, however, only right to say that we have wooden covers to place on the linings; they are 4 feet wide and made of feather-edged boards nailed to cross-pieces, and there is not a doubt that these covers confine the heat and compel it to enter the frame. However, we experience but very little difficulty in keeping up the temperature to 70°, and far less steam is generated in a bed of this description than in a common hotbed. I should hardly like to say how many thousand cuttings are struck in our frames during the first three months of the year, but this I may say, that we find it superior to the propagating pit for succulent cuttings. We find it necessary sometimes during a spell of cold weather in May, when the linings have reached the top of the frame, to remove a portion of the old lining altogether and substitute some well-prepared hot manure. This soon revives the heat, and the bed will then go on through the season without any further attention, i.e., if confined to the growth of Cucumbers.

The depth of soil placed in the frame is about the same as would be placed on a hotbed made in the ordinary way; but as the soil is supported by the boards, it is not difficult to understand that whatever may be planted out in the bed will require more water to keep it in a satisfactory condition as regards moisture than when the soil rests on the fermenting material, as is the case in a common hotbed. At first sight the details just given may appear prohibitive, but, speaking from a lengthened experience of the management of hotbeds generally, I can freely assert that the plan here given will, if carefully worked out over a series of years, bear favourable comparison with any other with which I am acquainted.

J. C. C.

Magnum Bonums and Champions.

I grew several acres of these Potatoes side by side last year, and have had considerable experience of them for several years, and shall ask permission of your versatile correspondent, "Peregrine," to differ with him, especially as to the keeping properties of the Champion variety. He says, "they are really coming in season after this date (p. 147)." This is correct as regards the Magnum Bonum, but from this forward, especially after March, the Champion—the flesh of it when cooked—has a number of black patches like as if bruised, rendering it almost worthless for table use. For ordinary purposes up to that time it is decidedly the best general crop Potato, but I differ from "Peregrine" in saying it "affords good food until new Potatoes are plentiful." I wish for the sake of my countrymen this were true.—W. J. M., *Clonmel*.

FLOWER GARDEN.

PLANTAIN LILIES.

(FUNKIAS.)

Few hardy perennials are more ornamental and showy than Plantain Lilies, as not only have most of them very beautiful foliage, but they bear a profusion of Lily-like flowers, the spikes of which are exceedingly useful for cutting, as they look well and last long in water. Besides being so fine and effective for borders, many of them make capital pot plants, the best for which purpose are the variegated-leaved sorts, such as *F. ovata aurea variegata*, *F. ovata glaucescens variegata*, *F. ovata undulata aurea*, *F. ovata maculata*, *F. ovata argentea*, and *F. o. elegans*. Any of these, taken up and forced make a splendid show in a greenhouse, as does also *F. Sieboldiana*, which has magnificent leaves that are very striking on account of their colour, which is of a bluish metallic green, with a glaucous hue pervading the surface. Planted out in deep, moist, rich soil in a shady position, this peculiar hue is intensified, and plants of this Funkia form noble objects in the hardy fernery, or near the margins of ponds, in either of which positions they look quite at home by associating well with the various surroundings. The best for growing for the sake of their flowers are *F. subcordata grandiflora*, which blooms in the autumn, *spatulata speciosa*, *Fortunei*, and the different varieties of *ovata*, the latter being very free and affording plenty to cut. The time to propagate and plant Funkias is from now to a month or so onwards, as they are just beginning to grow, and may with safety be taken up and divided to almost any extent. The way to effect the division is to either dig up the plants to be operated on and pull them apart or by the use of a sharp trowel or spade cut clean through the crowns where they stand, securing to each portion a prominent eye with plenty of root. The plants so obtained may then be distributed about in the borders according to their strength, or planted out in rich soil somewhere to grow on for lifting and cultivating in pots. When required for this purpose they should be potted in the autumn or winter and stood in cold frames to come gradually on and fit them for forcing, which needs to be done slowly if the foliage is expected to be of good texture. To get the variegation fine the plants must have plenty of light, which may be afforded by keeping them well up to the glass, and it may be necessary also to keep them freely supplied with water and liquid manure.

S. D.

SHOW AURICULAS—ALPINES.

IN Mr. Horner's interesting notes (p. 163) he omits to say that the unshaded form of the alpine Auricula has a very different "status" at the exhibitions of the southern section of the National Auricula Society from what it has in the north, and consequently our northern florists, who show only the shaded form, very seldom win first-class honours when they come against Mr. Turner and Mr. Douglas, who exhibit both shaded and unshaded. It was to assimilate more nearly the northern practice with that of the southern that I proposed the admission of the unshaded alpine at our northern show. I see no reason why self-alpines should not be produced as successfully as are the selfs of the ordinary show Auricula. It is pointed out by Mr. Douglas, in his "Florist's Flowers" (p. 21) that the alpine Auricula has not been so long nor so patiently cultivated as the other sections, and that it is only within the last ten or fifteen years that the best varieties have been produced. Are we to stand still and say that alpine show Auriculas must for ever be shaded? Rather say, if good selfs are produced, we welcome them also, and will allow them to compete for the prize. For my own part, I value the alpine Auricula even more highly than the other variety, because it is more hardy, and is useful in the open garden ground, without all the care and protection which its greater rival requires. At recent shows several entirely new forms of the shaded alpine have been placed on line, and have won prizes against

the older sorts. They are much taller in the flower-stalk, larger in the flower, and shaded almost to a fault, suggesting the term laced Auricula in describing them. It is believed that this class has been raised from German seed, and there are numbers of them to be picked out of the market florists' seedling beds at Sale and other places near Manchester almost good enough for the exhibition table. These boldly shaded and laced alpinas are very useful for gardening purposes.

M. Gusmus, of Villach, has sent me a long and very interesting letter upon Primula hybrids, written from the purely botanical point of view, and with reference to my remarks in THE GARDEN of February 3 (p. 116). He consequently takes a very disparaging view of our pet Auriculas: "They are not Auriculas at all, but are bastards of the Auricula through crossing with *hirsuta*, *villosa*, &c., for one always finds them in the wild state as bastards, unless they are yellow in the flowers." But there are florists as well as botanists and it is amongst the former that we class ourselves. I hope to have some of these original parents of the Auricula in flower this spring, and it will be an interesting subject for enquiry. There can be no doubt, in my opinion, that the alpine Auricula has a different Primula parentage from that of the show Auricula proper, and it is possible enough to perfect it so as to raise new varieties, as has been done with the other. If these prove not only beautiful, but perfectly hardy also, they will be of great value.

WM. BROCKBANK.
Brockhurst, Didsbury.

ENOTHERA EXIMIA.

I AM rather doubtful whether the true *E. eximia* is in existence. In 1873 the late Mr. Niven, of Hull, received a plant bearing this name, but he told me it was not true. It was planted in a bed of peaty soil, such as he grew his best Japan Lilies in, and it grew rapidly and flowered well. Its rambling tendency was quite as dangerous as that of another equally beautiful species, viz., *E. speciosa*. Whether the true species is tender or not, Mr. Niven must have known this was, as anticipating severe weather he covered it with peat siftings, principally composed of dead Bracken roots. I remember seeing it grow and thrive well for three successive summers, always appearing, like Coltsfoot, in the most unexpected spots.

A plant of *E. eximia* came to Mr. Whitehead's garden at Southwood Bickley, in the spring of 1878, from Mr. Parker's, Tooting, which proved to be precisely the same kind as that which Mr. Niven had. I have not seen Mr. Parker's catalogue for two or three years, and so cannot say whether he still offers it or not. At Southwood it was planted in the lower parts of the rock garden slope, near the level ground, with a view to wintering it in the same way as at Hull. It grew rampantly during the wet season of 1878, and flowered tolerably well, but its tendency, probably through excessive moisture, was to climb the slope and get into drier, stony soil. In the following autumn I protected it with a mixture of peat and river sand, but the winter being very severe nothing was left of it in the spring of 1879 except pieces which had got into drier soil, and these were so weak that they succumbed to the dry east winds and hot weather which followed in June; since then I have never seen it.

E. eximia (?) flowered in the way of *E. taraxacifolia*, but had entire leaves, and it had not the large cross-angled seed-carpels of the latter, and it rambled underground, like the Coltsfoot, not above. *E. taraxacifolia*, moreover, is little better than an annual, sowing itself freely in some localities. Perhaps Mr. Eyles can give us some description of the variety he had, and where obtained.

T. H. D.

New yellow Feverfew.—Looking over the lists of novelties for this year as they come to hand, I have been much struck with this, and would, with your permission, ask further about it. If it can be compared with the hardy perennial double white, and is as useful for garden decora-

tion, but especially for cutting purposes, to my mind it is the best hardy flower introduced for some time. The double white bloomed last year with me continuously, producing perfectly double flowers for eight months out of the twelve, while even now the foliage is handsome. A dwarf yellow with such characteristics would be an acquisition, especially for cutting.—W. J. M., *Clonmel.*

NIEREMBERGIA RIVULARIS.

THIS is a charming plant, beautiful in all its phases, but particularly so when its cushions of green foliage are studded with open, cup-like

so high amid the dwarf surrounding herbage as to be discerned from a distance. Hence one would infer that it is a moisture-loving subject, which undoubtedly it is, but, strange to say, we have seen it do well in a dry sandy border, such, for instance, as in the herbaceous ground at Kew. The healthiest tufts we have seen were on the margin of a running stream in full exposure, but where the soil was perpetually moist, but not submerged in winter. The soil was a stiff loamy clay. Though such conditions as these cannot always be obtained in a garden, any approximation thereto is better than



Nierembergia rivularis.

flowers nearly 2 inches across. The colour of the blossoms is a creamy white, sometimes faintly tinged with rose, while the centres are invariably of a golden yellow. It flowers during the summer and autumn months, often without intermission, when the plants are perfectly flourishing. It is a trailing plant and forms a dense carpet of foliage in a short time, and when once the roots have got a firm foot-hold it is a difficult matter to eradicate them, for small pieces will vegetate. The majority of cultivators of hardy plant collections have had some experience of it as regards culture. In some gardens it thrives with little or no attention, while on the other hand some try their utmost to coax it to flourish without avail. It abounds naturally by the banks of the River Platte, but only within high tide mark, its flowers rising

placing the plant in an ordinary border to take its chance with the ordinary hardy perennial. Two conditions are necessary—plenty of moisture at the roots and full exposure. It may be easily propagated by division; in spring each portion will root readily in a short time. This little gem was introduced about sixteen years ago by Messrs. Veitch, in whose catalogue of new plants for 1867 it was first announced, with the annexed illustration.

Viola Mrs. Gray.—To those having much summer bedding to do, and who are anxious to economise the labour of getting up sufficient stock, as well as to save space in pits and houses for more valuable plants, I would strongly recommend this Viola. It is a long way the best of all white-flowered, dwarf-growing bedding plants that

have come under my observation. It is dense and spreading in growth and more floriferous than any *Viola* with which I am acquainted, except it be the old cornuta, and it is equally telling in masses or marginal lines, and when mixed alternately with plants of *Ageratum Cupid*—delicate lilac in colour—no more pleasing bit of colouring could possibly be imagined. It flowers, too, continuously from the time when it is planted to the end of November.—W. W. H.

SNOWDROPS IN SOMERSET.

THOUGH common Snowdrops are indigenous, there are, I believe, no counties in which they grow in such quantities as in Somerset and Wilts. Here they are to be seen, at least where protected, as plentiful as Primroses will be shortly, and are certainly more valuable than these in every respect. At the present time immense quantities are being collected and sent to the markets, Covent Garden salesmen receiving by far the greatest quantity. According to our experience the single forms, though much the prettier, are either gradually becoming double or are dying out. In the grounds here we commenced picking Snowdrops on January 14 from plants growing in sheltered spots. About a week later there were abundance in the woods and shrubberies, while yet a week later our lawns and the orchards of other people were literally clothed in white. They appear to spread more rapidly in and near the hedgerows, and all the bulbs are at a great depth below the surface. I find that the strongest bunches are at least 6 inches deep, and, in addition to piercing through this depth, the growth and flowers are unaffected by thick spits of turf that had been disposed over a quantity of them. Our soil is a strong clayey loam with a clay sub-soil, and this also prevails in the neighbourhood. From these facts it will be seen that the Snowdrop succeeds best on heavy soils, and should not be planted near the surface. In our case they do not interfere in any way with the mowing, the foliage, or rather bulbs, ripening early; and nowhere are they so effective as on turf.

For decorative purposes the blooms are invaluable. For instance, we employ several hundred bunches during the season for dinner-table decoration, and, owing to their unusual earliness, they have been available for the country house as well as the town house. We seldom use more than two colours at a time on the dinner table, or when filling vases, and I am of opinion that white flowers alone with Ferns are the most pleasing. We recently employed Snowdrops, Maiden-hair Fern, and Moss on one night, using the same materials with Marie Louise and Czar Violets on another; while on the third night, highly-coloured leaves of *Berberis Aquifolium*, with a spray of *Jasminum nudiflorum* laid on each, are substituted for the Violets. Nearly the whole are disposed on the cloth, as nothing either tall or heavy is admitted. The Moss is first laid round the candlesticks, either in a plain circle or in the form of a geometrical figure, and on this are placed small bunches of Snowdrops, or these in mixture with bunches of Violets, the Fern fronds being freely disposed among them. Sometimes the designs are wholly filled with Snowdrops and other flowers, or, if these are not available in sufficient quantities, miniature Ferns or fine foliaged plants are substituted. In addition to this, the table is also festooned with Moss, Ferns, and Snowdrops, so as not to interfere with the space required for those who are to dine. Sometimes a perfectly straight band of Snowdrops (in bunches) is taken round the table, just outside the dessert dishes. We also fill small glass bowls with Snowdrops, a frond of *Adiantum gracillimum* being disposed slightly above the blooms. These bowls are arranged in the outer line, the scrolls running up to or surrounding them.

Lent falling early this year, dinner parties will be few while Snowdrops are to be had, and it is more especially for wreaths and crosses that they will be found serviceable. It falls to our lot to have some of each to make or fill every week, and

Snowdrops are largely employed for the purpose. For both we usually bunch them, putting about twelve blooms in a bunch. When making a wreath, the groundwork consists of sprays of *Cupressus Lawsoniana*, the outer and inner rings are composed of Snowdrops, some other white flower is taken through the centre, and fronds of Maiden-hair Fern and points of *Panicum variegatum* are intermingled. A serviceable wreath consists of Snowdrops and Christmas Roses, while Snowdrops, and either white Azaleas, Deutzias, or double white Primula, though less durable, are extremely beautiful. A wreath should be full, yet light and elegant, and, to succeed to perfection, each flower or each bunch should be bound on separately. To attempt to bind on whole handfuls at a time will produce a bad result. Crosses, unless in the form of zinc troughs filled with sand or water, are made somewhat similar to the wreaths. The prettiest, yet most durable, arrangement I have attempted consisted of Snowdrops and Christmas Roses, while on the cross was hung a neat wreath formed of the foliage and blooms of Marie Louise Violet. W. I. M.

BEDDING CALCEOLARIAS.

FEW have been more tried than I have been to get Calceolarias to succeed in a satisfactory manner when bedded out in the flower garden in summer. In hot, dry weather such as that which we experienced in the summer of 1870, the plants died off after being planted in a very mysterious manner. Strong, healthy plants, apparently thriving and full of vigour in the morning, would look in the evening as if a blast of scorching wind had passed over the beds and singled out here and there a plant on which to expend its fury. Under such circumstances the only consolation I had was to know that I did not suffer alone, for in gardens widely apart the same thing occurred. I do not, moreover, remember that the reason for their so suddenly dying was ever clearly explained, and I make no attempt to do so. I am glad to say that during these last five years I have been more successful, and as I have altered my way of preparing the plants, that may have something to do with it, as may have also the comparatively cool, damp summers that we have lately had.

Cuttings are put in under handlights and in cold frames in October, and are protected during winter from severe frost. Early in March we prepare a position under the north side of a high wall. We make the ground fairly rich, and are careful to break it up well with a fork, and as our land is heavy we place on the surface 2 inches of sifted material from the potting bench, a mixture which contains all kinds of soil, and in many cases a good deal of sand. It is really a valuable mixture for such a tender-rooting plant as the Calceolaria, which evidently likes it, for our plants commence to make new growth in it soon after they are planted. We plant out about 9 inches apart every way—a distance which gives room for the plants to branch out from the main stem and become bushy. I should have said, however, before that we make a point of taking off the top of every plant a fortnight before they are taken out of the cutting frames, so that by the time they are planted out on the north border side shoots are already bursting out at the axils of the leaves, and if we get a very mild growing time through the month of March we generally top them once more about the middle of April. In order to protect the plants while undergoing preparation before being bedded out we construct a temporary framework and cover it with mats when there is any appearance of frost. This night protection is continued up to about the third week in April, after which no further shelter is needed; but it must be understood that we are in the west of England. Early planting has been frequently recommended as the best means of preventing Calceolarias from dying off; but I doubt its efficiency, and in but few places is it practicable, for spring gardening has become so general that it is quite the end of May and sometimes later before the flower beds are ready to receive their summer occupants. Of this I feel certain

that it is unwise to plant out Calceolarias in very bright weather, the roots being liable to get scalded by the hot dry earth. It will always pay to wait for a dull day on which to plant, a remark which refers more especially to plants prepared as I have advised, by growing them in a north aspect. It is on this particular point that I base my present success. J. C. C.

The blue *Hepatica* here in the cold north-east of England, despite the saline blasts from the German Ocean, is now covered with hundreds of flowers, and near at hand the white kind (*H. triloba alba*) shows a number of its delicate blooms—truly a pretty sight. On a sheltered part of the rockwork, *Saxifraga Burseriana* is also in full bloom. Plants of this putted in autumn and wintered in a frame come into flower at this time, and prove useful companions for Hyacinths, Tulips, and similar spring flowering bulbs.—P. M. M., Hull.

The winter *Heliotrope* (*Petasites fragrans*) is a very desirable plant to grow in quantity in the wild garden where there is not much grass. It is flowering freely with us this mild wet season, and we find it useful for cutting from. Although hardy, it is not a native of this country. Therefore in sharp frosty weather during its flowering period its blossoms rarely escape destruction, except in very sheltered situations indeed. I have seen it do well behind a north wall on a sort of rockery border.—J. G. N., Stamford.

Narcissus viridiflorus (p. 164).—Mr. A. Kingsmill, of Eastcott Cottage, Pinner, is the only one whom I now remember to have collected bulbs of the above in modern times. It is generally considered a true species, but there is (or was) a variety of *N. Jonquilla* at Kew singularly like it, except that it flowers in May instead of October. I once passed the neutral ground where it grows between Gibraltar and Algeiras, but, alas, our boat did not coal there. M. Durando, however, may have bulbs of it to offer.—F. W. B.

Aponogeton distachyon dying off—I can fully confirm what your correspondents say as to the destruction of this plant. But are they sure there is not something else besides either rats or mice at work? In the case of a plant here I feel certain the injury was not done by either of these troublesome little animals. The tank in which our plant was growing is a concrete one, oval in shape, with upright sides, and the water never reaches nearer the ground line than 18 inches, and as this tank is close to one of the most frequented walks in the garden, I think it impossible for either rats or mice to get in and out of it without being seen. The plant disappeared much like that described by "R." (p. 116), viz., the leaves first and then the flowers, but in the case of our plant the root was left. It, however, rotted through being constantly denuded of its leaves. All I ever saw to account for the evil were numerous round-headed little fish, which I am rather inclined to think destroyed the plant, and I think it probable that there might have been something of the kind connected with the destruction of "R.'s" plant also.—H. CARTER, Downhill, Coleraine, Ireland.

Garden Anemones.—The assumption of Mr. Dobbie that my Anemones, which have done so admirably and bloomed so freely all the winter in strong soil, are set on a warm, south border is erroneous, and is characteristic of the opinions which seem to prevail that Anemones are but fair-weather plants, and will only thrive in specially prepared light soils and under specially favourable conditions. It is that error which I am anxious to combat, and, indeed, it is my own experience that plants growing in light soil and in much the warmest position are not nearly so forward as those where the soil has for weeks past been little better than soaked clay. *Anemone fulgens*, usually so early to bloom, has not yet, on a warm south border, opened a single flower, whilst last winter the same roots bloomed continuously from November. During the previous summer we had some real ripening heat, hence the roots were well matured and vigorous. Last summer proved cool,

the autumn being specially so, hence the lack of vigour in the roots this spring. My coronaria Anemones were well baked for a week or two in the summer and got well ripened, then when the early autumn rains came they started into growth and were full of strong leafage in November, and bloom followed in great abundance. Mr. Dobbie holds that the tubers need ample ripening. I think in that point lies one of the great secrets of successful culture. Although the soil here is so wet and stiff in the winter, yet being exposed to the full action of the sun it burns or bakes quickly in the summer, and thus the Anemones get the full benefit of the sun's ripening powers. The production of new or enlarged tubers is going on now, and of course the earlier the better. Then the more thoroughly the soil is baked in the summer the better for the tubers, and the earlier they push growth in the autumn. I am disposed to think the tubers are much better preserved in the soil than if taken out and put into bags elsewhere to dry off.—A. D.

Lobelia cardinalis fulgens.—This is such an extremely pretty and useful plant for the flower garden, when under liberal treatment, that it is quite invaluable, especially for a mixed style of gardening, where, in addition to bedding plants, biennials and perennials are largely employed. From the latter part of July until far into autumn no plant can surpass it in brilliancy; its handsome foliage also is always strikingly effective. We winter our plants in a cold pit, where they remain until early in March; they are then placed in a little warmth, when, as soon as the side shoots have grown 2 inches or 3 inches, they are divided into single plants, and returned to the quarters whence they came until well rooted, when they may be gradually hardened off, and finally planted out from the middle to the end of April. A considerable advantage over ordinary bedding plants is thus gained, the plants being out of hand a month earlier, by which space and labour in watering at a very busy season are saved. If treated as a herbaceous plant, and left in the bed or border from year to year, this Lobelia throws up too many flowering stems, which do not attain the height, vigour, or luxuriance of plants that have been divided and restricted to a single shoot. The beds chosen to receive them are broken up 2 feet deep, and well enriched with good rotten manure. They require plenty of room, and should be planted not less than 16 inches asunder, in order to allow the lateral shoots to fully develop, as it is from these laterals, after the main stem has finished flowering, that a brilliant and continuous display will be obtained. I was much pleased with some beds of this plant which I saw last season at Blickling Hall. They were planted with standard variegated Acers (slightly pruned) in the centre. The Lobelia came next, and the edging was *Tagetes pumila*. The brilliant flowers and dark foliage of the Lobelia, mingling with the green and white of the Acers, was very rich and pleasing. These Lobelias were in the most robust health, from 4 feet to 5 feet in height, and well furnished with lateral shoots one mass of flower.—W. ALLAN.

Hardy Primroses.—Clean and beautiful as Snowdrops look, even after the heavy rains we have had, it is, alas! otherwise with hardy Primroses; although the season of their fullest bloom is so near, they look far less gay than they have done at any time during the whole winter. In fact, they are now almost under water, so flooded is the ground in all directions. But strong plants full of bloom have wonderfully recuperative qualities, and should a day or two of sunshine and quiet come the myriads of buds nestling down in the robust leafage would send up some pioneers to report on the general outlook, and if but a fortnight of dry, sunny weather came these few would be changed into a multitude. Primroses are so very sweet, that not only do the birds exhibit a greedy taste for the flowers in many gardens, but slugs do so everywhere; and hence many a lovely flower becomes food for these vermin, instead of gladdening the eyes of mortals with its beauty. Some dry weather would rectify this,

and send up blooms faster than slugs could destroy them. But such is the notorious uncertainty of our winter seasons, that early in the year I took the precaution to lift a few roots into a frame, and these, happily protected from the almost unceasing beat of wind-driven rain, are just now most fresh and beautiful. Of course, these spring flowers should not be blooming at such an unreasonable time of the year; but as they are, and there is no help for it, it is better to have some blooming in rich loveliness under glass than to leave all to be slug-eaten and bedraggled with rain, wind, and dirt.—A. D.

FRUIT GARDEN.

OUTDOOR STRAWBERRIES.

It is the practice with many, especially amateurs, to dig amongst their Strawberries at this season, which is a great mistake, as by so doing surface roots are injured and destroyed, and these are the most important and principal feeders. Another thing that is almost equally hurtful to Strawberries is the denuding plants of their old foliage, which is their natural protection, and should not be removed, as it breaks off wind during the cold month of March, and shelters the young leaves, which gradually push up under and through it till they quite hide it from sight. Instead of the trimming and shaving to which they are usually subjected, it will be much better to allow them to remain as they are with their winter dress on, and to add another coat by covering the ground among them with short stable manure. Before this is done, however, the land should be cleaned by hoeing, but only just sufficiently deep to cut up the weeds, which may then be raked off, cleared away, and destroyed. In some gardens where the soil is stiff, wet, and cold, slugs are troublesome, and as their headquarters are generally among the Strawberry beds, it is a good plan, before putting on the manure, to mix some soot and fresh slaked lime with it, which will not only be fatal to the slugs harbouring about the plants, but destroy their eggs at the same time, and thus prevent further breeding. It often happens that old plants of Strawberries grow themselves out of the ground, as it were, and get their crowns much raised, and in cases like this it will do them much good to top-dress the beds with an inch or two of rich mould, and to work the same well up round the collars, when the plants will soon root out from the stems and gain much in strength. Where beds are exhausted and it is desired to make fresh ones this is a good season to do it, but the land where it is intended to plant should be deeply trenched and heavily manured, as success in the growing of Strawberries depends on their getting well down. In trenching, however, the sub-soil should not be brought to the top, but kept below and have the manure mixed in with it there, to which the roots will be attracted, and there find something to feed on during dry weather. Although Strawberries require deep ground to grow in, it cannot well be made too firm, as when loose and hollow the plants run too much to leaf, and do not make the fine crowns and bear with that freedom they do when the land is more solid. This being so, it should be well trodden and made level by raking, when all will be ready for marking the beds out and planting the plants. The distance at which these should stand depends very much on the sorts, as some require more room than others, and nothing is gained with any by crowding, as though they may bear more fruit, it is sure to be of inferior quality, and especially is this so with Queens, which require a deal of sun and light to ripen and colour them well. The best way with this kind is to have the rows a yard apart, as the plants may then go closer in the rows than when they are only the usual distance of 2 feet, and therefore almost as many plants can be put in on the same sized piece of land by having them about 18 inches asunder, a sufficient distance when the rows are at wide intervals apart. By planting in this manner, the strawing down can be done easily, and the picking of the fruit carried

out without danger of treading on and spoiling it, as there is plenty of space left clear for working and walking. If young plants can be obtained, they are the most preferable for planting, but some growers are quite indifferent about them, and dig up and pull the old crowns to pieces, and make fresh beds from them. All that is necessary in doing this is to select the strongest and best pieces, and secure with them as much of the stem part as can be got, when they may at once be dibbled in and buried close up to the leaves, immediately below which they will quickly send out a host of young roots, and during the summer form fresh plants at the sides. S. D.

DIGGING AMONGST RASPBERRIES.

THESE, like Strawberries, are often much weakened and injured by the spade or fork, as being surface rooters, they cannot be dug amongst without the principal feeders being destroyed, and therefore the ground should never be disturbed beyond what is absolutely necessary for keeping weeds down. The way we manage is to give a good dressing of half-rotten manure, which we put on immediately after the canes are thinned out and restaked and tied, and as it lies the greater part of the winter, the juices get washed out and enrich the soil for the plants. During spring and summer the manure is of equal or even greater service by the shade it affords, thus preventing evaporation, which is of great importance to Raspberries, as they require much moisture when swelling and ripening their fruit. A mulching, in a great measure, secures this for them, especially when put on early, as then the rains are kept in the earth instead of being drawn out by the sun and wind in the spring. Many who grow Raspberries are much put to for stakes to support them, and various are the plans adopted to do without them, one of the best being to bring half the canes of one plant over to the other, so that they meet and form an arch by bending and interlacing or tying the tops. This keeps them stiff and erect, and another good way is to strain a strong piece of galvanised wire down the sides of the rows, to which the Raspberries may be made fast by a tie. What I prefer, however, are iron rods, which, though a little dear at first, are the cheapest and best in the end, as they last for an indefinite time. Bars about five-eighths of an inch are quite large and strong enough, and as they are made in 15-feet lengths, they are long enough for three stakes; a ton of metal, costing about £7, will make a great number. All the labour that is required on them is just to cut them and hammer one end to a point when red-hot, and then dip it in tar, which will preserve it from rusting. The other part may either be brushed with tar or painted lead colour, either of which will last on for years. S. D.

Freeing orchard trees from Lichen.—On a foggy morning when every branch is wet have ready some finely sifted, freshly slaked lime, then place a ladder up the centre of the trees infested with Lichen or Moss. With bucket in hand ascend to the top and work downwards, dashing the lime all over the branches and stem. By following this practice I have by an annual dressing completely cleansed an old orchard from this pest.—W. C. T.

Well drained fruit tree borders.—If hardy fruit growing in many parts of the country is to be attended with anything like success, greater expense than has hitherto been incurred will have to be generally gone to in the preparation of the ground. In this northern climate (Durham) it is out of the question under ordinary circumstances to attempt Peach cultivation out of doors; but, even with Peaches, a good deal could be done to ensure success. If, for instance, as much care were exercised in making a border as is the case with them under glass, Peaches might even here be grown on open walls. In the first place, thorough drainage is wanted to warm the gorder, and this should be done by at least one good drain being made down the middle of it.

This drain should be as deep as it is practical to make it—from 6 feet to 8 feet would be none too much. Drains are often rendered almost useless by being too shallow. They then only take off surface water, while the subsoil still lies cold and damp—the greatest enemy to fruit trees. If this drain could be filled up to within 2 feet of the surface with rubble, so much the better. The border should next be thrown out 2 feet deep; and if the soil is unsuitable for the trees, let it be entirely removed. In the bottom place about a foot deep of rubble, which may consist of stone, broken bricks, or some such porous material, and cover this over with rough ashes, to prevent the roots from sinking down to the soil below; next make up the border with suitable soil 2 feet thick at the back and 18 inches at the front, on a border, say, 9 feet wide. For Plums, Pears, Cherries, and Apples, a border made on this principle would also pay the labour and expense bestowed on it. By the trees standing high and dry, the wood would be better ripened, less damage would be done by frost, and a more certain crop would be the result. A great deal can also be done in the training of wall trees to help their fruitfulness; for instance, the branches should not be placed too closely together, nor should they be allowed to be over-crowded with spurs; thus there would not be too much foliage to shade the forming fruit buds from the influence of the sun and air. The main thing, however, is to have the trees dry and warm at the roots; and to ensure this, the border should be well drained and not too deep.—A. M.

Duke of Buccleuch Grape prize.—Mr. McIndoe is informed, in response to his inquiries, that the statements respecting the hundreds who grow this Grape to 4 lbs. and 5 lbs. weight, and other matters, are to be found in *THE GARDEN* of October 28, 1882, and in the *Journal of Horticulture* of December 7, 1882. Mr. McIndoe is himself the author of the other testimonials quoted. He is also referred to the revised advertisement in *THE GARDEN* of January 27 last, which meets his other inquiries. The advertisement has been worded so as to afford the widest opportunities to exhibitors, and the object of the prize is stated. The conditions have been suggested by the various statements of those who have vouched for the weights and keeping qualities of the Grape, like Mr. McIndoe, and who may accept the offer as a challenge on their part, while the prize is open to all who care to try for it, but the subscribers do not intend to enter into any controversy on the subject.

TREES AND SHRUBS.

THE LAWSON CYPRESS.

THIS Cypress (*Cupressus Lawsoniana*) attains in its native habitat in North California a height of about 100 feet. In this country it has proved to be thoroughly hardy, of quick growth, and one of the best trees of late introduction as regards ornament, shelter, and general utility. It is propagated principally from seed, contained in small cones, which ripen on the trees in abundance. As a rule, the cones should be gathered when they begin to open, as if left too long on the tree the seeds are apt to be shed and lost. Sow broadcast in April in nursery beds about 4 feet wide, and as the seeds are small in size I have found a light sandy soil, well worked and thoroughly pulverised, to be most suitable for that purpose. The after-nursery treatment is similar to that usually required by Larch, Scotch Fir, and other hardy conifers. In forming a new plantation in 1870, on the property of the late Sir William Verner, Co. Armagh, Ireland, I planted a mixture of *C. Lawsoniana* along with Larch, Scotch Fir, *Picea nobilis*, and a few others. The plantation contains an area of about thirteen acres, the soil of which consists of three classes: First, poor gravelly soil with a thin coating of moss on the surface; second, stiff argillaceous clay; and third, peat bog. Plants of *C. Lawsoniana* were planted here and there throughout the whole plantation,

with the view of testing their capabilities as forest trees, and for the most part they have proved to be a complete success, the only exception being where they were planted on a few patches of stiff plastic clay, so impervious that rain water laid on the surface. On these patches the Larch also refused to grow, or at least made very little progress. With this exception the trees throughout the rest of the plantation are all that can be desired. The most remarkable feature of this plantation is its scenic effect, which is widely different from anything one is accustomed to see in woodlands generally. Although the seeds were all collected from one parent tree, raised in one seed bed, and planted out at the same time, yet the progeny showed great variety both in appearance and habit, some of them being perfectly conical and with branches gracefully pendent; others more upright, close and stiff, and a shade darker in colour. The site of this plantation is somewhat exposed, being surrounded on the north and west by a Heather-covered peat bog, and on the east by a lake consisting of about ninety-five acres. When planted out in quantity in exposed situations, large plants ought to be avoided, as from the density of their foliage the wind exerts a greater pressure on them than on the Scotch Fir or Larch; the top of the latter being less dense, wind passes freely through the branches, doing little harm, whereas if large plants are used of the Lawson Cypress they are apt to be upset.

As regards hardiness, this tree is all that can be desired. I have seen it growing side by side with the Larch, and while the latter was severely seared by late spring frosts, the former stood unscathed. Sometimes this tree produces a plurality of leaders, a circumstance which must be set right by pinching off all but the most central. I have, however, often cut them clean off with a sharp knife, and as this tree will withstand any ordinary amount of stem and branch pruning with impunity, the operation does no harm.

J. B. WEBSTER.

TREES AND SHRUBS FOR TOWN GARDENS.

IF I say that the common Aucuba is the only evergreen shrub that really thrives in London I shall be told by many that Box and Holly and perhaps a few others do equally well there. Let those who think so go up to town and walk round the parks and squares; they will see what a different appearance all the evergreens, with the one exception of Aucubas, present from those growing in the country; both Box and Holly will be seen to have a thin, starved look, their leaves few and far between. I often wonder why the Chief Commissioner of Works, or whoever the Government official responsible for the public parks is, does not try the same system for planting the parks with evergreens as people who go up to London for the season do in the case of a carriage and horses, viz., "job" them. It would, I should think, be easy to contract with some of our principal nurserymen for Rhododendrons and other handsome evergreens, choosing especially those with compact roots that would not suffer in transplanting, all to be renewed every two or three years, before the London smoke has had time to spoil them. If this plan were adopted one could walk round the parks and look on bright shining clumps instead of the half-dead specimens that are there now. [This has already been tried to some extent in the case of Rhododendrons in Hyde Park.]

"F. W. B." might have added a few good things to his list of deciduous shrubs suitable for town parks. The following occur to me to be hard to beat, and are all easily grown, viz., Lilac (the French varieties), some of which have larger and showier blooms than the common kind; Weigela, Philadelphia, or Mock Orange, commonly called Syringa; there are many beautiful varieties of this Viburnum, Rhus Cotinus.

AN OBSERVER.

Mistletoe on the Peach.—There is at Penshurst Place, Kent, a Walburton Admirable Peach on a south wall with Mistletoe growing on it. Is Mistletoe on the Peach a rare occurrence?—F. B.

Early Rhododendrons.—"Veronica" has been wrongly informed respecting the parentage of Rhododendron *præcox*. It is not a hybrid between an Azalea and a Rhododendron, but was raised by myself from *R. dahuricum* and *R. ciliatum*, the latter being the pollen parent. It is now twenty-three years since it was first sent out, and though it has been widely distributed it is not so well known as it deserves to be. "Veronica" is correct in his description of the plant, and in addition to the good qualities named I may say that it is extremely useful for forcing, as it may be brought into flower early in November by successive years' forcing. There are two other forms of *R. præcox*—*rubrum*, a shade darker in colour, and *superbum*, with larger flowers and somewhat earlier. I have many hundreds now expanding their blooms, and at this season of the year when outdoor flowers are scarce these make a most attractive display in the borders.—ISAAC DAVIES, *Brook Lane Nursery, Ormskirk*. [A drawing of *R. præcox superbum*, sent with this note, shows well what an attractive shrub it is. The flowers are represented as large, produced in massive trusses and of a deep mauve colour.]

QUESTIONS

Drive gates.—Are any drive gates made that will let wind through, and yet be impervious to curious eyes? My present solid 10-foot doors are often damaged by gales. Would something ornamental in the jalousie blind way suit?—W. V. L.

Begonias.—Can any reader of *THE GARDEN* tell me where to procure the following Begonias, viz., *splendida*, *Mayeri*, *nelumbifolia*, *peltifolia*, *Warszewiczii*, and *heracleifolia*? These are magnificent at Kew, but I cannot find them anywhere else.—M. P. F.

Tropeolum speciosum.—Would some reader of *THE GARDEN* give cultural directions for this beautiful *Tropeolum*, and say whether it may be successfully grown in the southern portions of the British Isles? No lover of flowers who has seen it in the north of Scotland can help wishing to bring it further south.—AMATEUR, *Dublin*.

Slugs.—Will any reader of *THE GARDEN* kindly tell me of some means of keeping slugs from eating my plants of different kinds—Lettuces, Peas, Pansies, &c. I have been told to try paraffin oil mixed with water, but I do not know the quantities. Can anything better be suggested? If so, I will feel much obliged by being informed of it.—T. C. B.

Diseased Ixoras.—Can any reader of *THE GARDEN* advise me as to the best plan of getting rid of a disease in *Ixoras*? We have three fine plants which, up to last autumn, were very healthy, but since then they have been affected with brown blotches on the leaves, and I find now that the wood is also beginning to decay in different parts. They appear to be quite healthy at the root.—F. S.

Peach buds dropping.—What is the cause of the wood buds of Peaches dropping? It cannot be put down to want of water, as I had the lights off and they were exposed to all the autumn rains. The other day I examined the border down to the drainage, and I found it to be quite moist. They have made good wood, which is, I think, well ripened, and the bloom buds just opening look well and strong. If any of your correspondents can enlighten me on the matter I shall feel obliged.—SUB.

Brown Mushrooms.—Will some of your readers kindly answer a question or two about Mushrooms. I have been pretty successful in growing them (in a Mushroom house) lately, but they frequently turn brown after watering. This is done about once a week with lukewarm water. The temperature of the Mushroom house is from 55° to 60°. Side by side with the brown failures appear really fine Mushrooms of a good colour. The brown ones wither up and are useless. Can anyone explain the reason of this?—MARK NESFIELD.

Fruit tree grubs.—We have been very much troubled for two or three years past with grubs on our Pear, Apple, and Cherry trees as soon as the buds begin to expand and the leaves to develop. We find one, and sometimes three or four grubs in each leaf, which they roll up with a kind of web, and from the leaves they go into the blossom, which they completely destroy. No insecticide seems to kill them, the great difficulty being to get at them, as they are rolled up in the leaves. There are two kinds—one a small brown grub like the Rose grub, the other a pale green, about half an inch long when fully developed.—W. C.

NOTES OF THE WEEK.

OPEN SPACES ABOUT HACKNEY.—Mr. Runtz, the Hackney member of the Metropolitan Board of Works, has stated that it is the intention of the board to take steps for the immediate improvement of Hackney Downs, London Fields, Clapton Common, Stoke Newington Common, and other open spaces within the Hackney district, by forming paths, planting trees, providing seats, &c., at an aggregate cost of nearly £1500.

INTERNATIONAL POTATO EXHIBITION.—The schedule for the next show to be held in the Crystal Palace on September 13 and 14 has just been issued. It contains 21 classes, similar to those of former years, but with some additions. The arrangements for growing and judging new varieties are, by the aid of the Royal Horticultural Society, to be continued. Intending competitors in the seedling classes should therefore send samples to Chiswick as soon as possible, in accordance with the published regulations.

THE DUKE OF WELLINGTON'S STATUE.—The First Commissioner of Works proposes to appoint a committee to inquire into and report upon the subject of the most eligible site for the statue of the Duke of Wellington, now being removed from the place where it has stood for thirty-seven years at Hyde Park Corner. The following have agreed to form the committee: Viscount Hardinge, Sir Frederick Leighton, Mr. James Fergusson, Mr. Boehm, Mr. Mitford, and the Duke of Wellington. The sites which will be chiefly brought under consideration are—a spot within the new grounds now being laid out near Hyde Park Corner; a position in St. James's Park, opposite the Horse Guards; and one in Hyde Park, opposite the Knightsbridge Barracks.

PRIZES FOR EARLY PEAS.—In order to stimulate the production of new sorts of early Peas of high quality, and also to test the value of Mr. Laxton's latest effort in this direction, Messrs. Hooper & Co., of Covent Garden, offer the following special prizes to be competed for at the Royal Horticultural Society's meeting at South Kensington, on May 22, next, viz.: for two dishes of early Peas, one of them to be Laxton's Earliest of All, 1st prize, £3; 2nd, £1 10s.; 3rd, 15s. Each dish to consist of twenty-five pods, and the trademark of the seed packet of Earliest of All must be placed on the exhibit as a proof of its genuineness. Intending exhibitors will please make a note of this announcement, as it is not inserted in the Society's schedule.

EARLIER OPENING OF KEW GARDENS.—Some time ago attention was directed to the hardship occasioned to many persons by keeping Kew Gardens closed every day till one o'clock. The representations made to Mr. Shaw-Lefevre on this subject have just obtained from him some concession in that respect. The other day when Sir Trevor Lawrence asked for some information on this point, the Chief Commissioner of Works announced that for the future the gardens will be thrown open at midday to visitors instead of at one o'clock. An hour is thus gained, which will prove a considerable boon in early spring and in the latter part of the autumn, periods when there are not many hours of daylight. We trust, however, that the time is not far distant when Kew Gardens, at any rate in summer, will be opened each morning at ten o'clock.

—The following letter from the Treasury to the Office of Works, with reference to the extension of the hours during which Kew Gardens are opened to the public is published in a parliamentary paper:—

Treasury Chambers, January 12, 1883.

Sir,—The Lords Commissioners of Her Majesty's Treasury have considered the proposal made in your report of the 1st instant, that the Royal Gardens at Kew should be opened to the public at noon throughout the year, and as they gather that this extension of the public hours will not interfere with the management of the gardens or with the important work carried on there, they are

pleased to approve of this proposal. My lords are unable to check Sir J. Hooker's estimate of £200 17s. 2d. for this purpose, as transmitted by you. If, however, you are satisfied of its correctness, and that no more economical arrangement will suffice for the purpose, my lords sanction the requisite provision being made in the Royal Parks Estimate for 1883–4, so that the scheme may come into force on the 1st of April next. I am, however, to say that in arriving at this decision they have had regard only to the purposes for which Kew Gardens are maintained at the public expense, and they cannot impress upon you too strongly the importance of bearing in mind that these gardens are a national institution, whether as ornamental garden or scientific station, and not a local park. Your department and the director of the gardens should be on their guard against appearing to make any changes merely to meet the needs of local residents, whose interests may often conflict with those of the public, and who may easily be led to think that they (as opposed to the nation at large) have vested rights, of a general or specific kind, to the enjoyment of the gardens.—I have, &c.,

LEONARD COURTNEY.

The First Commissioner of Works.

GHEENT INTERNATIONAL EXHIBITION.—The programme has just reached us of the forthcoming international exhibition to be held at Ghent by the Société Royale d'Agriculture et de Botanique. The show will be opened on April 15, and will continue to the 22nd. The schedule comprises 292 classes, and of these 268 are devoted to groups and specimens of plants. The first twelve classes are for new plants in collections of twenty, twelve, and six, and for single specimens. Seventeen classes are devoted exclusively to Orchids, and some are for species of one genus, such as Vanda and Masdevallia. Fine foliaged plants, including Palms and Ferns, occupy nearly a hundred classes, and the rest are devoted to Azaleas, Camellias, Rhododendrons, and ornamental trees and shrubs, such as Conifers and Hollies. Ample provision is made for spring-flowering bulbous plants, which will be just in perfection, and also for Roses, Clematises, and a host of other classes of plants. The prizes in every case consist of medals. Three are given in each class, the highest value of the gold medal being one hundred francs. The other medals are in silver and bronze. Altogether it appears to be a thoroughly representative programme, and in all probability there will be an excellent and extensive show. We notice that the cups offered by Mr. William Bull, and usually competed for in London, will be competed for at this show this year.

Woodlice.—The only way in which we rid Mushroom houses of these pests while the beds are in bearing is to trap them and kill them, which may easily be done by the use of a number of small flower-pots with a piece or two of boiled Potato in each as a bait, and a loose wisp of straw or hay as a shelter to the woodlice when they crawl in to feed. The pots should be lifted and examined every morning and the woodlice emptied out into boiling water, or killed in some other way so as to prevent their escape. Fowls are very fond of them, and if carried to them and thrown down they will soon eat them all up. Woodlice only harbour and breed in dry places, and all parts of the house where these are should have boiling water poured occasionally on them; if it does not reach all it will drive them out and force them into the traps. When the house is again clear, and before any fresh beds are made, it will be advisable to fumigate by burning sulphur, and if the door is kept close shut, the smoke will force its way into all cracks and crevices, and settle accounts with the woodlice, so that the next start may be made with a clean bill of health.—S. D.

—I have always found the following to be effectual in clearing pits, frames, and houses of woodlice: Get a few 6-inch flower-pots and put a piece of Carrot about the size of a Walnut over the hole inside; then fill the pot three parts full with soft, dry hay, pressed in firmly, but not too hard.

Invert the pots on the beds and examine them every morning, and evening too, if very numerous, and shake the woodlice out into boiling water; replace the Carrot and hay as before. Another way is to get a few Turnips, cut them in halves and partly scoop them out and lay them about the beds. A third way is to make a few holes about 4 inches wide and 6 inches deep close to the side of the beds, and fill them with hay. Each morning pour boiling water on the hay, putting fresh hay in each time.—GARDENER.

—Has "C. F." tried pouring boiling water into any cracks or crevices into which they may hide? They very much dislike moisture, so that if the bed could be thoroughly wetted, and then some small garden pots filled with dry Moss laid about, into which they might creep and be dry, would probably in the morning be found to contain a number. A piece of cold boiled Potato placed amongst the Moss forms a good bait. Toads are very useful in destroying woodlice. Searching the house at night with a lantern for a few nights would probably diminish their numbers very much. Fill up all cracks in walls or floors where these creatures can hide.—G. S. S.

Ants.—I have been troubled like "S. O." with ants, and have found this to be a good plan: Fix a piece of string to a clean, fresh bone, and place it near the plants, and when the bone is covered with insects lift it up by the string and quickly immerse in hot water. The same bone may be used several times. Also look out for their nests in the pots, and shake out the ball of the plant over hot water and repot, still persevering with the bone traps.—G. A. F.

OBITUARY.

MR. T. SNELLING, gardener at the Middle Temple, died very suddenly on Tuesday last, the 20th inst. When passing along Fleet Street in the morning of that day he was observed to fall to the ground insensible, and when conveyed to King's College Hospital he was found to be dead. He was 45 years of age, and was appointed gardener at the Middle Temple about four years ago, on the death of Mr. Dale.

Names of fruit (J. L.).—Beurré Rance.

Books (J. Tullett).—Paxton's "Botanical Dictionary" or Johnson's "Gardener's Dictionary" (Bell & Son, Covent Garden).

Principal country seats of Great Britain.—H.—These are illustrated and described from time to time in THE GARDEN. Many years ago McClean, in the Haymarket, published a work on the subject with coloured plates, and possibly it may still be procurable there or from some of the large second-hand booksellers.

New mode of killing thrips and red spider.—Under this heading I see described (p. 148) a method which I have adopted these last six years for exterminating these pests, and with the most satisfactory results; but instead of using clean water of late, I have found it advantageous to mix with it a small quantity of soft soap. I found that a temperature ranging from 118° to 130° effected their destruction and that simply dipping was sufficient to kill both thrips and red spider. By repeating the operation a week hence the plants were seen to be thoroughly cleansed.—J. R.

Names of plants.—H. T. R.—*Eranthemum pulchellum*.—E. Hunter.—1, Croton Wiesmanni; 2, C. interruptus; 3, C. aucubifolius; 4, Phyllanthus nivosus.—M. & Co.—Cornus Mas.—E. C. A. B.—*Thunbergia Harrisii laurifolia*.—G. Nisbet.—Apparently *Latania borbonica*. The Fern is *Adiantum Sanctæ-Catharinæ*.—B.—*Centradenia floribunda*.—G. U.—1, *Nephrolepis exaltata*; 2, *Selaginella Willdenovi*; 3, *Davallia canariensis*; 4, send better specimen if possible when in flower.—M. B.—A variety of Bottle Gourd, *Lagenaria vulgaris* (not edible).

COMMUNICATIONS RECEIVED.

J. H. E.—H. H. C.—A. R.—C. W. D.—F. W. B.—J. G.—Vitis.—G. D.—A. D.—J. B. (next week).—A. B. W.—B. T.—Alpha.—H. P.—R. A.—J. G.—Somerset.—Observer.—E. M.—W. E.—J. D.—Peregrine.—J. R.—H. B.—J. H. B.—F. F.—A. V.—J. D.—J. B.—W. A.—G. S. S. (next week).—R. A. H. G.—W. E.—E. H.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

AMARYLLISES AT CHELSEA.

If the late Dean Herbert, who devoted a lifetime to the study of the Amaryllis family, could have seen in his day such a gathering of hybrid Amaryllises as that which now forms the chief attraction in Messrs. Veitch's nursery at Chelsea he would doubtless have looked upon it with mingled admiration and perplexity. Such an array of mule productions would certainly have somewhat embarrassed him; he could not have classified and described them so methodically as he has done the comparatively few that existed when he compiled his still valuable work on the Amaryllidaceæ. At that time what may be termed primary hybrids only had to be dealt with, that is crosses between species and between species and introduced varieties; consequently a pretty correct idea of the origin of each could be obtained. Since then, however, those hybrids, which numbered some three dozen, all furnished with Latin names, have intercrossed amongst themselves and later introduced species, the result being the marvellously increased number of Amaryllises now in existence, and which appear to have reached the acme of perfection. Thirty years ago it was possible to record correctly the parents of each, but now the varieties have become so intermingled that their origin is in a great measure obscured. Among the three dozen hybrids recorded by Dean Herbert there appears to have been a strong family likeness, but this was not the fault of the hybridist, whose materials were then comparatively limited.

In point of numbers, the type species then in cultivation far exceeded those to be found at the present time in gardens; indeed, it is doubtful if some of the species the Dean of Manchester grew in his garden at Spofforth forty years ago could now be found anywhere in Europe. Though there was a larger number of species at that time, there was a similarity among most of them in general appearance, though differing in structural characters; hence no great steps could be made by hybridising. Nearly all these species, which numbered about a dozen and a half, with about as many wild varieties, were worked upon by the hybridists, but they evidently had a preference for a few of them from which they were most likely to make the greatest strides in point of size, shape, and colour. The principal species worked upon then were *A. Regina*, a plant figured in the *Botanical Magazine* so long ago as 1799. This crossed with *A. vittata*, another old plant figured in the same work in the year 1790, gave *A. Johnsoni*, which seems to have been one of the very first hybrids. This is now in bloom in the Chelsea collection. By crossing *Johnsoni* with *A. aulica*, which has played a most important part in Amaryllis hybridising, gave the beautiful high-coloured *Acramanni*, raised by Messrs. Garraway, of Bristol. This, however, is quite distinct from *Acramanni pulcherrima*, a variety which has more than any other infused such high colours in Amaryllises. This hybrid was also raised by Messrs. Garraway about 1850. It was a cross between the broad-petalled variety of *A. aulica*, called *platypetala*, and *A. psittacina*, also a species which has been used freely by hybridists, and which has left its impression upon a large number of present hybrids. This *Acramanni pulcherrima*, which has large, intensely brilliant crimson flowers, has been a great help to Messrs. Veitch in infusing high colours in their strain. The West Indian *A. equestris* was also used freely for crossing, and its horizontally poised flowers is its distinct character, and one that has its counter-part in some of the finest crosses. Other species which Dean Herbert and others worked on were *A. rutila* and its dozen native varieties; *A. solandriiflora* and *A. ambigua*, which I am inclined to think is

identical with what is called in gardens *A. marginata*, one remarkable for large size and high colour, but to be shunned by florists, as it has such ragged-edged petals. *A. reticulata* was also crossed, but as it belongs to a different class, flowering in winter, it does not concern the present subject. Modern hybridisers have, however, succeeded in completely altering the complexion of the race of hybrid Amaryllises through the agency of a few species introduced about a dozen years ago, such as *A. Leopoldi* and *A. pardina*. The advent of these distinct species gave an impetus to Amaryllis hybridisation that has gone on at an astonishing rate for these last ten years. The greatest strides, however, have been made within the last seven years, when the work was taken in hand in earnest by Messrs. Veitch. This firm indisputably holds the foremost rank in Amaryllis raising in this country, and, indeed, in any other, forestalling even their Belgian and Dutch *confrères*, who so long took the lead in this kind of work.

The collection in the Chelsea Nursery at the present time is enormous, as may be inferred from the fact that it consists of no fewer than 1500 flowering bulbs, and there are fully a thousand spikes either in an incipient stage or with expanded blossoms. The main portion of the collection is housed in a spacious span-roofed structure (70 feet by 18 feet) specially constructed for Amaryllis culture. In a bed running down the centre of the house is the bulk of the flowering specimens plunged in old tan about 18 inches in depth. The entire surface of this bed is a thicket of flowering spikes in all stages of development, but the majority bear expanded blossoms. Such an array of Amaryllis flowers is gorgeous in the extreme; and no one can fully realise such a floral display without seeing it, being so different from the stiff formal arrangements with which one usually meets at flower shows, where they are generally placed on a level or on a gradual slope, and invariably with the flowers looking one way. Here the plants are at home and unfold their resplendent blooms undisturbed, and their informal arrangement enhances their effect. Apart from the brilliant display of such rich masses of colour, this vast collection is full of interest to those who look upon it in a scientific aspect. The theory that mule productions are sterile is entirely refuted, for here are examples of crossing of distinct species, the progeny of which is quite as fertile as the originals. Though the effect of repeated crossings tend to obliterate the characters of the original species, each of the crowds of Chelsea hybrids bears a sufficient impress of its parentage to enable one to trace its lineage pretty accurately, so that nearly every variety may be ranged under distinct types or groups, a very convenient way in describing the varieties. The principal groups are the *Leopoldi*, which comprise the great bulk of the Chelsea hybrids, the *Acramanni*, the *marginata*, the *aulica*, and the *pardina*, all named after the species or varieties which form as it were the fountain-head. The *Leopoldi* group is a well marked one, and each member of it may be singled out at a glance. The chief distinguishing features in the flower are the three broad outer segments which form an equilateral triangle, and, like the narrower petaline divisions, are of firm texture. It is the great aim to obtain the inner segments as broad as the outer ones, and so have a perfectly symmetrically formed flower so far as the perianth is concerned. Other inviolable characters of the *Leopoldi* group are the capitate stigma, that is, one that is not split into three divisions, as in most other kinds; also the white filaments of the stamens. The colouring, too, of the *Leopoldi* section is a good guide. In nearly all the hybrids from this species the floral segments are green at the base, and tipped more or less broadly with creamy white, while intervening is a broad band of intensely rich crimson, though the amount of high colour varies considerably. *A. Leopoldi* has without doubt played the greatest part in the improvement of the Amaryllis, for from it florists have obtained those large, symmetrically formed and massive flowers now plentiful, and by infusing into it the

blood of the high coloured species, the result is obtaining the numerous high coloured forms of this section. When about a dozen years ago Pearce first sent home this handsome species to Messrs. Veitch from Peru, he said it was the finest Amaryllis he had met with in his travels, but I wonder what he would have said to the finest of its progeny.

The *Leopoldi* section is well represented by flowering plants at the present time at Chelsea, the most remarkable of which are John Heal and Shirley Hibberd, both of which it may be said are the ideals of perfect Amaryllises as regards size and form. Both are similar in colour, the segments being broad, the upper one in John Heal being fully 3½ inches and of an intensely deep velvety crimson, broadly tipped with creamy white. The first named is perhaps the finer of the two in point of shape. Normally, *A. Leopoldi* bears but two flowers, but this particular plant of Shirley Hibberd is carrying four massive flowers on a stout stalk about 2 feet high. By far the finest of those flowering for the first time, and indeed of the whole collection, is one named William Goldring. It embodies dwarfness of growth (a desirable point), is extremely floriferous, perfect in form, and brilliant in colour. The bulb bears two flower-spikes, each carrying four blossoms nearly 7 inches across, and with very broad segments, which overlap so as to form a symmetrical bloom. The colour is a vivid scarlet-crimson, which is in strong contrast to the broad band of white which runs half way up each division. The whole plant is but 15 inches high, and is altogether a perfect specimen. Though a descendant of *Leopoldi*, it is some few removes from it, as may be seen by the high colouring of the flowers. Other noteworthy varieties of the *Leopoldi* type are King Arthur, one of last year's seedlings, of fine form, but surpassed in size; Royal Standard, somewhat similar, but of a deeper colour; Mrs. Freeman, a large and tolerably well formed flower, with white segments sparingly barred and spotted with crimson. This is the nearest approach to a white flower in the group. Another almost white-flowered kind is Virgil, which is remarkable on account of each of its divisions being much reflexed, rendering it distinct from all the rest. It is one that ought to develop a new strain. Dido has deep crimson flowers with broad tips of white, and Brightness is another in a similar way. Cambodia is a very brilliant variety, with large flowers, but far removed from the typical *Leopoldi*, so much so that the characteristic white tips to the segments are almost obliterated. These are a few of this section seedlings flowering for the first time, but numerous others are unfolding their blossoms.

The *Acramanni* group is an extremely beautiful one, and, moreover, very distinct. It is characterised by intensely rich colour, but the segments of the flower are narrow, inclined to reflex, and somewhat uneven and waved at the margin; the stigma is trifid, and both the style and filaments dark coloured. The fault of the varieties in this section is want of form in the flowers, but that deficiency is certainly compensated by the splendid colour. The varieties bear from two to four flowers on a stem. The finest varieties of this section in flower are Mrs. Baker, Prospero, Richard Wagner, Oriflamme, Prince Leopold, and Gustave Doré, all of which have flowers of an extremely rich crimson, but though all are quite distinct, the fine gradations of hue are quite impossible to describe. Other varieties that fall in this group, though not so near the type as the preceding, are *Bucephalus* and *Achilles*, the latter a very large flower, fully 8 inches in diameter, and of a uniform bright crimson. As in the original *Acramanni pulcherrima*, there is a tendency in the foliage and flower-stem to assume a purplish glaucous hue, which is a distinctive character.

The *marginata* and *pardina* sections are seemingly later than the preceding, as there are at present but few representatives of them. The finest in the *marginata* group is one called George Taylor, which has flowers 7 inches across and with broad petals of a vivid scarlet, flaked and pencilled with white, and each division is also

striped and margined with white. Another called Baroness Henry Schröder is also a fine one and remarkable for the large size of its blossoms and the breadth of the divisions. The colour is a deep crimson barred with white. The pardina section, characterised by the flower segments being copiously spotted with red on a light ground, is represented by a beautiful variety called Orsino. It is a cross between A. Leopoldi and A. pardina; therefore being a primary hybrid, it is exactly intermediate between the two parents. It gains form and substance from Leopoldi, but yet retains its beautiful spottings. The aulica section is rather early, and the only variety which represents it is Ajax, which has large massive flowers with broad segments of a deep crimson heavily veined with a darker shade.

The above are some of the most striking varieties now in bloom, but in a few days these will be augmented by thrice the number, and many of the finest of the older seedlings are yet to flower, such as Empress of India (the brilliant variety which won so many admirers last year), Duchess of Connaught (pure white), Henry Little, Miss Alice Gair (very beautiful), Cecilia, Beauty of Cornwall, Storri's Beauty (one of the finest), The Siren, Mdme. Antoinette Stirling, Dr. Masters, and The Giant. These comprise some of the best of the named varieties, but it is expected that these even will be surpassed by the new seedlings which each day unfold their blossoms for the first time.

The thousands of Amaryllises that one sees here have nearly all been raised from seeds, for it is only to propagate particular varieties that recourse is had to propagating by offsets. Most of the flowering bulbs here are three years old from seed, but a good many are four and even five years. It is surprising to see what a large number of bulbs are throwing up two and even three flower-spikes this season—a plain indication of skilful culture. It is also very interesting to observe how some of the bulbs which carried such fine spikes of flowers last year are again developing equally large spikes. Even that grand variety, The Giant, which bore three ponderous spikes last season, and which everybody predicted would draw all the sustenance out of the bulb, is throwing three huge stems, which no doubt will carry as many blooms as last year. Thousands of plants may be seen, from last year's seedlings to those large enough to bloom, and particular care is taken in their culture from their infancy onwards. It is, however, in the matter of hybridising that Messrs. Veitch have obtained the lead of anyone else, and the Amaryllis in their hands has improved in ten years more than in the half-century previous. To Mr. Heal, the foreman in this department, credit is due for the intelligence and skill which he brings to bear on the hybridising and culture of this beautiful family. As an account of the mode of culture was given in these columns about this time last year, it is hardly necessary to revert to it here. W. G.

COTTAGERS' SHOWS.

"D. G.'s" complaint, in a recent issue, as to the prizes at cottagers' and other exhibitions of garden produce falling into the hands of prominent exhibitors year after year is one best corrected by inducing and encouraging more persons to grow and to enter into the competitions. It is very evident that if one or two exhibitors present always such capital samples of garden produce that the judges have no option but to award them the chief prizes, it is but an acknowledgment of the well-understood rule that the best must and ought to win. Still farther, it is well that the exhibition of good samples should be encouraged, because it is only by doing so that any benefit from exhibitions may be looked for. To handicap a good grower is to offer a premium to indifference in culture and quality, and would tend to remove from such good growers all stimulus for increased exertion. But the very success of one or two persons should be the chief means of stimulating others to do better, and it should be the special aim of local committees and officials to work upon that fact, and thus strive to promote

higher culture and more extensive competition. It may be, and often is, the case that the one or two specially successful exhibitors have better facilities than others have. They may have more time for labour, better soil, a greater quantity of manure, or perhaps more practical knowledge, but it is almost impossible, without doing to such well-placed cottagers an injustice, to inflict upon them any special penalties when they wish to exhibit their garden produce. It would not be at all unfair to create distinctive classes, such as six vegetables and four vegetables, or six plants and four plants, giving exhibitors the option of selecting either one only out of the section. That is a common rule in many exhibition schedules, and is enforced not upon cottagers only, but also upon all classes of exhibitors. The object of such an arrangement is, without in any way handicapping the larger or more favourably situated exhibitor, to prevent him from competing with others who work and grow their produce under much less favourable conditions. Experience of shows of all kinds has satisfied me that any one or two specially successful exhibitors seldom run their course of luck beyond two or three years. Then others gradually edge in, for in these matters, as in others, there is always as good fish in the sea as ever came out of it, and presently the former very successful men have to take a back place, and the newer, and perhaps younger, men come to the front. The very peculiar case of cottagers who have sons living at home and helping in the garden with the advantage of experience gained as labourers in gentlemen's gardens is hardly one for which special provision is needed. In the first place, it is gratifying to find that young men are so well conducted and industrious as to be willing to assist in the culture of the cottage garden after having been engaged in gardening all the day; and, in the second place, so long as no undue advantage is taken of their employment in gardens in the daytime it seems impossible without acting unjustly to prevent them giving their fathers assistance; in fact, to discourage their doing so would be disastrous. It is very common for men, whether aged or youthful, to have a special taste for gardening, and, indeed, great love for it as an evening's recreation, even though their daily employment is of a very diverse kind. What these may lack in practical knowledge they often make up for in enthusiasm and energy, so that the assumed advantage possessed by the garden labourer is more imaginary than real. The best plan by which the difficulties suggested by "D. G." may be overcome is to offer liberal prizes in many classes and plenty of them, and to show an active and intelligent interest in the garden work of all cottagers, and specially to help them by advice and by donations of plants and seeds.—A. D.

I am pleased to see this subject discussed, as cottagers' shows and cottage gardening societies well deserve attention. The Margam Cottage Gardening Society has now been in existence five years, and it is annually developing in all its bearings. The first year we did not offer more than £20 in prizes, but now we give double that sum, and the gardens are now very much better managed than they at one time were. Last year £9 was added to the reserve fund, which has been accumulating, and now amounts to £51 10s. In getting up large shows it too often happens that there is no money in hand nor any certainty of securing any. Subscriptions and takings at the gate are depended on, but in such cases a wet day may render the society insolvent. Now did such societies begin like the cottagers' ones and secure the money before they spent it, many failures would be averted. Speculative shows have rarely an honourable or very useful career, and should not be encouraged. On the other hand, those who are satisfied to begin in a small way and work their way upwards deserve the utmost support, and it is this system that should be followed. It is the one which has answered beyond our expectations here. In former years we have given five prizes for the best cottage gardens in the parish. "The first is

£1 10s. and the last 5s. These are competed for early in August, but this season more prizes are offered for the best stocked garden in November, and this will doubtless encourage the growth of winter crops as well as summer ones. Those winning the first prize for good garden management cannot compete again for three years, but we have no such rule with regard to those who win at the exhibition. They may get, say, first prize for a collection of vegetables this season and secure the same again next time if they can. "D. G." (p. 183) asks for a remedy for this, but I can offer him none, nor do I think it would be desirable to do so, as from experience I should say to make an alteration in this matter would be dealing hard with many deserving competitors. We always notice that those who attend best to their gardens invariably receive most prizes. I never knew a cottager who did little or nothing else but grumble at others being before him become a prominent prize-taker, but I have known beginners who "took stock" of the "old hands" one year equal or surpass them the following season; this was simply accomplished through attention and perseverance, a short recipe for great results. We have cases like that mentioned by "D. G." where the garden men live with their fathers who are not so employed, and although we tried to make classes to suit all parties at one time, the whole of the cottagers now compete together, and we consider it right that they should do so. Indeed, it is only some of the "lag-behinds" who would object to this arrangement; the persevering ones say, "All the more credit if we can beat So-and-so with all his advantages," and they often do so.—J. MUIR, *Margam, S. Wales.*

TREES AND SHRUBS.

Wellingtonias and birds' nests.—Although this neighbourhood abounds with songsters of both woods and glens, the Wellingtonia does not appear to be a favourite tree with them for nest building. It is over twenty years since twelve Wellingtonias were planted here; they are now from 30 feet to 40 feet high. During that time a bird's nest has not been found on any of them. The habit of the tree is not adapted for building purposes.—W. B., *Windermere.*

New varieties of Portugal Laurels.—M. Tomasse, of Pau, who has long been engaged in the raising of new hardy fruits, has lately devoted much attention to hardy evergreen and deciduous trees and shrubs, and is stated by M. Michelin, in the Journal of the French Horticultural Society, to have obtained many interesting and valuable varieties from seed. The Portugal Laurel has received special attention, with the result that some varieties have been raised differing considerably from the type, and which are shortly to be put in commerce by M. Baltet, of Troyes. It is to be hoped that M. Tomasse will continue a work so useful as the improvement of our hardy evergreen and other trees and shrubs. Even the common Laurel has much beauty when allowed to develop freely, and new varieties of it and the Portugal kind would assuredly be welcomed.—J. C. B.

SHORT NOTES.—TREES AND SHRUBS.

Chimonanthus fragrans.—This is a real gem in the depth of winter. There used to be two fine specimens of it in the conservatory at Gunton which were annually covered with their deliciously scented blooms. I have a plant of it on the south wall which blooms freely every year, the blooms being of a brighter lemon colour than those at Gunton; some spare Melon lights are placed before it to protect it from wind and rain. The soil is light on a gravelly subsoil.—S. E.

Kerria japonica.—This in some places is sadly neglected. It is a most useful plant for the wild garden. I well remember the grand appearance of some planted in an out-of-the-way yard, a very hot, dry sandy situation against a south wall. They were left to grow as they liked, except that a few of the dead pieces were cut out. They retained their beauty the greater part of the summer. It is a plant that deserves to be planted more extensively than it is.—S. E.

INDOOR GARDEN.

CAPE HEATHS AND THEIR CULTURE.

AMONGST the host of plants amenable to pot culture it is a question if there are any which combine so many desirable properties as the Cape Heaths, furnishing as they do every shade of colour from the purest white to the deepest crimson and several shades of yellow. The flowers, too, are

a speciality. Prominent amongst these were Fairbairn, of Clapham, and Rollisson, of Tooting, to which may be added Mr. Turnbull, of Bothwell Castle, the best of whose hard-wooded summer and autumn-flowering varieties are not surpassed by those of any who have tried their hands in the raising of new sorts. Heaths require peat to grow in, their extremely fine hair-like roots not taking to any other description of soil. The peat must also be good in quality and of dry consist-

putting them singly in small pots well drained, a condition of vital importance in all stages of the existence of Heaths, without which disease, or more frequently actual death, is certain to overtake them. For this first potting the material should consist of finely-sifted peat with a liberal addition of sharp, clean sand, pressing the soil moderately firm in the pots. Care should be taken that the soil is fairly moist, but not too much so, when the plants are put in it, so as to avoid the ne-



Specimen of Erica Cavendishiana. Grown by Mr. Cole, Exeter. (From a photograph).

produced in the greatest possible profusion, and in the case of many kinds they are more than ordinarily enduring. Even when not in bloom the dense healthy foliage, embracing every shade of green, never fails to give to a collection of Heaths a charm such as few families of plants can lay claim to. Nor are there in the whole range of cultivated plants any that have more readily responded to the requirements of the hybridiser, or that have yielded such great variety in form, colour, and general appearance. Heaths, indeed, all but encircle the year with their wax-like flowers. Two or three of the old nursery firms, the names of which were once familiar to the gardening world, made the raising of new varieties

ence, containing a fair amount of vegetable fibre. Nothing of a soft boggy character will answer.

Their propagation is effected by means of cuttings made of the points of the half-matured shoots, such as are obtainable in the case of most kinds in the latter part of the summer. These should be closely inserted in 5-inch or 6-inch pots filled with a mixture of finely sifted peat and sand, the surface being all sand; the cuttings must be kept moist, closely covered with propagating glasses, shaded, and placed in an intermediate house or pit until well rooted, which will be before spring, dispensing with the glasses as soon as sufficient roots exist to support them. By March the young plants should be in a state for potting off,

cessity for giving water as long as possible until the roots have begun to act. Never give water to a Heath immediately after a shift by way of settling the new soil about its roots, in the way sometimes recommended in the case of newly potted plants of various kinds, as such a proceeding is not unlikely to destroy the delicate points which, to some extent, undoubtedly get more or less bruised in the removal, although unapparent to the ordinary observer. The young stock should be set in a light position near the side of the house or pit which they occupy. Avoid putting them on bare, dry shelves, as is sometimes practised, as these help to dry up quickly the small amount of soil which the little pots contain. In place of this

set them on a stage covered with an inch or two of sand or fine ashes, which, being kept slightly moist, will reduce the frequent necessity of giving water, and also prevent their getting too dry. When well established,

Heaths are air-loving subjects, requiring more than most plants, but until the young stock get fairly into growth they must not have too much given them; for this reason they must be kept a little close until they begin to move freely, and as the sun gets powerful it may be necessary to afford them a thin shade for a few weeks. As soon as they commence to grow pinch out the points of the shoots, so as to ensure their branching out low enough, without which it is impossible to have them well furnished at bottom. The size attained during the first summer will depend on the varieties; soft-wooded quick-growing kinds like the winter-flowering *E. hyemalis* and others of that class make much more progress than the hard-wooded kinds, and amongst these even there is a wide difference in the rate of growth. As the season advances give more air, allowing some to remain on in the night in summer; during dry, hot weather the stock should be looked over, as to water, twice a day. Keep them well up to the glass in order to secure stout, well-matured growth, giving plenty of air, but not subjecting them to keen draughts. Through the autumn and winter let them have a light position where they can be kept a few degrees above freezing. During the dormant season let the atmosphere be dry, and now, as at all other times, never give water until the soil is so dry that its longer being withheld would be likely to cause injury. Again, early in spring they must be shifted; 3-inch pots will be the right size; this time break the peat fine by hand in place of sifting it, adding sand as before. The strongest shoots must again have their points pinched out, with a view to still further induce the formation of branches. Treat them as during the last summer in respect to air, water, and general routine, continuing to keep them well up to the glass.

A low light span-roofed pit is well suited to the requirements of Heaths, especially in their early stages, as in such a structure they can easily be kept close to the light, and yet in hot weather the air is not so dry a condition as to have a parching effect on young plants before they get into pots holding a larger body of soil. In summer during very hot weather it will be an advantage to moisten the floor of the pit, which will correct the over-dry state of the air, for although Heaths do not like a damp, stagnant atmosphere in autumn and winter, nor are they improved by the application of water overhead, yet under glass it may be drier than is good for them. Treat through the winter as before, and again give them a shift early in spring. The advantage of potting Heaths, especially whilst small, early enough before the external air has got hot and dry is that there is less likelihood of their suffering through the effects of removal than if the operation is deferred until later on.

Stopping and training.—Again pinch out the points of all the strong shoots, and in addition to this the strongest must be tied out horizontally close down to the rims of the pots. This has a double advantage in throwing the strength into the weaker growth left in an erect position, and of ensuring the dense bushy habit natural to Heaths generally, and which they would assume without assistance if growing in the open air. Use the soil now in a less finely broken condition than previously, and at each subsequent potting, as the plants get larger, it should be used in a still more lumpy state. The additional size of pots given should be regulated by the strength of the plants and the more or less vigorous habit of the variety; soft-wooded, quick growers attain size sufficient to make them attractive much sooner than the hard-wooded sorts, and amongst these there is as much difference in the rate of growth as there is in the ultimate size which they attain. It is well to avoid the extreme of too much pot room or the opposite of too little. At this stage 2-inch additional sized pots for the slow-

growers will be sufficient, whilst the freest will bear a 4-inch shift. This season a few small sticks will be requisite to tie the strongest shoots out so as to train the plants to the desired shape, but now, and in all subsequent stages, do not use more supports than cannot be dispensed with, as the act of thrusting sticks into the soil has the inevitable effect of destroying more or less of the roots, and the use of more than is required directly tends to destroy the appearance which the plants should have either in or out of flower. This season, towards the close of the summer, they will be all the better for having the lights drawn off them in fine weather, by which means their growth will get better matured, a condition still more necessary in after years as the plants acquire more size. The larger they get the more are they liable to be affected with mildew, the worst enemy that attacks Heaths, and one which it is necessary to continually guard against. The best preventive is a good light house to grow them in, keeping them as near the glass as possible, with plenty of air whenever the weather will permit, and full exposure to sun and air through August and September. In place of propagating their own plants the majority of growers will doubtless prefer to buy them of the ordinary trade size, the subsequent treatment of which requires to be in no way different from that here described, simply giving them a shift each spring into pots proportionate in size to their condition and the variety to be dealt with. When the plants have reached half specimen size, if given a good shift when potted, they will not require moving every season, but they should not be allowed to remain more than two years without additional room until they have attained something like full size, after which they may be kept in a sufficiently vigorous condition by the use of manure water during the growing season. In the

Potting of Heaths the mischievous, antiquated practice of loosening the outside of the ball with a pointed stick or similar instrument should never be resorted to. It is useless and highly injurious, as it cannot be done without bruising and breaking quantities of roots, the effect of which is that many plants so treated are some time before they make much progress, and not unusually they die off altogether, though often not so soon after the operation as to lead to the supposition of what is the real cause. As the specimens attain size they are better for being placed out-of-doors for six or eight weeks towards the close of summer, in which case they should always be placed in a position where they will be fully exposed to light and sun and sheltered from rough winds. A bed of coal ashes should be placed under them to keep out worms, which on no account must be allowed to get possession of the soil, or the roots cannot be kept in health. When so turned out the outsides of the pots must always be covered with pieces of mat, canvas, or something of a similar character to ward off the sun, otherwise the young roots which lie thickly against the inner surface are certain to be injured by the drying influences they are thus subjected to. There is one matter connected with the cultivation of Heaths that has hitherto not been sufficiently urged; that is, that immediately they have bloomed the flowers should be removed, and not, as they often are, allowed to remain on the plants until seeds have been formed. Few cultivators, it would appear, have ever observed or noted how differently Heaths that have borne a full crop of bloom start into growth again when the flowers are picked off as soon as they have faded compared with others on which they have been allowed to stay until seeds are formed. The latter process seems to tax their powers even worse than the development of the bloom; consequently immediately the flowers are dead they ought to be removed.

Habit of growth.—The varieties that annually make a considerable length of wood, such, for instance, as some of the tricolors when vigorous, *E. Austiniana*, *E. Irbyana*, *E. cerinthoides coronata*, *E. jasminiflora alba*, and many others of a like habit should at once, after bloom-

ing, have the shoots cut back to about half or one-third the length formed the preceding year; this is necessary to prevent their getting too tall and straggling whilst yet young enough to be useful. If this is not done it necessitates shoot-twisting, so objectionable in appearance when the plants are trained. Kinds that make only short growth each season, like the varieties of *E. aristata*, *E. æmula*, *E. elegans*, *E. retorta major*, *E. Marnockiana*, *E. depressa*, and a host of other slow-growing kinds, require no cutting back, or rather would be injured by it, and immediately the blooming is over they should have the flowers picked off, not giving time for seeds to form. Strong free growers, such as *E. Cavendishiana*, *E. affinis*, *E. vestita*, *E. hyemalis*, *E. Wilmoreana*, and others of similar habit will bear cutting back freely, in some cases even into the strong wood, and often after this has been done to the extent of reducing the plants to half their size, they make free growth; whereas if the slow growing, very hard-wooded sorts were cut back in this way they would be all but sure to die at once. The most difficult matter in Heath culture is

Watering, that is, knowing into what condition of dryness the soil ought to be allowed to get before water is given. Even in the growing season the slowest growing hard-wooded sorts should never be watered whilst there is much moisture in the soil; otherwise they are not likely to remain long in a healthy condition. The quicker-growing sorts, although impatient of too much moisture, will not bear the soil being allowed to get so dry before water is applied as the hardest-wooded kinds require it to be. A want of studying the requirements of the different sections of this beautiful family of plants has often led to failure, and to it may be attributed their being less generally grown than they deserve to be.

Varieties.—The following selection comprises some of the most desirable kinds: *E. Cavendishiana*, *E. depressa*, *E. metulæflora*, *E. tricolor Barnesi*, *E. t. Holfordi*, *E. t. elegans*, *E. t. coronata*, *E. t. Wilsoni*, *E. t. profusa*, *E. ventricosa coccinea minor*, *E. v. grandiflora*, *E. v. superba*, *E. v. Bothwelliana*, *E. v. magnifica*, *E. Parmentieri rosea*, *E. venosa*, *E. Savillei major*, *E. retorta major*, *E. Shannoni*, *E. S. glabra*, *E. Paxtoni*, *E. obbata*, *E. Marnockiana*, *E. Irbyana*, *E. Austiniana*, *E. McNabiana rosea*, *E. Lindleyana*, *E. insignis*, *E. Farriana*, *E. exquisita*, *E. elegans*, *E. Devoniana*, *E. cerinthoides coronata*, *E. Candolleana*, *E. aristata major*, *E. ampullacea obbata*, *E. æmula*, *E. odora rosea*, *E. hyemalis*, *E. Wilmoreana*, *E. Sindryana*. The above by no means exhaust the list of good and handsome Heaths, yet they are the cream, and anyone growing them will have a succession of flower nearly all the year round. The accompanying illustration represents a well-grown, well-flowered example of *E. Cavendishiana* (grown by Mr. Cole, The Cottage, Exeter), one of the best decorative Heaths in cultivation. T. B.

Strelitzia Reginae.—This interesting Musad is well worthy of more attention than it generally receives, being handsome and having flowers both singular and beautiful. Being a native of the Cape of Good Hope, it readily submits to a comparatively cool temperature during winter, which should, however, be considerably increased as spring approaches, when it will generally bloom throughout the months of April and May, or even later, as the many coloured and peculiarly formed flowers remain long in good condition. It is a plant which is easily grown, and by no means particular as to soil. It is usually increased by division, and this method necessarily renders its increase somewhat slow. But it is quite possible that it might be induced to ripen seeds in this country if the pollen was carefully saved and applied to the stigma after the honey which accumulates in the nectary has been carefully removed; the plant should afterwards be kept in a comparatively high temperature. It appears that it ripens seed freely enough in South Africa, where the Kaffirs are said to use it as an article of food. —P. G.

FUCHSIA MRS. MARSHALL.

FUCHSIAS are not so much grown for spring flowering as they should be, but I am sure that anyone seeing the fine healthy little plants in 4½-inch pots which are brought into Covent Garden during the spring months would be ready to acknowledge their value for decorative purposes at that time of year. Some kinds lend themselves better than others to this method of culture, and prominent amongst them is Mrs. Marshall, which evinces such a tendency to flower in early spring, that even in a cool greenhouse it will come into blossom at a time when the generality of Fuchsias are but fairly started into growth. The flowers thus obtained, however, are produced from wood made the preceding autumn, for this Fuchsia, if kept moist at the roots all the winter, holds all the autumn-made foliage, so that the young wood remains green and full of sap, and buds form again soon after the new year. It may, indeed, be regarded as an evergreen winter-flowering variety, only requiring a constant temperature of from 50° to 55° to bloom with freedom at that period of the year. This Fuchsia is much liked by market growers, owing to its floriferous, compact-habited nature and the ease with which it may be brought into flower in winter and spring. The foliage, too, being ample and of a pleasing shade of green, the flowers are shown off to the greatest advantage, and there is but little difficulty in furnishing young specimens with leafage to the rim of the pot—an important consideration in the case of plants of any kind grown for market or, indeed, for decorative purposes generally. For winter blooming cuttings should be struck late in spring, growing the young plants along freely all the summer, but not allowing them to flower, and shifting for the last time in July, so that the pots get full of roots by the late autumn. Plants of this description will bloom well at Christmas in a light, airy intermediate house, and if kept cool all the winter will come into flower nicely in March, April, and May in an ordinary greenhouse temperature. It would be well if raisers of Fuchsias would take in hand varieties such as this, which require but little inducement to flower early in the year. We should then probably secure a race of fine free winter-blooming kinds, the value of which can be scarcely over-estimated.

J. C. B.

THE VARIOUS KINDS OF LACHENALIA.

IN reply to Mr. Rawson (p. 167) I send the following list of Lachenalias cultivated with us and the kinds I have seen in flower. Of known kinds in our collection there are *L. glauca*, *L. orchioidea*, *L. pallida* and its variety *sulphurea*, *L. pendula*, *L. pustulata*, *L. tricolor* and its varieties *aurea*, *quadricolor*, and *luteola*, *L. tigrina*, said to be a variety of *L. rubida*, *L. versicolor*, and *L. Nelsoni*. With the exception of *L. pustulata*, the whole of these have flowered with me during the past twelve months, and are all correctly named. With regard to *L. pustulata*, the leaves of which are so curiously puckered, as though they had been frizzled, there can be no doubt of the correctness of its name, and our plant is so strong this year as to encourage hopes of seeing it flower. Turning now to the kinds we possess whose names have not yet been verified, there is *L. stolonifera*, whose name and history seem to be slightly mysterious, and of which no one appears to have seen flowers. Since I last wrote I have sent specimens of this plant to Mr. Baker, who replies, "I have no doubt this is one of the numerous forms of the section *Eulachenalia*, but it is impossible to say which until it flowers." This section is composed of the finest of the genus, viz., *L. tricolor*, *L. pendula*, and *L. rubida*, with their varieties. Curiously enough, I have several pots of what I have always considered the same as *L. stolonifera* named *L. rubida*, and Mr. Baker expresses the same opinion, *L. rubida* being an altogether different plant, having leaves 5 inches to 6 inches long and an inch wide, with purple spots about the base. A third name, *L. unifolia*, is given to this unknown *stolonifera*. Of course, *L. unifolia*, is a perfectly distinct and well

known species. I am anxiously waiting for these three plants to flower. They came from Messrs. Henderson, St. John's Wood, under the above names. Among a collection of bulbs received from Messrs. Johnson & Harman, nurserymen at the Cape, were the following names: *L. erecta*, *purpurea*, *alba*, *Wicki*, *flava*, and *angusta*. The first two turned out to be varieties of *L. pallida*; *angusta* has not started, and the others I know nothing about yet, though after what I have seen in respect to the names from this nursery I do not expect much of them. The variety of *pallida* named *sulphurea* is a very pretty plant; one of the most beautiful of the genus, in fact. I succeeded in getting seed from its flowers fertilised with pollen from a good *quadricolor*, and of course expect something good from it. A very beautiful kind named *L. flava* is figured in Andrews' "Botanical Repository," tab. 456. It is a fleshy, green-leaved plant with a scape almost 1 foot long, bearing flowers almost twice as large as any other kind and of the richest canary-yellow colour, with a slight touch of green on the outer segments. I have looked carefully over Mr. Baker's monograph, but find no reference to the figure or mention of the specific name *flava*. I expected to find it under *L. pallida*.

With regard to the investigation of the genus, I may tell Mr. Rawson that it has already been done in a most complete manner by Mr. Baker, whose monograph of the genus was published along with his comprehensive work on the Natural Order in the "Linnean Journal." Of course in a work of this kind it is not so accessible to gardeners as one would wish, and the fact of its being in Latin precludes many from using it, as no doubt they otherwise would do. A monograph of the two Orders, *Amaryllidaceae* and *Liliaceae*, which include so many popular garden plants, would, if prepared, as, for instance, Mr. Baker's synopsis of the *Crinums* or that of *Agaves*, prove of great service to gardeners. Mr. Baker has, however, done so much already to reduce many of the frightful mixtures in the nomenclature of cultivated plants to something like a satisfactory and simple arrangement, that we must at least for the present be contented. B.

GESNERA MACRANTHA.

THIS *Gesnera* is valuable from the fact that it may be had in flower without trouble during the winter months, or, at all events, soon after Christmas, a time at which its bright blossoms are very effective, especially when set off to advantage by the fine foliaged plants which then form the bulk of the occupants of our stoves. It belongs to the tuberous-rooted section, that is, it forms a *Gloxinia*-like tuber, from the centre of which is pushed up one or more strong shoots densely covered with hairs, and which reach a height of about a foot, terminated by a cluster of long, tubular, bright vermilion-coloured flowers, which are also thickly covered with hairs. The leaves, which are large, are oppositely arranged at short distances along the stem, and are pale green in colour. To get the plants in flower at the season just mentioned, the tubers should be potted about the middle of November in a compost consisting of two-thirds turfy loam and one of leaf mould, with a dash of sand. Medium sized tubers, potted singly in 6-inch pots, make pretty little specimens; but some roots require larger spots, and if specimens of considerable size are required several may when potting be grouped together. After this is done place them in an intermediate house, or in the cool end of a stove, and keep them slightly moist till growth commences, when they must be exposed as much as possible to the light. In a growing atmosphere the flowers will soon show themselves, when a little weak manure water may be given. After flowering allow the plants to continue in the same temperature for a time, when they may be removed to cooler quarters and kept during the summer in a cold frame. Treated in this way they die down towards the end of summer, and are then shifted into the greenhouse and kept dry till potted in November; in January

the flowers make a fine display. This *Gesnera* has been long known in gardens, but, considering its winter-blooming qualities, seldom seen. It may be increased either by cuttings of the young shoots or by seeds. H. P.

LEAF SPOT IN IXORAS.

"F. S." (p. 191) asks what is the best means of getting rid of this disease. The complaint is often seen in different degrees of virulence amongst these plants, some kinds being much more subject to it than others. *I. coccinea*, still far the best of the family, usually suffers the most, so much so that it seems to be affected in the hands of the greater portion of those who now attempt its cultivation, for it is rarely seen at the present day in its best form. The white species (*I. alba*) is also very subject to the complaint. *I. salicifolia* and *I. javanica* (Veitch's form) appear to be much less liable to this leaf affection than the preceding, or than any of the now numerous hybrids. I may say at the outset that plants which are so much affected as to lose the greater part of their leaves will never again become so strong as they should be. When I first began to grow *Ixoras* the plants of *I. coccinea* and of Rollison's form of *I. javanica* each winter used to show more or less of this disease, but not more than made some of the leaves unsightly without to any serious extent reducing the strength of the growth of the plants, yet it did not by any means improve their appearance. At that time I had always plunged the pots in bottom-heat, which naturally induces the production of thin leaves, deficient in substance, unless, as rarely happens, the bed in which the plants are plunged is so arranged as to admit of their heads being within 1 foot or 18 inches of the glass in a good light house, where some at least of the undue exciting influence of the bottom-heat is corrected. Seeing the less susceptibility to the disease in plants not subjected to extra heat to the roots, I gave up its use for these and other things of a like character, after which I had so little of the spot as to make its presence barely detectable. But unless the plants have sufficient warmth in winter, spot is sure to make its appearance, particularly if they have made free growth the preceding summer; if they are in other ways managed as they require, I never saw much harm done by it if the night temperature is not allowed to fall below 66°, which is quite low enough for *Ixoras* that succeed best when kept growing all winter; the little rest they need is best given them in summer, about July or August, by standing them for a month or so in a house with less heat and a less confined atmosphere than the stove. These plants should never be kept dry at the roots, or the atmosphere of the house in which they are grown allowed to get too dry in winter, to which, under the mistaken idea of then resting them, they are often subjected. Where this course is followed not only do the leaves suffer from the disease in question, but there is all but a stagnation of growth, through which they get into a stunted condition, and the spring is far advanced before they begin to move much with a consequent limited production of bloom, for all the kinds, including *I. coccinea*, will produce two full crops of flowers annually if kept growing as they require, and this in addition to the considerable number of trusses the plants bear between the periods of their general blooming.

The great merit of *Ixoras* where cut flowers are regularly wanted is that if well managed and several kinds are grown, there are sure to be some nearly always in bloom. To give an idea of the extent of growth they will make in the winter time I may say that between the beginning of October and the end of March I have often had plants of *I. coccinea* make shoots from the collar just above the soil that have run over 6 feet in length and as many as half-a-dozen of such shoots on a plant at a time. To do this the night temperature must be kept as near 70° as it can be; half a dozen degrees more in the daytime during winter will do. The erroneous idea that all stove plants require to be at rest in the winter and the

consequent low and, to such things as *Ixoras*, stagnating temperature the house is allowed to fall to, results in not more than half the flowers being forthcoming in the course of the year that otherwise would be. But, as I have often pointed out, to keep plants growing thus freely through the dull, short days the house must admit plenty of light, and they must be well managed in other ways; not the least important matter concerning which is to keep their heads close to the roof. Where the conditions are not such as to permit of the most being made of stove plants by this line of treatment it would be much better to grow such things as only require an intermediate heat, of which there are so many fine species now all but neglected on account of there not being warmth enough in a greenhouse for them, and a stove temperature being too hot. T. B.

ABUTILONS IN WINTER.

THERE are now many fine varieties of this useful Malvaceous plant, the greater portion of which flower during winter, thus furnishing cut flowers for indoor purposes, and forming graceful decorative plants for the greenhouse and conservatory. The earliest introduced species were somewhat straggling in habit and shy bloomers, but this cannot be said of a host of hybrid varieties, all of which are everything that can be desired in these respects, being dwarf and compact as well as profuse and continuous flowerers. They are also all plants of easy culture, and will succeed in any compost which may be suitable for the *Pelargonium* or other soft-wooded plants. They are all easily increased by cuttings, which may be inserted either during early autumn or in spring, placing the pots containing them in a close atmosphere on a mild bottom-heat. Possibly the best method of securing suitable plants for blooming in winter is to plant out in suitable soil, in the open air, early in June, well-established, healthy young plants, which will require little attention during the summer months beyond watering during dry weather. Such plants should be carefully taken up and potted early in October, and after being kept somewhat close for a short time, they will continue to bloom throughout the winter if placed in a warm greenhouse or similar structure. Existing varieties of these plants produce flowers of various shades of colour, and as hybrids are in this family easily obtained, each successive season adds to their number. The following are the names of a few which will be found worthy of a place in any collection of winter flowering plants, viz., A. Thompsoni, an old variety, but still worth growing on account of its ornamental foliage and pretty flowers, which are not however, produced in sufficient abundance. The following are of more recent introduction, viz., *Boule de Neige*, a very free flowering variety, compact in habit, and with flowers pure white; *Seraph*, also a very fine white flowered variety; *La Grélot*, pale pink with rich purple veins; and *Lady of the Lake*, also a fine pink flowered sort; *Orange Perfection* has flowers of a deep orange colour, and the blooms of *aurea globosa* are of a rich golden yellow. In addition to these there are also now in the trade many other meritorious varieties of this graceful plant. P. G.

Begonia Froebeli.—I do not think "Beginner" (p. 126) will meet with very great success if he attempts to grow this beautiful *Begonia* in a cold frame. Although it will grow well without artificial heat in summer, it requires a little heat in which to start the tubers. "Beginner" will find it advantageous to convert his cold frame into a hotbed about the 15th of March. This will be found useful for raising many plants from seed both to make his garden gay and also to exhibit at the end of August. The compost should consist of two parts good fibrous loam, one part leaf-mould, and one part well decayed manure, with a good dash of sharp, coarse sand to keep the whole sweet and porous, mixing all well together. This compost should be broken or chopped small, but

not passed through a riddle. The size of pot will depend on the size of the tuber to be placed in it; for a small tuber a 5-inch pot will be large enough to start with, and when it has filled the first pot with roots repot into a 7-inch one. When the flowers begin to show above the foliage, feed once a week with weak manure water and ventilate with care.—H. PARKER.

Top heating.—"Peregrine" is under a misapprehension in assuming that to keep his return pipes, which are fixed close under the roofs of his low houses, in operation it is necessary for Mr. Cannell to place his boilers in the chimneys. At Swanley all the heating is done by patent circulator boilers, fixed in stoke-holes, as is customary, and the smoke is carried from these along a subterranean flue to a big chimney remote from the houses, so that the sooty particles are as far removed from the glass houses as possible. The results, as seen at Swanley, of the system of top-air heating are worth thousands of scientific speculations, which are almost invariably found to be erroneous. Thus it was held to be a profound scientific fact that, given top ventilation, and the heated air within a building would escape through the apertures. Practical experience, a sharp thorn in the side of science, has shown that the cold external air, the heavier body, rushes into these upper apertures, and thus creates miserably cold currents and draughts, thus setting all preconceived notions as to ventilation at defiance. Just so "Peregrine" says "that a buoyant and moving atmosphere in a hothouse is the main point, and we know that by setting a heating apparatus at the bottom of the column of air we set the whole in motion." That is very scientifically put, but the fact is the air in any house, howsoever built, is not a column; it is a shapeless body, the motion of which would be affected only in an infinitesimal degree by a row of hot-water pipes laid on the floor. On the other hand, heat placed on the upper side of the body is likely to prove far more efficacious in creating motion than is an inert body of heat below. In Mr. Cannell's houses there is heat both above and below; hence the good results. As evidence of the benefit of top-heating, where can be seen in the dead of winter such a grand show of *Pelargonium* bloom or more finely grown and bloomed single and double *Primulas* than at Swanley? That they are good all who have seen them will freely admit.—A. D.

FLOWER GARDEN.

TUBEROUS BEGONIAS FOR BEDDING.

THAT these *Begonias* should prove unsatisfactory as bedding plants when selected without due regard to the purpose for which they are required is to me a matter of no surprise, because amongst this important class of plants may be found varieties and forms suitable for almost any purpose if judiciously selected. Many admirably suited for exhibition plants are useless as bedders, and varieties which make admirable bedders would make but indifferent exhibition plants. For all practical purposes the different types may be divided into three, viz., the strong and erect growers as exhibition plants; those with a drooping habit for hanging baskets; and between these two there is an intermediate type suitable for outdoor decoration. It is of this class I wish to speak, but I may state at the outset that in some respects my experience of *Begonias* as bedding plants has been disappointing. I have had my seed from the best sources, and although I have raised a large number of plants, not more than one-third of the number have been adapted for garden decoration; they, in fact, comprised a fair proportion of the three types just enumerated. To speak plainly, only those with an intermediate growth and which produce red or crimson flowers are of any use as bedding plants. This I learned early in the days of *Begonia* culture, and I have not yet seen sufficient reason to alter my opinion. Unless one goes in for saving one's own seed and raising one's own plants it is impossible to form a fair estimate of the value of tuberous *Begonias* as bedders. Plants raised from

ordinary mixed seed as received from seedsmen, although well worth conservatory culture, are useless when planted out in the open ground, and where *Begonias* have failed as bedding plants it is plain that the selection of unsuitable varieties has been the cause. My own practice has been to save my own seed and raise my own plants. I have made it a point to avoid all colours except crimsons and reds, and I have been careful to

Secure my seed from plants of moderate height, and with a neat, compact habit. I have always sown it as soon as ripe, which is generally about the middle of August. Seeds sown at that time will produce bulbs next spring about the size of large Marrow Peas. These are grown the next summer in cold frames, where they produce bulbs large enough to bed out the following year. From this time little management is needed. About the middle of March a two-light frame is placed on a hard bottom in the frame ground, facing south. A depth of about 9 inches of soil is then placed in the frame; in this the bulbs are planted, and I may here state that we take our bulbs from the floor of a house in which only just enough fire heat is used all the winter to keep out frost; to this place they are taken in autumn when they are lifted from the beds, and we take no further notice of them until spring, when we always find them plump and sound. The large bulbs we put 6 inches apart in the frame and the small ones 4 inches. We keep the frame closed and give no water until the young growths are seen peeping through the soil. On cold nights mats are placed on the frame to keep out frost; we find about, the second week in April that the young growths begin to come through, and then a little air is given on mild days, and sufficient water is supplied as often as it is required to keep the soil moist. As growth advances more air is given until the season is so far advanced as to allow the lights to be taken off during the daytime. In a general way I may say that we begin to take off the lights about the middle of May. We do this to induce a short, sturdy growth and to get the plants gradually inured to the air. For bedding purposes they do not want any coddling, because they are not more tender than the majority of plants used for summer bedding. Prepared in this way I have no hesitation in saying that we have no other tender plants used for the summer decoration of the flower garden that can equal these *Begonias* for creating a solid mass of flower in so short a time after being planted out. I put out my plants last year on the 1st of June, and in a fortnight after that date they were in full flower, and continued in that state all the summer. It is only right I should say that I have tried plants raised from seed early in the year, and carefully nursed them on until bedding-out time, but, compared with one-year-old plants treated on the cold principle, they are nowhere.

Planting the beds.—This much it may perhaps be necessary to say, that although the *Begonia* does not like fresh, strong manure, its growth is much stronger and more lasting when the soil is fairly deep, somewhat light in texture, and made rather rich by incorporating with it some thoroughly rotten manure, and where practicable it is best to manure the beds in the autumn. When ready for planting we take a fork and lift the plants carefully out of the bed of soil, place them on a hand-barrow, and carry them to where they are wanted; when planting, the crowns should not be placed more than an inch under the surface, and as *Begonias* are fine rooting subjects, the soil about the bulbs should be made rather fine. Avoid too thick planting. When I first began bedding out *Begonias* I made a serious mistake in planting them too thickly; the consequence was there was not room for the development of lateral growth, and the result was the plants did not show their true character. Instead of branching outward they made upward growth, which caused them to reach a height much greater than they would have done had they had more room in which to extend their side growth. To prevent any disappointment in this matter it should be understood that my plants are large, with four and five stems rising from the bulbs.

Amongst the many thousands of bedding plants that we put out every year not one gives so little trouble as these Begonias. They require no stopping; they divest themselves of fading flowers; and any attempt to pinch them or otherwise interfere with their growth will injure them. In an ordinary summer and in a suitable soil they will thrive without the aid of the watering pot. In a word, it is only necessary to plant fair sized well prepared plants as just advised in order to secure the most satisfactory results. J. C. C.

SPRING FLOWERS.

WHAT a lovely thing is *Saxifraga Burseriana* when seen in tufts of from 6 inches to 8 inches across and bearing over fifty flowers! It has been in good form since the middle of January. It blooms better in pots than in borders, especially in wet seasons. It cannot endure the lodgment of wet about the surface. Potted high like Orchids not only suits it, but shows it off to advantage. *S. cæsia* and *S. juniperina* are both better for such treatment. Crocuses now render the garden inviting—*luteus*, *biflorus*, *Sieberi*, *reticulatus*, *versicolor*, *Imperati*, and *vernus* being already in bloom. Hepaticas, too, are beautiful both in open parts and in a little shade. How glorious is *H. angulosa* with flowers 2 inches across! Of this I appear to have two distinct forms. One has persistent foliage; the new leaves are much later than in the others, and much more coloured (purplish green) before they become unfolded. The flowers, however, are the most distinct; the sepals in one are a pale blue, long, narrow, and well apart, much resembling those of the flower of *Anemone stellata*; the other has more cupped flowers of a darker colour, sepals slightly imbricate—in fact, a less and stouter blossom. All the varieties of *H. triloba* are in bloom—red, rose, white, purple, and many shades of blue, including the lovely double form. I never remember to have seen the crowns so thickly and tightly packed with buds; all the sorts promise a long season of bloom; a batch of seedlings are producing some new shades. With me the various Snowdrops are better than usual, though I am not so successful as some with these, excepting the common one. *Anemone ranunculoides*, *Gentiana verna*, double Primroses, *Scilla sibirica*, *Cyclamen Coum*, *Saxifraga oppositifolia*, *S. o. major*, *S. pyrenaica*, *Bulbocodium vernum*, and *B. trigynum*, though small subjects, are all very welcome, and a little perhaps before their usual time. The last named, as figured in THE GARDEN last summer, showed the flowers to be very short in the tube, in fact showing no tube; whereas my specimen shows a tube more than 1 inch long. It is a charming flower, white faintly suffused with lilac, and sweetly scented in the way of new honey. The Hellebores are yet the main attraction in the garden. *H. niger* is nearly over; *H. maximus* has flowers softly tinted, and in one or two instances nearly 5 inches across. What a variety of shades we have in *H. purpurascens*. The flowers of *H. guttatus*, *H. antiquorum*, *H. olympicus*, *H. orientalis*, and *H. abchasicus* are borne aloft and are enjoyable at a distance. Many of the dwarf kinds are equally pleasing when more closely seen. Has anyone observed the perfume of *H. Bocconi*? The commoner Polyanthus have been in flower more or less throughout the winter. Daisies are very forward; the red ones quite a show. The verdant blades of Daffodils are piercing the earth with buds just visible; the high coloured sprouts of the Pæonies, Columbines, Dicentras, and Gentians, and the already well-developed tops of Poppies, Iris, Larkspur, &c., are full of promise of a coming feast of flowers. JOHN WOOD.

Woodville, Kirkstall.

Calceolaria Kellyana.—The mention of this plant by "Veronica" on page 185 reminds me that it was offered for sale in Mr. Ware's catalogue of the spring, 1881, as a hardy herbaceous Calceolaria. I bought a fine plant which seemed inclined to increase and flourish when planted out, the crowns resembling those of *Mimulus car-*

dinalis; the flowers were few and inconspicuous. I was told by old gardeners who saw it that it was formerly cultivated by the name of *C. plantaginea*. I made several divisions from it, which I tried in different soils and in a frame, but during the winter the whole stock died off, and I observe that it is no longer included in Mr. Ware's catalogue. Perhaps others who bought it may be able to tell us more about it.—C. WOLLEY DOD.

SISYRINCHIUM GRANDIFLORUM.

Who would imagine on seeing this charming, yet fragile, flower in a cut state that it is hardy



Sisyrinchium grandiflorum (natural size).

enough to withstand the cold rains of February or the winds of March. The plant is altogether more slender and graceful than any other open-air plant with which we are acquainted. Its Rush-like foliage, growing erect and tufty, has doubtless suggested its popular name of Rosh Lily, a name which to some is easier remembered and more euphonious than that given it by botanists. When well and fully grown it is from 12 inches to 15 inches high. The flower-stems are intermingled with the foliage and are about the same height. The blossoms are usually borne in

pairs produced on slender stalks drooping out of the membranous sheath called a spathe. One flower usually expands a day or so before the other, and if the stem is cut just as the first flower begins to open the second one will succeed it as if it were still on the plant. Interesting as the plant is in the open border, it seems almost a pity to leave such delicate beauty to the mercy of the weather; and as the flowers last long in perfection when cut it is best to have a few in a vase indoors where their beauty can be thoroughly enjoyed. We have said it is a hardy plant, but the term hardy is subject to conditions, for in some localities, particularly if the soil is surcharged with water in winter, it will succumb to hard frosts. In light soils it is perfectly hardy, but even under such circumstances the plant seems always grateful for a little protective mulching during winter, such as short litter or Bracken. Its normal flowering time is in April and May, but already it is in bloom in some gardens, probably on account of the prevailing mildness. In Messrs. Barr's grounds at Tooting there are some fine beds of it, and each tuft therein is carrying several flower-stems. Their earliness has doubtless been accelerated by the good mulching of litter which has been put on the bed. Though pretty now, the plants will be more beautiful in the course of a few weeks when the days become warmer.

There are two forms of this plant, the one supposed to be the typical distinguished by its very fine vinous-purple blossoms, the other called the alba or white variety, having flowers of spotless white, save the gold-tipped tufts of stamens. It is a hard matter to say which is the more beautiful. Both are charming kinds and worthy of the attention of every flower lover. In both the petals exhibit a transparency seen in few other flowers, and certainly in no other hardy plant. The form and size of the flower are shown in the accompanying woodcut. This is not a new plant, having been introduced so far back as 1826. It is a native of that tract of country in the vicinity of the Columbia River, which was explored by the botanical collector, Douglas, and it was by him it was first sent home.

The culture of this plant is simple. It likes a good friable soil, such as may be found in most kitchen gardens. Some say it likes a shady place, but I have always seen it do best in the open in full exposure, but it is best to shelter it from strong winds in some way, as they tear and knock the plants about so badly. To propagate it the plants should be lifted in autumn, and the tufts pulled carefully into as many pieces as are required, always leaving a sufficiency of roots on each piece to start it into growth. The pieces should be planted immediately in light soil, placing a little sand around the roots in order to induce the formation of new rootlets. Fibrous rooted plants such as this require careful handling when propagated, for the roots soon suffer. Some grow this plant well in pots for greenhouse decoration in spring, and a very pretty plant it is for the purpose. W. G.

HELLEBORUS NIGER MAXIMUS.

Two varieties of Christmas Rose have lately been mentioned as rivals in the columns of THE GARDEN, and in "Veronica's" notes of last week *H. n. angustifolius* had the best of it. I know the variety well. I will admit that in soils that suit it it deserves all the praise "Veronica" gives it. I have had beautiful pure white flowers of it sent this Christmas by Mr. Brockbank and from several other gardens; but with me it simply drags out a miserable life, whilst *H. n. maximus*, by its side, has produced fine flowers from the first week in November to the end of January. This was not the case with one plant only, but with many of each variety, and their constitution is very different. The common Christmas Rose and this variety, *H. angustifolius*, cannot stand autumnal damp or cold soils, which rot their leaves and make the crowns bare, and the flower buds become abortive. But the stouter

substance of the leaves of *maximus* resists the damp, and so the flowers come to perfection. I would advise those in whose gardens other Christmas Roses fail to try *H. niger maximus*. A few words about the origin of this variety. "Veronica" says it is "sacred to the memory of Miss Hope," of Wardie Lodge, and let it be so, for the lady is well worthy of the plant, and no one ever deserved more to have perpetual spring upon her grave; but I happen to know the history of the variety in Miss Hope's garden, which may be interesting to some. The original plant was planted, according to the label, in 1863, and was given to her by Mr. Hogg, of New Liston, who got it from Aberdeenshire. Miss Hope admired it so much that she sent a man to Aberdeenshire, who obtained some dozens of large clumps, and Wardie Lodge garden soon became a centre of distribution of it. Now, I have had too many pleasant days grouse shooting and salmon fishing in Aberdeenshire to say anything disparaging of the country, but I think it hardly likely that this giant Hellebore originated there. Mr. Archer-Hind, than whom I know no one better acquainted with Hellebores, tells me that when he went to live in Devonshire, twelve years ago, he found *H. niger maximus* an old-established plant in his garden, and that he could not trace its origin there. As far as I have observed, its distribution in the country is limited, and in the greater number of nurseries it is not known at all, but it probably was raised in some Continental nursery. By far the largest leaves of it I ever saw were from Mr. Archer-Hind's garden. It is a most distinct form, and to those who are not botanists seems worthy of specific honours.

Edge Hall, Malpas.

C. WOLLEY DOD.

DRAINING AND TURFING LAWNS.

MANY lawns on clayey soils seem to require draining; but is it under all circumstances expedient to do so? Some have been drained, involving needless expenditure, for in a few years the work has been rendered nugatory. Lawns are usually studded with trees and clumps of shrubs, and the roots of these find their way into the drains and effectively choke them up. A drain several feet deep of glazed pipes, such as are used for sewage, upon being recently opened was found to be choked up by the roots of a distant Horse Chestnut. When the pipes were laid about three years ago the puddling in the case of one of them was not effectually done. The roots entered, and when taken out were found to have completely filled the pipe. It thus appears that draining lawns with pipes is a delusion. We will assume that when the lawn is made trees and drains are so disposed that there is no possibility of interference on the part of the roots. In a few years changes occur either of gardener or proprietor, or both; trees are moved for reasons which we need not discuss, and the probability is that one or more may be placed where in a year or two its roots will clog the main artery. Even drains made in walks in the vicinity of trees to carry off surface water are frequently taken possession of by roots. I have observed, however, that, as a rule, lawns furnished with trees and shrubs seldom remain wet for any length of time. In summer the water is soon absorbed, and in winter the roots act as conductors to convey it downwards a certain distance.

Turf-laying.—This is an operation which engages attention more or less at this season. The actual work is usually delegated to handy labourers, and consequently gardeners acquire little experience in the matter. For instance, I observe directions given to cut the turf into pieces about 18 inches square. Now, I have always considered that the standard measure of a turf was 1 foot by 3 feet. A handy man will certainly cut two of this size whilst another is still thrusting and struggling to get up an 18-inch one. In directing how the turf should be laid, writers usually say the sods should be beaten slightly with the spade. Many years ago we were engaged in laying turf in that way, and I well recollect that most of the time was spent in be-

labouring the turf or obliterating our own foot-marks with the rake. In very wet weather the work had to be abandoned, for our feet stuck fast in mud of our own making. The most effectual and expeditious way of doing the work is as follows: The workman should commence at the part where the turf is likely to be brought; he will prepare his ground, *i.e.*, assuming that it has been roughly levelled before. A small sized half worn shovel is the best tool for the purpose. With this he can chip and chop and beat any slight hollows he may have to fill. Another man may follow, laying the sods. After he has completed a stretch or two he should have boards such as are used for scaffolding to lay on the top to stand upon whilst laying some more; he has only to turn them over as he proceeds. Another set is requisite for the barrows containing the turf. If advantage be taken of fine weather to prepare the ground, turf laying in this way can be carried on with ease and comfort, even in wet weather provided the men can withstand the rain. Turf cannot under most circumstances have too much beating, and if well done there will be no necessity to run about filling cracks later on. The beaters I have here are made of Oak, convex on the top side, with a beating surface of 8 inches in diameter; each has a 2-inch wide iron band round it. They have 4½-feet and 5-feet handles, inserted perpendicularly, of course, in the centre of the convex side. A mason's mallet will give some idea of it. This is a man's lift high or low, with one or two hands according to the force he wishes to apply. If it is a croquet lawn or terrace he should have a line stretched and move it every yard or two; in this way he can make the surface quite level. When turf is cut from ground of a stony character, there are frequently small stones left on the surface of the sods after they are unrolled, and in that case the whole surface should be swept before being beaten.

W. P. R.

Shrubby St. John's worts.—Allow me to mention the common Tutsan (*Hypericum androsaemum*) as a worthy companion to those named in THE GARDEN (p. 158). Apart from its handsome foliage and flowers, it bears a very attractive berry-like capsule, and as a British wild flower will bear comparison with even exotic *Hypericum*s. It is unfortunately getting scarce in the vicinity of London, but is still to be found plentifully in Devonshire and the adjacent counties.—J. W. ODELL, *Barrow Point, Pinner*.

Gladiolus failure.—Upon this subject I propose to add but a few lines; but the point is most material, *viz.*, the wintering or winter treatment. "Delta" says (p. 140): "I cannot say I see the advantage of 'W. J. M.'s" plan of storing, even if one had room . . . for the disease goes on until the whole bulb is destroyed." In taking up my stock in November, say, I cannot remember having seen a partially diseased (if I may use the term) *Gladiolus*. If one failed, it went before then; and if then sound, neither this year nor any other have I ever lost one from rot by my system. I mention this as many growers find the storing their greatest difficulty.—J. W. M., *Clonmel*.

Six-petalled Hellebores.—A short time since I sent you some blooms of *Helleborus niger* showing six sepals from bract conversion. I now send you a specimen of *H. purpurascens*, somewhat pale coloured, also having six sepals. To me this is even more remarkable than the *niger* divergence, inasmuch as in this case there is not the provision of sepal-like bracts on which the flower can steal a march. As will be seen, the floral leaf is not only perfect, but relatively in its proper position. The difference in the two appears to be this: in *niger* it was a converted bract, but here we have an entirely new or surplus member. In all other respects the flower is perfectly formed, especially the petals. I see Mr. Archer-Hind considers such sports accidental; but are they not capable of being turned to account?—J. Wood, *Kirkstall*.

Myosotis dissitiflora alba.—It will probably interest Mr. Fish and other admirers of this lovely Forget-me-not to learn that I have the

pure white form of *dissitiflora* in bloom under glass, and charming it is. My plants have been hard propagated, having been little better than cuttings but a month or two since, and therefore the sprays and blooms are not so large as those of the blue kind under ordinary culture; but I have no fear whatever but that strong plants will always furnish large flowers. I mentioned last year that I had got a small sport of the white form. It was, indeed, when found, but a tiny speck, a single spray of white amidst a field of blue. It was lifted out with the greatest care, planted out by itself, and then forgotten. However, very early in the new year my attention was recalled to the plant, which had then grown into a big clump, by observing that the expanding blooms were white. Then I remembered my sport of the previous season, and at once lifted the clump, pulled it to pieces, and potted it up. I observe that Messrs. Veitch offer seed of this white kind, so that it will soon, doubtless, become abundant; and, indeed, I venture to prognosticate that in a very few years it will become a most popular market plant, and be grown in vast quantities in pots. The blue variety will come reddish pink in colour under glass, until solar light becomes strong enough to create the desired blue tint. Thus it is a disappointing plant in warmth. On the other hand, the white kind comes out in a gentle heat of the purest hue, and I think it will be soon universally ranked amongst the loveliest of our hardy spring flowers.—D.

THE CHRYSANTHEMUM AND ITS CULTURE.

Hints on exhibiting.—Cut blooms for exhibition will keep fresh longer and look better if cut the evening before the show and placed in cups of water on a cool, moist cellar floor. Intending exhibitors must be especially careful "to read, mark, learn, and carefully digest" the words and meaning of the schedule and regulations of the exhibition or society offering the prizes. If the slightest doubt is felt, call upon or write to the secretary of such exhibition or society at once and gain a clear idea as to what is meant, or 'disappointment may result, owing to your having unconsciously shown in a wrong class; or you may be disqualified for showing "clusters of flowers as grown" instead of the three best flowers, "clusters or bunches of three," which you have on your plants. The following will explain what is to be guarded against: "At a recent exhibition a class was provided in the schedule for 'twelve Pompones, not less than six varieties, to be shown in bunches of three, with foliage.' The chief prize was awarded to an exhibitor with three individual flowers of each variety. The second prize was awarded to another who staged three trusses of each variety, each bunch of three trusses probably containing over a dozen individual blooms. According to the reading of the schedule, ought not the latter stand to have been disqualified? We state this question in order that our reply may be better understood and of more service generally, as the subject has much more than a personal significance. The second-prize stand referred to could not have been disqualified, as 'bunches' certainly were staged—a 'bunch' meaning a cluster. A number of the same kind growing together, or a number of stems containing single flowers tied together, would form a bunch. In the Kingston schedule the stipulation is 'twelve bunches of Pompones, distinct, three stems as cut to form a bunch (Anemone Pompones and hybrids excluded).' Mr. Moorman was rightly adjudged the first prize in this class, each of the stems having six or more fine flowers. According to the extract from the schedule first referred to, the judges might, perhaps, have disqualified the first-prize stand, as blooms, not bunches, of three varieties were staged, but they no doubt, as judges usually do, exercised their discretion in reading ambiguous conditions. According to the Kingston schedule they could neither have disqualified bunches of three single blooms as cut from the plant nor bunches containing several blooms on one stem. Whatever is meant by committees should be stated. Either 'three single blooms to form a bunch,' or 'three

bunches of flowers as cut, number of blooms not limited,' would make the matter plain to all."

Dressing Chrysanthemums.—On this subject Mr. Douglas, Loxford Hall, writes as follows: "Those intending to exhibit cut blooms will find it necessary to obtain dressing tweezers. These are made of ivory, steel, or iron. The ivory tweezers are not quite strong enough to remove the badly formed petals or green scaly substance that is sometimes to be found in the centres of the flowers, so that steel tweezers will have to be provided for that purpose. The ivory tweezers are used mainly for arranging the petals, but one pair made of steel or iron may be used for both purposes. The large-flowered incurved section is that from which the exhibition blooms are selected, but on careful examination of the various varieties named in this section it will be found that the petals of many of them are irregularly formed, and some of them are badly placed. If we take an incurved bloom as a model, the best for our purpose would be Mrs. George Rundle or the primrose and yellow sports from it. The petals of this variety are sufficiently broad and incurved so that they meet in the centre of the flower, forming what the florist would term a perfect flower; this variety does not require any dressing. John Salter is a large and good flower often seen in stands, but it requires a good deal of manipulation to make it presentable, owing to the number of badly-formed petals in the flowers. It may be added parenthetically that the flowers of this variety and others of the same type come better formed if they open near the glass roof; the worst of the petals must be removed first with the tweezers, and those that remain must be carefully arranged to meet in the centre. Cherub is another type of flower that requires a good deal of work to make an exhibition bloom; unlike John Salter, which is weak in the centre, this variety is generally too full, so much so that the outer petals are thrown back sometimes against the stem; in this case the tufts of small petals in the centre have to be torn out, and the wooden cups are used to draw the flower together. Every one of the blooms must be set up in these cups, which are furnished with a stem to fit into the water tubes; there is also a hole through the stem of the cup through which the flower-stem is passed, and the stem must be wedged in to keep the flower in position. Another fault some incurved flowers have is the tendency of some of the petals to reflex; these have to be brought into position by working them through the tweezers. The outer petals are usually the best, and should, if possible, be carefully preserved; when a number of them are removed by decay or for the purpose of improving the flower the chances are much against such flowers winning in a close competition. I would say to an intending exhibitor, first take every pains to preserve the blooms from damp, and thus save the outer petals until the blooms are fully open; second, take Mrs. George Rundle as the model of an exhibition flower, and bring the others up to that form by dressing; and thirdly, let no one go away with the idea that badly grown flowers can be dressed to beat those that are well grown. Good cultivation must go hand in hand with good dressing to obtain the best results."

"Various opinions," says Mr. Moorman, "will always exist on the propriety of dressing flowers. At the present time it would be useless for any exhibitor to stage a collection of undressed blooms against others of equal size and substance that were dressed. Nearly all societies allow flowers to be dressed, which consists, in the case of an incurved flower, of merely drawing out with a pair of tweezers all short, curled, and irregular florets from the centre of the flower, or in any part of the flower that they can be found. The centre of most flowers will be found shorter than the outsides, and by pulling out the short florets a more even outline is produced; the remaining florets are regulated and the blooms placed in hollow wooden cups, in which position they are tightly fastened. One point may here be advanced in favour of dressing, that the more a flower is dressed the smaller the bloom is made; therefore,

the more substance the flowers contain the better chance the exhibitor has in gaining the premier position; hence the success of the Liverpool growers over growers in the neighbourhood of London. The incurved flowers of the former are always of better build and contain more substance than the southern growers appear to be able to obtain."

I am informed on good authority that at the Jersey Chrysanthemum Show no dressing is allowed, each bloom being exhibited as it is grown. Although the above directions may be useful, yet I must say that formality is not beauty in the eyes of artistic, or even tasteful, people, and all that dressing can do for us is to give to the florets a slate-on-a-roof kind of regularity—a stiff formality which does not deserve toleration.

Large blooms.—On the subject of bud selection for large blooms I note the following in a recent number of the *Gardeners' Chronicle*: "About London cultivators generally are in favour of growing their flowers upon the terminal bud, meaning thereby the bud actually latest in course of development, but not terminal in the sense intended by the botanist, who uses the word in relation to position, not time; while north-country growers prefer the crown bud, or crown terminal, as it is called about Liverpool. Thus, while one set of plants are growing, making wood, the other set are forming and developing flower-buds, a fact which upon the face of it will clearly account for the difference in the size of the flowers."

"In the interests of the uninitiated we will endeavour to explain these technicalities, and start with the cutting taken in the spring, say in February or March. Cuttings are rooted, potted off, and grown upon one stem until July, in the early part of which month a bud will appear which is called the July bud, which if taken is rarely of any worth—at any rate not as an exhibition flower. In a vigorous growing plant this bud (the terminal bud of the botanist), if it is closely observed after its formation, will be seen to gradually decrease in size, and at the same time three young shoots, at first not much larger than pin-heads, will be seen to come away from below its base. As these shoots increase in length the first bud will disappear altogether, and there will now be three shoots to a single stem. In August another set of buds will appear, which, if properly formed, and the vigour of the plant pretty well expended, should be taken, or, in other words, the growth of the plant should be stopped. Immediately upon the appearance of the bud it will be found that three tiny growths are in process of formation at its base, which would develop into shoots, as before explained, and these should be removed at once if the buds are to be retained."

"The next set of buds appear about the first days of September, and these are what cultivators call the 'terminal buds,' as undoubtedly, in one sense, they are, being the last effort of Nature after the plant has ceased to make shoots. If for the sake of argument we assume that one cultivator disbuds his plants in August, and another disbuds his at a considerably later period, we have a substantial gain on behalf of the former for the process of bud-development. This we consider the simplest way of elucidating the technicalities of the bud business, but the practice is not now generally followed in growing large flowers."

"The system to which we now allude is more intricate in its details, but it offers great advantages to the exhibitor, inasmuch as it gives him a wider selection of buds. It is done in this way. When the plants are about a foot high they are pinched, viz., the extreme points of the shoots are 'rubbed off,' not cut back, as an old hand once sarcastically put it to a young beginner. This early pinching gives it a stout stem, and three young shoots break away from the point, all below these being removed as fast as they are formed. Upon this system the first buds that appear are taken, if they do not show too early. But suppose there is a doubt about the matter—one bud is taken for a chance flower, and the remaining two are treated upon a different principle. The bud upon the second shoot may also be taken, but, as a measure of precaution, instead of rubbing out the three

growths at its base one is left temporarily to divert the flow of sap from it until it is clearly seen that the force of the sap is not strong enough to spoil the bud, when of course the growth must be pinched out. The third shoot would be allowed to grow on, taking care to remove its two weakest companions as soon as the strength of each could be recognised. Thus the cultivator who adopts this system has three chances from the same plant, so that if he misses the mark with one flower he is sure to hit it with another. We have seen three distinct characters of flowers upon the same plant over and over again, the variations being due to nothing else than the time and manner of disbudding. The next point of importance in the production of large blooms is the theory of the ripening of the wood, which in the case of the Chrysanthemum will not hold water. There must be strength of stem and large green leaves down to the rim of the pot to produce good-sized, well-formed flowers."

Mr. Lynes says that after "Having cultivated the Chrysanthemum for some years I do not know of any one system which may be laid down as a hard-and-fast line to follow and guarantee results. What is termed the natural system is to let the plants grow as they will until they show the summer bud, which will generally be from the middle of June to the end of July. This bud is useless. Several shoots are produced below it, when as many may be left as the cultivator deems fit—from three to eight, variety and strength of plant to be considered. These shoots, being left to grow, will each show another bud, which is termed the crown bud, and that is the bud to produce fine flowers, provided it comes at the proper time. When first seen it is very small, and has three vigorous shoots around it. These should be at once pinched off, likewise all after growths, to direct the whole resources of the plant to the flower. The difficulty is to induce the plants to show this bud at the proper time, for upon this (provided the plants are healthy and vigorous) depend the future results. Take three plants of any one variety, treat them alike in every respect; the probabilities are one will show the crown bud in the middle of July, another in the middle of August, the third not until September. My opinion is, the time for them to show this bud is between the 10th of August and the 7th of September. Seasons vary, but from several years' experience I have no hesitation in saying a great percentage of buds taken between the above-named dates will prove satisfactory. If taken before, they are apt to become hard and not open properly."* I know at least one celebrated grower of large blooms for exhibition who, having struck the cuttings in the usual way, grows them on by planting them out in the border of a cool orchard house, where they are trained to single stems, each bearing one enormous flower at its apex. Under this system there is less danger of the plant suffering from drought at the root, and some of the varieties attain a height of 10 feet to 12 feet, the stems and foliage being enormously stout and healthy, and the flowers exceptionally fine.

French seedlings.—The following notes on French seedlings have been kindly furnished by M. Victor Lemoine, the well-known nurseryman and hybridist of Nancy: "I am not actually a raiser of Chrysanthemums, although I grow them rather extensively for commercial purposes, and have sent out some seedlings of merit. One of our earliest raisers of this popular flower was the late M. Lebois, of Toulouse. He it was who effected such a marked improvement in the Pomponne or Chusan Daisy race, and the late M. Mielley, a nurseryman of Lille, introduced them to the trade. Since the death of these two enthusiasts this small-flowered race has been somewhat neglected, although Madame Lebois for some years after her husband's death continued to raise seedlings, which she sent to the late M. Verschaffelt, of Ghent, and several of the finer kinds were figured in *l'Illustration Horticole*. *Bona-fide* raisers who have most distinguished themselves since that time

* Paper read at the Wimbledon Gardeners' Society, December, 1882.

are M. Pertuzes, of Toulouse, and M. Boucharlet aîné, of Lyons, both of whom have sent out some desirable early blooming varieties. M. Charles Huber, of Hyères, for some time turned his attention to raising seedlings, and sent out some good kinds. Some twenty years ago Messrs. Bonamy frères, of Toulouse, effected considerable improvements, but nearly all the raisers above mentioned are now replaced by others, of whom the following are most worthy of note: M. Lacroix, of Toulouse; M. Boucharlet aîné, of Lyons; M. Schwartz, of Lyons; M. Bernard, of Toulouse; M. Marrou, of Toulouse; M. de Reydellet, of Valence; and above all by M. Délaux, of St. Martin du Couch, near Toulouse. M. Délaux has been most fortunate, and his seedlings continue to improve year by year. One great fault may be found with the southern raisers: They secure fine varieties, but as but little attention is paid to constitutional hardihood, it is often disappointing to find that they do not bloom well in cold localities. The first of the early Pomponé race were raised in Paris by the late M. Pelé.

Jersey and Guernsey varieties.—The following is compiled from original notes and lists kindly furnished by a noted Chrysanthemum grower in Jersey: "Having resided in Guernsey for twenty years, during which time the Chrysanthemum has been an especial favourite of mine, I may say I am personally acquainted with all the raisers in that island, and have seen some thousands of seedlings, some exquisitely beautiful, others, alas! not so attractive from a florist's point of view, and so doomed to be cast aside. The raiser of the first seedling Chrysanthemums in the Channel Islands was a baker, the plants being trained on a wall behind his oven. The varieties of that time were, of course, very different from those raised more recently in Guernsey by such men as Clarke, Davis, Pethers, and Smith. Mr. Smith has sold as many as sixty new varieties in one year to the late Mr. John Salter, of Hammersmith. These were named and brought out a few at a time, so as not to overstock the market. In Mr. Salter's catalogue a number of them are marked Smith, while many are marked S only. I recently paid a visit to some old friends in Guernsey, and while there, speaking of Chrysanthemums, they seemed unanimous in thinking that by far the greater number of the large flowered varieties in Salter's list were of Guernsey origin bought from the stock of unnamed seedlings. Crimson Velvet was first exhibited by Pethers, and is still one of the best of rich dark coloured kinds. Among the modern Japanese varieties several have been raised by Major Carey's gardener, while those two favourites, Elaine and Fair Maid of Guernsey, were raised by Mr. J. Downton, gardener to Mr. Saumarez Carey, of The Grange. Jersey Pompones were sent by M. V. Langlois and myself to Mr. A. Forsyth, who then lived at Stoke Newington. They were mostly of French origin. Dick Turpin is a Jersey seedling named by the judges at our fourth exhibition, it having been given by the raiser to his postman, J. Turpin. Major Carey now seems almost alone here as a raiser of new kinds from home-saved seeds. As to

Seed-saving, I have observed two methods of treating the plants. A common plan is to train them against a sunny wall, protecting them above by a weather board. Here they are left to ripen until the end of January, when the old flower-heads are cut off and the seeds separated and saved by rubbing them in silver sand. Others are grown to single stems in pots placed in a greenhouse. February is the best time for seed-sowing, but Mr. Beckford tells me he has sown as late as April, and even then has had blooms the same year. Some years ago I tried the Chrysanthemum seeds advertised by different seedsmen, but never could obtain from them a variety worth keeping; indeed they resembled Ox-eye Daisies more than anything else. Not having attempted raising seedlings of late years, it is quite possible that the seeds now advertised are of better quality. Mr. C. Smith, of the Caledonian Nursery, Guernsey, once told me that he regretted having thrown away many single and semi-double varieties that would now be

gladly purchased, although totally unappreciated at the time he had them growing and in bloom.

Chrysanthemum societies.—Chrysanthemum culture is much fostered and improved by the aid of local societies specially devoted to that end. They enable cultivators to meet each other in friendly rivalry; new flowers are brought forward; the merits of these, as of older kinds, for certain purposes are brought out and discussed; and visitors to such shows not unfrequently are led to take up the culture of this popular flower by seeing well-grown plants or cut blooms who would otherwise never have thought of it except as a miserable bush tied up to a fence in the open air, or starved and poor in a pot in the greenhouse. The Chrysanthemum is literally the last show flower of the waning year, and deserves notice as coming at a time when decorative plants in bloom are scarce. Wherever two or three or more growers are found in any district a Chrysanthemum society should be formed, and the interest of the exhibition may well be augmented by holding a fruit and vegetable show in conjunction with the exhibition of Chrysanthemums. The formation and organisation of such a society must be taken in hand by growers and admirers of the Chrysanthemum themselves in this way. They must band themselves into a working committee, and then some nobleman or gentleman popular in the locality must be solicited to allow his name to appear as president, and eighteen or twenty gentlemen who have good gardens must be induced to become vice-presidents. Lady patronesses, treasurer, and hon. secretary must likewise be secured. A subscription list must be opened and subscriptions solicited from ladies and gentlemen who have gardens in the locality, or who are known to be fond of horticulture. Make up your mind to give money prizes, if possible, and nothing conduces more to the long life and prosperity of a flower show of any kind than prompt payment of prizes on the very day the awards are made. The rules of the Kingston and Surbiton Chrysanthemum Society may serve as a model for others. In districts like Kingston, Camberwell, Stoke Newington, Highbate, and other suburbs of London, and near Liverpool, where the Chrysanthemum is even more popular, a few extra classes should be added to the schedule here given. Thus prizes might well be offered for the finest new flower or variety of the season in each class or section—Incurved, Pomponé, Japanese, Anemone, quilled, Reflexed, &c. A special class should be made for seedling kinds raised by the exhibitor. Another for the best bridal bouquet of Chrysanthemum flowers (foliage *ad lib.*), best ball-room bouquet, and for a vase arranged for the drawing-room. An interesting class might be made for dwarf plants bloomed in 6-inch pots, grown from tops of plants struck late.

The rules and regulations for the exhibition itself must be clear and explicit, and it is the duty of the committee to see that they be carried out by the exhibitors. A little supervision on the morning of the show on the part of one or two members of the committee will often prevent errors on the part of new exhibitors, who in all cases deserve encouragement. The following rules are those of the society just named:—

I.—All productions entered for competition must be in the place of exhibition by 9 a.m. on the first day of the show, and each correctly named and placed ready for the judges by 11 a.m., at which time the building will be cleared.

II.—No exhibits entered for competition to be removed before 10 p.m. on the second day of the show.

III.—The judges will be empowered to withhold prizes where the productions exhibited are by them considered below the standard for the lowest prize, and their decision shall be final.

IV.—All cut blooms must be shown on boards of the following dimensions, viz.: boards for six, 1 foot long by 18 inches wide, and 3 inches high in front and 6 inches behind; boards for twelve, 2 feet long by 18 inches wide, and 3 inches high in front and 6 inches behind; boards for twenty-four, the same width, but double in length. Labels, on which the names of all cut blooms must be written, will be supplied by the secretary.

V.—No exhibitor will be allowed to compete in two classes for the same thing, or with the same letters, or take more than one prize in a class.

VI.—Any protest must be entered during exhibition hours, and in the event of disqualification the prize shall be awarded to the next exhibit in order of merit, if considered worthy.

N.B.—Any exhibitor not complying with these regulations will be disqualified.

A printed schedule of classes and prizes offered, together with rules and regulations, and a printed form for the exhibitor to fill up (specifying number and description of his proposed exhibits therein) should be forwarded to all exhibitors in the locality. For the sake of neatness and uniformity all boxes or stands for cut blooms should be of the same dimensions, and all names should be written clearly and neatly on cards provided by the society.

F. W. B.

GARDEN FLORA.

PLATE CCCLXXXVIII.

CYPRIPEDIUM SPICERIANUM.*

THIS is one of the most recently introduced of all the Indian species, and one that is very distinct from its numerous Eastern relatives. In neatness of habit and in the oblique pose of the flowers there is some little suggestion of *C. Fairrieianum*, and to some its partial resemblance to *C. Druryi* is also apparent, but, broadly speaking, it is one of the most characteristic of the genus, and as such is highly prized in all gardens where Lady's Slippers are generally cultivated. Mr. Spicer is to be congratulated on having been so fortunate as to introduce this novelty a few years ago, a correspondent having sent it home to him along with other plants, and we can well imagine the interest caused by its first blooming. I think it was in November, 1878, that Mr. Harry Veitch showed me a single flower of this new *Cypriped*, which I remember was very much admired, and Mr. Chandler made a very effective and faithful coloured sketch of it—now, no doubt, in the voluminous orchidaic archives at Chelsea. At that time the plant had another charm—the individual specimens in cultivation might be counted on the fingers of one hand, and I am afraid to say what was offered to Mr. Spicer for "the stock." At Stevens' rooms a solitary plant brought something like £80 or £100. But then came importations, and there was a good deal of excitement during the first few sales. I remember Mr. Low examining one of the importations very critically, and the little bundles of clay-covered roots and flaccid leaves were eagerly bought up at high prices. Other importations in quantity have, however, now lowered the price, so that the plant is readily obtainable for shillings where pounds were formerly paid, and it is now quite commonly met with in most good gardens.

The best of Lady's Slippers seem peculiarly fated to accidental introduction. Apart from our present species, take, for example, *C. Stonei* platytænium, from Borneo, and the dainty little *C. Fairrieianum*, which appeared at Stevens' rooms in 1856 or 1857 in an importation received from Assam. One would think that the collectors who so successfully tracked *C. Spicerianum* to its "native lair" would have long ere this have

* Drawn from a plant in Messrs. Veitch's nursery, Chelsea.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



PAPHIOPEDILUM

brought us plants of *C. Fairieanum*, which is just now a desideratum in most gardens. *C. nævium* was another beautiful waif, and there are a few others which have from time to time cropped up as it were in an accidental way. Some day let us hope that *C. Fairieanum* may accidentally crop up again. *C. Spicerianum* grows quite freely in a warm plant stove or Orchid house, in a compost of loam, fibre, and Sphagnum on a well-drained bottom of crocks and lime rubbish, which, as in the case of *C. concolor*, seems peculiarly congenial to this species also. The coloured plate represents a fairly good variety of this now popular Orchid, which flowered in Messrs. Veitch and Son's nursery at Chelsea some months ago. The purple markings on the upper sepal and on the staminode are peculiarly beautiful, all of which, however, the plate well illustrates. F. W. B.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE

WE gladly welcome the flowering season of the Indian Azalea, a plant so good for ornamental purposes. It decorates a long dinner table for eighteen people, chiefly by means of three well-grown plants, about 16 inches to 18 inches through, in silver vases. The centre plant, the tallest and largest, is a rosy red, the other two pink. Round each plant is a group of four silver cups, holding flowers and foliage of the same red and pink Azaleas, the two colours grouped together in every cup. No other flowers and foliage are needed. The table is lighted with large silver candelabra standing between the flowers. For a round dinner-table cut Azaleas may be arranged in a ring of fish globes round a central lamp, red and pink flowers alternately. If the glasses are of two sizes, so that every other bouquet may be a little more important, it will be all the prettier. The same arrangement suits red and pink Camellias. The fish-globes may also be grouped in threes, two small with a larger between, the three glasses touching; all the smaller dressed with pink, and the larger with red, forming an interrupted circle, a space being left between each group of three. Tips of shoots of common Laurel, if the pieces are chosen as small-leaved as possible, make a good garnish for dessert dishes; large single leaves, as commonly used, look coarse and unmeaning, but the points of shoots with three or four leaves, of which the largest is not more than $3\frac{1}{2}$ inches long, are very suitable. They may be found towards the base of Laurels that stand free and are not over-grown with other shrubs. Twigs of Bay are still better, but so liberal a supply is not generally available.

FLOWER GARDEN.

Gladioli and other bulbs.—As a rule, in warm sandy soils Gladioli winter safely when left in the ground, and old-established bulbs produce flowers far more profusely, though not so fine individually, as when the bulbs are selected and replanted annually, but for effectiveness, give us the long-established bed with its long season of flowering and irregular heights of the flowers. Those not favourably located as to climate would, however, do well to keep to the more general plan of lifting the bulbs in autumn and planting afresh at this season. We are now planting out a few in clumps of five and seven among herbaceous plants, putting them near those kinds that will have done flowering when the Gladioli begin, in this way maintaining the gaiety of the border. Anemones, Ranunculuses, Lilies, Schizostylis, &c., are used in exactly the same way; these should now all be planted. In heavy soils the bulbs should be placed in a handful of sand, and the depth should be less than in light soil, say about 2 inches deep for Ranunculuses and Anemones, and 3 inches for Gladioli; but 1 inch deeper for all kinds in sandy soil may be allowed.

Lilies, of course, must be planted in depth according to the variety and size of the bulbs, but it may be well to remark that they are generally not planted sufficiently deep. Where ground can be afforded to plant each kind in beds by themselves they will repay the space and labour by the quantity of cut flowers they will produce, and of course can be had finer because of the convenience of being able to specially prepare the soil for them by trenching and manuring.

General work.—Complete all alterations, specially such as necessitate the removal of turf, as it is important that this gets re-established before drought and bright sunshine become excessive. Edgings or verges of turf should also be cut; they will presently be too hard to be operated on nicely, not to mention the longer time which they take to cut when in that state. Planting, too, should be pushed to a close, at least as regards deciduous subjects, but if needs be most evergreens may safely be removed for some weeks yet, but even with these were we certain of a dry summer, our experience is such that nothing would induce us to transplant at all after the beginning of March, and those moved as late as that should be kept thickly mulched with Bracken or litter during summer. Hedges and belts of any kind may now be clipped, and young hedges be encouraged to grow by pricking up the soil and clearing it of weeds. Laurels and Hollies that have got naked at bottom should now be headed down to any height that may be thought desirable; younger plants may be kept in compact form by pruning back the more straggling shoots. We have far too much of this kind of work, but though at the time we are apt to begrudge the labour, there are few operations that give us an equal amount of satisfaction.

THE ROCK GARDEN.

RESERVE stock wintered in cool frames should be lifted, and the usual watering, recommended after a long winter, deferred until the pits are drier. All hardy annuals and some of the hardy perennials should be sown now in a cool frame, but many of the latter class should be kept for sowing out-of-doors later in the year. We can often save ourselves a good deal of work in spring when we are busy by gathering and sowing seed as soon as it is ripe in the open ground. It is necessary only to give a covering of sand and a few Yew twigs in hot weather. We have sown seeds of various *Drabas* in pots, especially *D. cuspidata* and *D. Kotschyi*, and have been unable to rear them, whereas plants have come up the same year from self-sown seed. *Ethionema coridifolium* has never come up in pots, but when self-sown the seeds have germinated freely. Other kinds which sow themselves are: *Arabis rosea*, *Arenaria norvegica*, *A. verna*, *Armerias*, *Aubrietias*, *Cerastium Biebersteini*, *Claytonia sibirica*, *Coronilla minima*, the majority of the Pinks, several *Erigerons*, *E. caucasicus*, *E. philadelphicus*, *E. glaucus*, *E. grandiflorus*, and *E. regalis*, *Erinus alpinus*, and several *Heron's-bills*; indeed, large numbers might very well be left for outdoor sowing in any odd bare spots on the rock garden. It should only be in cases in which one's knowledge does not justify outdoor sowing that the cool frame should be resorted to, or in the event of the quantity of seed being limited. If a plant has the reputation of being quite hardy, one may be sure that at some season of the year its seed will germinate either in a cool frame or out-of-doors. The hotbed should be tried in certain cases, as, for instance, if you want to get a few biennials to flower the first year; doubtfully hardy members may be sown in a cool frame a month hence, and those with which you are better acquainted now. The greatest difficulty we shall have will be with plants which bear an ordinary winter in this country, but, which, when we get a severe one, are killed or very much injured. These cannot be truly called hardy, and therefore should have a hotbed, as, for instance, *Calandrinia umbellata*, *Callirhoe involucrata*, *Chlora perfoliata*, and *Umbilicus spinosus*. Among plants in flower are *Saxifraga Burseriana*

major, *Cyclamen Coum vernal*, several species of *Crocus*, *C. Imperati*, *C. Sieberi*, *C. biflorus*, *C. minimus*, and *C. vernus niveus*; Snowdrops, including *Galanthus Imperati*, *Elwesi*, and *plicatus*. A patch of that pretty Crucifer, *Ionopodium acaule*, has been in bloom from December until the present time.

INDOOR PLANTS.

Ferns.—See that the whole of the different species now begun, or about to begin, growth have the soil thoroughly moistened, or the fronds will have a crippled appearance and be deficient in size. At no time can Ferns be allowed to get so dry at the roots as the generality of other things will bear without injury, but whilst the fronds are in a tender, half-developed state the want of root-moisture is most injurious. Except comparatively few species, such as the *Gymnogrammas*, that require a high temperature, it is a mistake to give Ferns so much warmth as that in which they are often grown, the effect of which is to make the fronds long, weak, proportionately less enduring, and more liable to injury from insects. Use manure water freely, but in not too strong a state, to all that are under-potted, and to which it is not deemed advisable to give more root room. This does not apply to the creeping stemmed kinds, which must have space to allow their spreading rhizomes to extend, or they will suffer permanently. One mistake that has been too general in the cultivation of Ferns is the supposition that because they are mostly found in a state of Nature more or less shaded by other vegetation, or the positions they occupy, they will succeed in any sort of dark structure. So treated, strong-growing species that require anything above a greenhouse temperature attain an undue size and smother the weaker kinds. Do not have fixed shading on the roof where it can be avoided, and use no more than is necessary to prevent scorching, with enough air daily to solidify the growth as it is formed. By following this course the plants will preserve a much fresher appearance than they otherwise would do through the latter part of the year consequent on the increased substance imparted to the fronds. Todeas are often spoilt through being syringed overhead. The condensed drops of moisture with which the fronds are usually studded when confined in cases in which these and other filmy species do best leads to the idea that watering overhead will benefit them, but this is fatal to their well-being. Keep them quite cool; the temperature of a cool greenhouse is much better than more warmth.

Potting stove plants.—Such portions of the stock as were potted some time ago for early blooming will now be making process, and should have an increase of heat as they begin to move freely. No time should be lost in completing the potting of the stock generally. It is well to consider what form the plants are to assume, whether to be grown into large specimens or flowered in as small a state as the nature of each individual species will admit of. Most stove plants are quick growers and will bear plenty of root room with large shifts, and where the object is to have large specimens this is the course to follow, but if the plants are required for standing in rooms, or to be removed to cooler quarters, such as a conservatory during summer, the small pot system of cultivation will be found most satisfactory, as under it the restricted leaf growth will better bear the adverse conditions under which the plants will have to be placed. The same holds good with regard to fine foliated subjects; the smaller growing *Caladiums*, if grown in large masses, are all but useless for employment in cool places, and are amongst the best decorative plants when cultivated in small pots with abundance of light and air, and no more heat than is requisite to induce moderate growth. *Allamandas*, *Ixoras*, *Dipladenias*, *Gardenias*, *Clerodendrons*, *Aphelandras*, *Franciscas*, *Hibiscus*, *Hoyas*, *Bougainvilleas*, *Medinillas*, *Jacarandas*, *Tabernaemontanas*, *Rondeletias*, *Thunbergias*, *Aristolochias*, *Eschynanthus*, and other flowering species, together with *Crotons*, *Dracenas*, *Aralias*, *Marantas*,

Pandanus, *Musas*, variegated, *Pine-apples*, *Cupanias* and *Dieffenbachias* should at once be shifted, giving them room proportionate to the size of the specimens and the respective purposes for which they are intended. See that the soil is in right condition as to moisture. To those who have not had much experience in plant cultivation it may be well to say that it is better to pot in soil that is a little too dry than the opposite. Another important matter is to see that all plants before being potted have the balls of earth well moistened, so that there may be no necessity for giving water for some days after the operation is performed. The effect of this is that the roots, more or less unavoidably broken in removal, have time to heal, and are less liable to rot than if water were given immediately the plants were potted. Pot moderately firm, but in the case of such stove plants as are partially shaken out at the annual potting, and which have the old soil removed to some extent, it is not advisable to ram the material so tight in the pots as with hard-wooded greenhouse stock where there is no annual renewal in this way.

Striking cuttings.—See that a sufficient number of the old plants of *Euphorbias*, *Begonias*, *Thysacanthus rutilans*, *Sericographis Ghiesbreghtii*, *Plumbago rosea*, *Pentas carnea*, *Jasminum gracillimum*, *Eranthemums*, and *Apelandras* are at once put into sufficient warmth to produce cuttings for use next autumn and winter. Plants to be thus treated should have been cut back a short time ago, and ought to be placed where they will have enough light to induce stout growth in the shoots intended for cuttings, for upon this depends in a great measure the character of the plants which they will afterwards make.

Luculia gratissima.—Wherever there is a warm greenhouse this should find a place, planted out if convenient; if not, in a large pot or tub. It is rather a difficult plant to strike, and the cuttings must be put in when they have arrived at the right age and size. If too young and sappy they are liable to damp off, and if too old they will not root freely. We found them to succeed best when about 4 inches or 5 inches long, taken off with a heel. Healthy plants in a genial temperature, say that of an intermediate house, start into growth immediately they have done flowering, and when the young shoots have attained the size just mentioned they should be put in pots filled with sand in the ordinary way, kept moist, and covered with propagating glasses, being careful that the cuttings are neither allowed to flag before being put in or afterwards. Should this occur the chances are that few will strike. In other respects this most beautiful and fragrant of autumn flowering plants requires no special treatment. It thrives in good turfy loam with a little sand, and makes more progress, especially in its early stages, if treated to an intermediate temperature than that of a greenhouse.

Pelargoniums.—The large-flowered and fancy kinds should have attention in the way of lying the shoots well out, so as to keep the plants open and stocky. With this view they should be placed where their heads will be close to the glass. Those that after flowering were cut down earliest last summer will now be about setting their bloom-buds, and, if the pots are well filled with roots, will bear the application of manure water once a week; the soil also will do to be kept a little more moist, but any excess in this way must be avoided. The flowers of *Cape Pelargoniums* are comparatively small, and by many looked upon as insignificant; yet amongst them there are many that possess both brilliancy of colour and elegance of form. Their propagation is not so easy from shoot cuttings as that of the better known varieties, but they strike freely from root cuttings, and their after treatment is similar in other respects to that of the ordinary sorts, except that, being weaker growers, they require less root space, 6-inch or 7-inch pots being large enough for most of the species. They occupy little room, and are very suitable for cultivation by amateurs who have small houses.

KITCHEN GARDEN.

We are now busily engaged digging and manuring Potato land. The late varieties we always plant before the earlier. Varieties of Potatoes are now so numerous that one feels perplexed what to grow and what to avoid. We stick closely to some of the old kinds for field work; the best are *Pater-son's Victoria*, *Scotch Champion*, *Schoolmaster*, and *Beauty of Hebron*. *Magnum Bonum* are useless in some soils. Last season without a particle of manure they grew too large by one-half, while the quality was soapy and disagreeable. *Scotch Champions* are excellent, but that objectionable deep eye is against them. *Schoolmaster* if anything supersedes *Victoria*. *Beauty of Hebron* is simply unique as an early Potato, and it may be lifted and housed as soon as *Myatt's*, and so escape disease. A thorough cleaning and in many cases fresh planting of herbs should be made at this season. *Tarragon*, *Thyme*, *pot Marjoram*, and *Pennyroyal* may all be planted. That very useful herb, *Chamomile*, may also be parted and planted. *Mint*, perhaps the most useful of all, should be planted in the shape of cuttings when 3 inches high. *Sage* does best as cuttings put in in the first week in May. Seed of many herbs may be sown, but not at present. *Knotted Marjoram*, *summer Savory*, and *Sweet Basil* are much sought after in early spring; a small pinch for using in a green state may now be sown.

Forcing.—We are now sowing Canadian *Wonder Beans* for the last batch, and intend growing them in 8½-inch pots. Bear in mind a potful of healthy roots is what is required, and not a potful of soil alone. Young plants now showing in outlying frames should be aired regularly to keep them sturdy and strong, but do not be caught napping by giving air in the morning and at night find the crop gone. Always take time by the forelock and place a bit of old netting over the lights, making all safe before leaving. *Seakale*, *Asparagus*, and *Rhubarb* may still be brought forward in case of need. Our plan is to have *Asparagus* in in November and keep the stock well up until about the middle of February. In the first week in April one can have it outside, and after being without it so long it is relished and much more thought of than if the supply had been continuous. This also we do with *Seakale*, but always have one of these two if possible. Vegetables are plentiful this year. We are supplying beautiful *Spinach*, *Broccoli*, *Tomatoes*, *Artichokes*, *Seakale*, *Rhubarb*, *French Beans*, and *Asparagus*.

FRUIT.

Peaches.—In the earliest house still attend to the thinning, disbudding, and tying in of the young shoots intended to form next year's fruit-bearing wood. As we have before observed, the disbudding of house Peach trees is an important operation which requires daily attention, combined with a complete knowledge of the condition of the roots. If the latter have been recently disturbed, or the trees have been weakened by heavy cropping, a little delay will give them time to pick up before many of the shoots are removed, but as trees of this kind generally set freely, the timely removal of a great number of the least promising fruit may precede disbudding, when good mulching, followed by a moderate supply of warm liquid, will soon start them into growth. Vigorous young trees, after being divested of fore-right shoots, may have many of the side shoots pinched either to form spurs or to supply foliage where there is likely to be a scarcity; but it must always be borne in mind that the best shoot, which starts from the base of this year's fruiting wood, must have plenty of room for growth and exposure to the influence of warmth and light. Where young trees are trained upon the extension principle and last year's shoots are from 2 feet to 4 feet in length, the latter may be allowed to carry a Peach at every foot run, and, provided they were well thinned out at the autumn pruning, two or more shoots, also the leading point, may be laid in full length. See that the trees are well syringed twice a day, and regulate the quality of the stimu-

lating liquid by the condition of the tree. If well made and properly drained there is little danger of overwatering inside borders, as *Peaches* having a large breadth of foliage exposed to sun-heat and light will take immense quantities, provided it is a few degrees warmer than the house and can pass away freely. Let the temperature range about 55° at night and 10° higher by day from fire-heat, and make up for a low minimum by closing with plenty of sun-heat whenever that luminary penetrates the pall of which forcing gardeners have experienced more than enough for one season.

Figs.—A temperature of 60° to 65° at night and 70° to 75° in the daytime will not be too high in the early house during a continuance of this unusually mild weather, but in the event of a change to the long delayed winter, a lower figure, particularly through the night, will be advisable. Although the *Fig* delights in an abundance of heat and moisture, it does not succeed where there is not a corresponding supply of light and air; hence the importance of keeping the glass clean and stirring the fires early every morning in order to admit of a free circulation of fresh air. The enemies to which the *Fig* is most subject are *mussel scale* and *red spider*; the first does not often become troublesome until late in the season, but the latter sometimes springs into life before the first crop is ripe. The best antidote or preventive is copious syringing with clean water, generous feeding with tepid liquid, and the maintenance of a constant supply of ammonia by turning the plunging material and surfacing the pots with fresh horse droppings. Continue to give the necessary attention to pinching, thinning, and tying out where there is trellis room for extension; also thin the fruit where too thickly placed. Pay attention to directions already given for the management of early pot trees in succession houses by feeding, mulching, and syringing, always bearing in mind that the timely and vigorous treatment which the good cultivator applies daily improves his prospect of excellence by making the position of the enemy untenable. Young trees in pots intended for next year's forcing may now be started, in order to give them a long season of growth and time to ripen their wood. If stock is wanted put in eyes or cuttings and treat as *Vine* eyes, using well-drained sandy soil and plunge in a sharp bottom-heat in a close pit. If well managed a fruiting plant may be grown from the eye in two years.

Cucumbers.—Since our last notes were written we have experienced a change to rather colder weather, which will necessitate extra firing to prevent the occupants of this department from receiving a check; and as few subjects are so easily and injuriously affected by sudden changes, the cultivator must be ever on the watch for the appearance of *red spider* and *thrips*, which invariably spring into existence when old plants are placed under the influence of overheated hot-water pipes. If taken in time the most effectual remedy is sponging with warm soap-water; but prevention being better than cure, frequent syringing with a weak solution of *Gishurst* on mild evenings or dull days, when hard firing can be dispensed with, will keep these troublesome enemies in check. If mildew, the outcome of insufficient bottom-heat, hard cropping, and a low, stagnant atmosphere, puts in an appearance syringe well with a clear sulphur water, renovate the beds, and stimulate the plants with copious supplies of clear tepid liquid or guano water. As young growths break away under generous treatment, gradually remove old leaves, crop lightly, fertilise the most promising fruit, and cut before they attain their full size. Ventilation and cleanliness—two important items in successful culture—must not be overlooked; but draughts being objectionable, the air should be conducted through ventilators placed in front of the pipes, and on a level with the surface of the fermenting material from which moisture and ammonia will be carried to the foliage and fruit. Cleanliness may be secured by the removal of all decaying matter and the frequent washing of the floors, shelves, and glass. Give every attention

to spring-sown plants intended for pits or houses, and pinch or train to suit the position they are to occupy. If not already sown, a few seeds of some good prickly kind may now be sown for fruiting in ordinary pits and frames. Although we have tried a great number of startling novelties, we have not yet met with anything to surpass a variety sent out by a Worcester firm, under the name of Smith's Frame. Many people think the prickly kinds superior to the smooth Syon House section. As consumers, we do not feel competent to venture an opinion; as growers, we prefer the first for frames in the summer, and the last for house work all the year round.

Hardy fruit.—Although fruit trees in the open air are in a forward state, yet, owing to the absence of sun, they are not so much advanced as we at one time expected to find them. Another retarding cause may have been the unusually late spring of 1882, which threw the ripening and resting period well into the succeeding autumn and winter. Be this as it may, the abundant blossom buds justify the expectation of an excellent crop of fruit, provided we can protect from the troublesome spring frosts, which generally follow mild winters. In all cases where movable screens can be adopted, no time should be lost in getting them fixed, as much may often be done by shading and so retarding the blossoms of Apricots and Peaches from bright sunshine; but, as we have before stated, the coddling system must be regarded as one of the greatest evils, when perhaps there is neither sun to force nor frost to kill. On the other hand, it will be well to avoid being lulled into carelessness by the favourable appearance of the early part of the night, as it is well known that the greatest depression frequently takes place shortly before and sometimes after daybreak. The first important item in wall covering is protection of the blossoms from wet either by the use of glass or boards, and as these checks to rapid circulation produce a dry, steady atmosphere, the flowers near the wall are capable of resisting several degrees of frost with impunity. The weather having been favourable for outdoor operations, it is hardly possible that any part of the winter routine can be in arrears; but where this is the case, no time must be lost in setting matters straight, as a busy time is at hand, and doing things at the right time is quite as important as doing them well.

FRUIT GARDEN.

CULTURE OF THE RASPBERRY.

OWING to the number of gardening journals, and the immense variety of subjects treated of in each, one finds it difficult to think of anything new to say on any branch of gardening, and of fruit culture in particular, not that I think for a moment that perfection of culture of any plant or fruit has yet been attained, but what I mean is some mode of writing on a subject that shall not be a repetition of anything that has been previously written, and yet shall tend to advance the culture of whatever is being written about. To my mind the only way of ensuring this is to record only one's own practice, but not to be so full of self as not to read and appropriate hints, &c., given by others, even on subjects that possibly we think we know sufficient about. Applying this rule to Raspberry culture as practised by myself, I have to say that a deep loamy

Soil inclining to clay is best, but it should be well drained, for though the plant luxuriates in a cool soil, anything like stagnation or sourness is soon perceived by weak and badly matured canes. This description of soil being the best, it follows that the various descriptions of soils that have to be made available for their growth must be treated from this standpoint, which means that sandy and gravelly soils should have an addition of clay, or, lacking this, a greater quantity of well decayed manure and be made firm by rolling or treading; on the other hand, clay and soils of a tenacious nature should have a liberal quantity

of old mortar rubble, charcoal, or burnt soil intermixed, and if manure at all be used when trenching, it should be in the form of half-inch bones, a manure that in such soils will last for years.

Planting.—Early in November is the best time, as then the plants get a firm hold of the soil before there is any danger of drought, from which they suffer if planting be delayed till February or March. Position and distance apart of plants must to some extent be regulated by numbers of other small fruits that have to be grown in kitchen gardens, and modes of cropping the same. I find the best aspect and form of growing them to be in straight lines running from north to south, the said lines being arranged as divisional lines for forming the principal quarters of the kitchen garden into convenient portions for cropping. By this arrangement the plants take up but little space, as cropping can be done within a yard of the stems, and if this space be annually re-covered with a thick layer of stable litter, as it should be by way of mulching to the roots, it forms a convenient alley each side of the row for getting at the vegetable crops. The distance from plant to plant in the row should be 15 inches, and the mode of

Training be to strained wires, fixed to stout poles, say about 8 feet long, which should be driven into the ground 3 feet; this will leave 5 feet for the height of the topmost wire, which should be secured to the poles by small staples; three other wires equidistant, beginning at 2 feet from the ground, make a most perfect fence, the canes to be tied either in upright or in oblique form to the wires with matting or yellow Willow. This latter form is generally adopted when there is a tendency to over-luxuriate in growth, and doubtless does to some extent check the current of the sap, and tends to the production of better lateral shoots, particularly at the lower half of the canes. The bundling together of innumerable canes to a single pole, under the impression that time is saved by using such supports, is a mistake; the plan here recommended is carried out just as quickly, and finer fruit and more of it is a certainty, in addition to the ease with which it can be protected from birds.

Varieties.—These are not numerous, and there is such a sameness about most of the kinds that if they were weeded down to about four sorts no one would be the poorer for the reduction. The best for general culture are Fastolf and the old Red Antwerp, and the best autumn bearer is Belle de Fontenay. The canes of this latter variety, and of all autumn fruiterers, should be closely cut down at the winter pruning, and as soon as the new growths have attained a foot in height the weakest should be thinned out till the canes that are left have at least 9 inches of clear space each.

General culture.—Surface dressings of manure are of first importance, and application twice a year is not too much, viz., of good rotten manure in autumn, and a supplementary addition of long stable litter in spring to serve both as a mulching and a path; no watering will then be needed, even in the driest weather, and the plantation will continue in a productive state for several years. The first symptoms of a change of ground being needed will be seen in the production of smaller fruit and weakly canes of a blackish green colour; when these appear, make new plantations at once. Digging immediately over the roots is very injurious, and should never be resorted to, except to remove Couch Grass and other troublesome weeds or portions of roots that have formed suckers a long way from the original stools. In pruning, if the canes are well ripened, they may be left almost full length, that is if there is plenty of training space, or they may be cut to such lengths as there is to be filled, but bear in mind that to overcrowd them with the expectation of getting a greater quantity of fruit will tend in the opposite direction.

W. W. H.

Pear Fondante Thirriot.—This, of which a coloured illustration is given in the *Bulletin*

d'Arboriculture, is highly praised by M. Rodigas, who asserts that its merits are by no means so well known as they should be. As a fact, it is, although by no means new, but little grown, but now that it has been adopted by the French Pomological Society, its good qualities will probably receive their just recognition. The flesh is white, fine, melting, and buttery, juice abundant, very sweet, relieved by a slight acidity, and highly perfumed. Habit, vigorous; branching, pyramidal; fertility, great and remarkably regular; it succeeds equally well on the Quince and on the Pear stock. Its season commences at the end of October and lasts until the middle of December. Altogether it is pronounced to be a first-class variety.—J. C. B.

NEW PEACH.

IN a recent number of the *Journal of the French National Horticultural Society* considerable space is devoted to the description of a new seedling Peach, and which, if one may believe what is there said of it, is likely to prove one of the very best varieties hitherto raised. Its origin is curious, and is thus related by M. Guyot, a well-known grower at Montreuil: "A young Peach tree sprung up in a bed of Pæonies, the produce of a stone thrown there in a chance way. Remarkable its fine growth and handsome foliage, we, in the hope of obtaining something good, budded it on a strong Almond which had once formed the stock of a Peach. Carefully tended, in the course of several years it yielded the fine fruit now before you." The above account was furnished by M. Guyot on the occasion of his exhibiting a very fine collection of Peaches at Montreuil, pre-eminent amongst which was this new kind, and which so impressed the Peach growers of that place with its beauty as to induce them to call the attention to it of the National Horticultural Society, which deputed a commission of its members to inspect the tree, amongst them being M. Lepère, M. Bertant, and other well-known experts in Peach culture. The following is an extract from the report of this inspection: "We believe that this Peach is destined to become very popular, both on account of the luxuriant growth of the tree and the flavour and beauty of the fruit. It should certainly be placed amongst the best Peaches generally grown." The exceptional hardiness of this Peach should recommend it to English growers, as it is stated that the winter which proved so destructive to the Peach trees of Montreuil scarcely affected it, and it would now be difficult to find such a large and healthy tree in that locality. It is called Belle Henri Pinant.

Byfleet.

J. C.

Grubs on fruit trees (p. 150).—Some of the grubs on "C's" fruit trees are, I should imagine, those of the Apple weevil (*Anthonomus pomorum*), a small beetle scarcely a quarter of an inch long, which lays its eggs on the swelling flower-buds. The beetles pass the winter under stones, Moss, rubbish, and loose pieces of bark on the trees. They do not fly much, but crawl up the stems to the buds. Remove all rough, useless bark, Moss, &c., from the stems, and all stones and other shelter for the beetles near the trees, and before the weevils leave their winter quarters, tie strips of sacking, dipped in tar, round the stems, which will prevent the beetles crawling up them.—G. S. S.

Temperature in the shade.—In "Notes and Readings" (p. 147) "Peregrine" alludes to an experiment by M. Macagno as to the difference in temperature of the air round Vines exposed and covered. "In other words, the mean temperature was higher in the shade than in the sun—a wholly abnormal condition of things." This surely cannot be gathered from M. Macagno's experiment. He proved that the mean temperature during three months was 70° round Vines left exposed, 82° round those covered with a white cloth, and 92° round those covered with a black cloth, and he, I imagine, is quoting the average temperature during the whole time, both day and night, and not the mean temperature in the sun, which during the

three months that Grapes are ripening must be considerably more than 70°, for in Johnston's Physical Atlas the mean annual temperature of Italy is given as 60°. One can easily understand that the coverings alluded to would prevent the radiation of heat at night to such an extent as to so equalise the temperature during the twenty-four hours that the average was higher under the covering than it was outside, but this is not a "wholly abnormal condition of things."—G. S. S.

Fruit trees in hedges.—In some portions of Kent, notably at Cuxton and Bush, near Rochester, many of the hedgerows are planted at short intervals apart with Damsons, which thrive luxuriantly, and produce heavy crops of this desirable fruit. According to a writer in a late number of *Farm and Home*, many of the cottagers in the above-named districts make sufficient from the Damsons cultivated in this way to pay the rent of their house and garden. In planting new hedges the trees may be very easily introduced; they should be planted about 10 yards apart for Damsons and 12 yards for cider Apples. Wherever the Damson will succeed preference should be given to it, as the Quickset will thrive better under it than under the Apple, and there are very few stone fruits which are more in demand or more profitable than Damsons. A most excellent hedge may be formed by planting the Cherry Plum (*Prunus Myrobalana*). It will succeed in almost any soil, grows quickly, is perfectly hardy, and thoroughly proof against cattle. It is a most suitable stock for budding or grafting Damsons and many varieties of Plums upon, so that by using this for a hedge, the owner has only to have Damsons budded or grafted upon it at whatever distance apart he may think proper, and await the result, which will far exceed his expectations.

BOOKS.

VINES AND VINE CULTURE.*

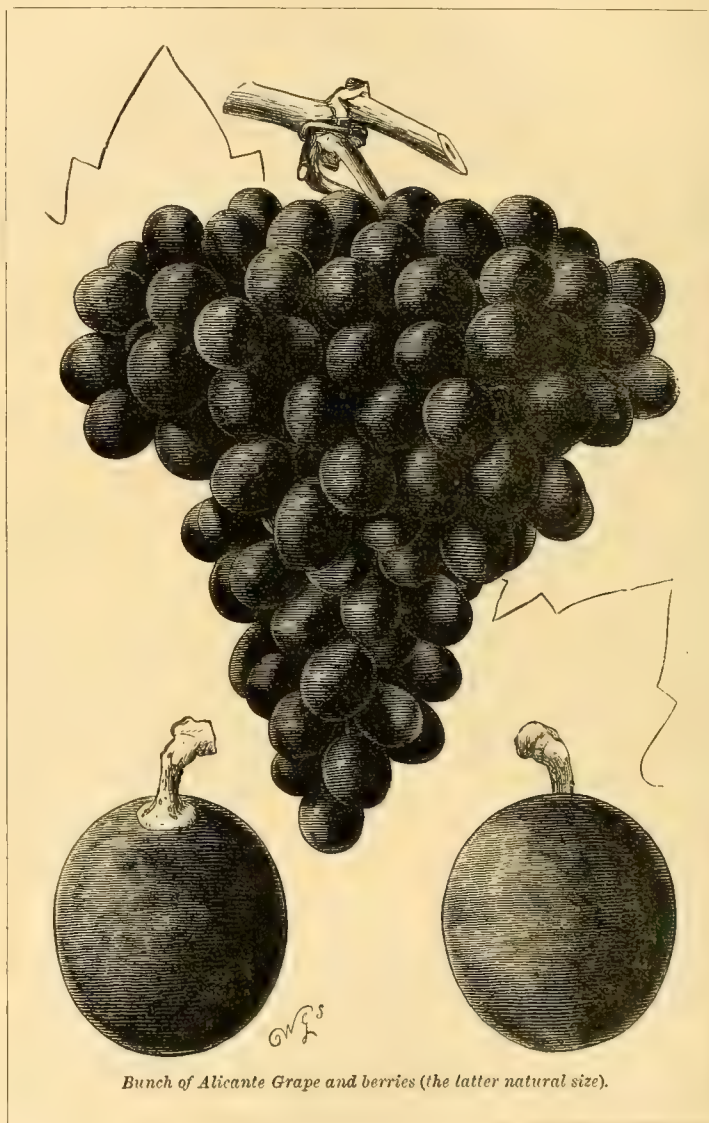
WHEN a practical man like the able director of the Royal Horticultural Society's Gardens at Chiswick sits down to commit his experience to paper it is hardly likely that the information conveyed will fail to gratify and enlighten his readers; but when he avails himself of facilities and advantages which few private individuals can command, and combines them with sound practical knowledge, horticulturists of all classes will look for teaching which they can put into practice with security. In this respect readers of Mr. Barron's book will not be disappointed, as it is undoubtedly the most exhaustive volume upon Vines and Vine culture ever published.

In the opening chapter he gives an interesting history of the Vine from the time of Noah down to the present day. The succeeding chapters, extending over more than 100 pages, with numerous illustrations, are devoted to propagation, hybridising (a most interesting and instructive chapter), the formation of borders, the best structures for Grape growing, heating, and the general management of vineries, the weakest point being the twelfth chapter, which is devoted to the thinning of the fruit, the figures representing to our mind bunches considerably overthinned; chapter 13, upon the Grape room, with numerous illustrations, and chapter 14, upon packing for transit by rail, convey a vast amount of information, which growers for home use or market may gather with decided advantage; indeed, the subject of the last-named chapter is so imperfectly understood by many of our best practical growers, that hundreds of pounds worth of valuable fruit is annually destroyed or greatly deteriorated by bad packing. Passing on to chapter 19, giving a short history of the large Grape house at Chiswick, we would direct attention to the excellent contrivance invented by Mr. Barron, and shown in the accompanying illustration, for getting to the Grapes and Vines throughout the season of growth. As this is probably the largest vinery in the world, the fol-

lowing quotations from the author may be interesting to those who have not seen it:—

He says (p. 125), "This noble vinery, probably the largest structure devoted to the cultivation of Grapes in existence, was originally erected as a plant conservatory. It is 180 feet in length, 30 feet in width, and 26 feet high. In 1857 it was planted with Vines, and there was much speculation as to whether they would do in so large a structure. A great number of varieties was at first planted, affording an excellent opportunity for the determination of their distinctive characters.

dreaded Phylloxera in all its forms, winds up what may be termed the practical part of the work. This does not, however, nearly exhaust the contents of the volume, as we have a chapter on the selection of Grapes for special purposes, which, judging from frequent applications for information which reach us from private individuals, will be found invaluable to amateurs and others whose limited experience does not enable them to select the best kinds for themselves. A step in the right direction, now varieties have become so numerous, is the system of classifying Grapes, as by it the



Worthless kinds were cut out and grafted, a proceeding which afforded some interesting illustrations of the suitability of Vine stocks. At the present time good standard sorts best suited to the house are grown and give excellent crops, the greatest number of bunches produced in one season being 4500, the aggregate weight exceeding 2 tons.

"The ladder employed for getting to the Grapes is made of wrought angle iron and runs on wheels. It is so constructed that the men in whatever position are within easy reach of the Vines. From ten to twenty men may be at work on it at one time, and it has already effected an immense saving in labour and glass over the ordinary ladders formerly in use."

Diseases to which Vines and Grapes are subject have not been overlooked, and a beautifully illustrated chapter on noxious insects, including the

veriest novice may easily trace a Grape which he has never seen before to one or other of the sections or sub-sections to which it belongs.

The remainder of the book, some 60 pages, is devoted to illustrations and descriptions of thirty of the most popular kinds of Grapes in cultivation. The first of the series is the well-known Alicante, which, with the author's permission, we herewith introduce to our readers with his remarks.

Alicante.—An oval black vinous Grape. Season: Best suited for late use. Where Grapes are required after Christmas there are few sorts that keep so well as the Alicante, and it is more largely cultivated for market, perhaps, than any other variety excepting the Black Hamburgh. Merits: Quality third-rate, but valuable for its excellent keeping and free fruiting properties, its splendid appearance and fine constitution. Synonyms: Black Alicante, Black Lisbon, Black

* "Vines and Vine Culture." By A. F. Barron.

Portugal, Black St. Peter's, Black Spanish, Black Tokay, Meredith's Alicante.

VINE.—Growth very strong, vigorous, and free, the young growing shoots densely coated with down, giving them a whitish appearance, the ripened shoots being also downy, and especially so round the buds, which are large and prominent and of a dark purplish colour; the wood ripens freely and well; moderately fruitful.

LEAVES.—Very large, deep green, thick and soft, covered with down on the under side, giving them a silvery appearance; they remain long conspicuously green amongst others, being late in ripening and changing colour, and they die off yellow or occasionally tinged with red.

FRUIT.—Bunches large or very large, averaging from 2 lbs. to 6 lbs. in weight, broadly shouldered, sometimes regularly tapering, and of very handsome form, but more frequently divided or with large irregular shoulders that assume the appearance of a cluster of bunches; always very closely and well set, and requiring early attention in re-

It will grow or succeed in any ordinary vinery, but the more heat that is given to ripen it the better the flavour. With ordinary care it is generally very fruitful, always sets well, and colours magnificently. After ripening it requires to be kept in a cool temperature, otherwise the berries are apt to decay.

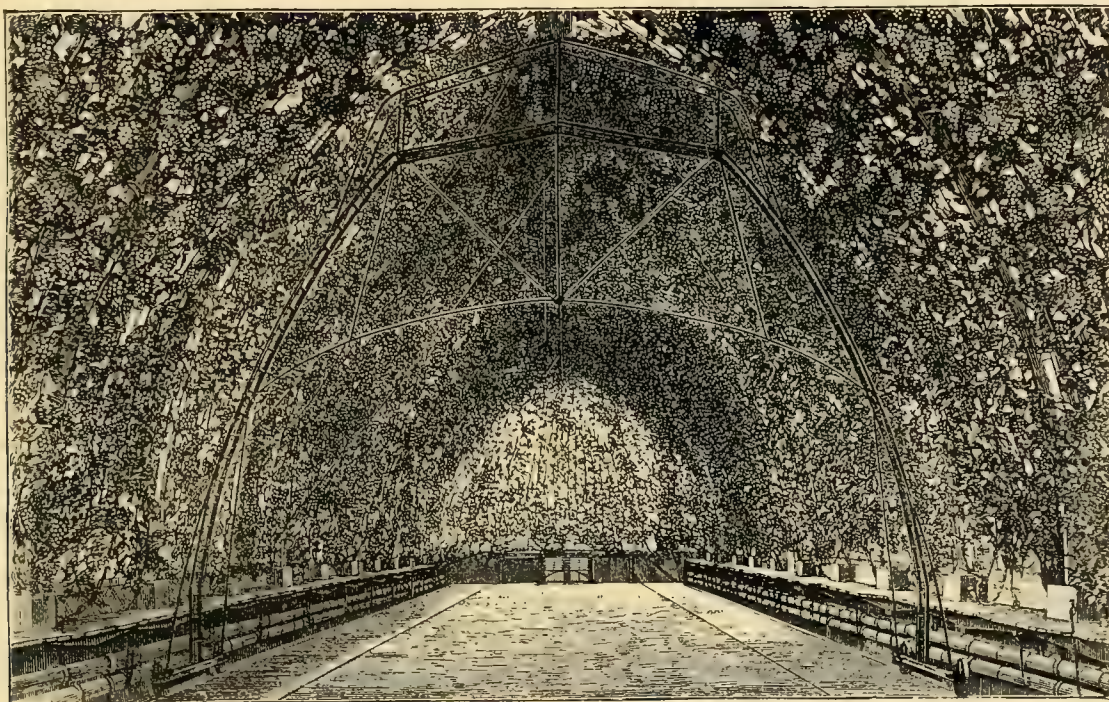
This excellent volume is neatly and appropriately bound, and is printed on good paper. The type is large and clear, the text free from errors, and the illustrations good. We congratulate Mr. Barron upon the production of so instructive a book, the want of which has long been felt, and we are sure it will prove a valuable acquisition to the library of every horticulturist. W. C.

KITCHEN GARDEN.

SOWING IN WET WEATHER.

JANUARY and February have been two of the wettest months on record here, and according to

observation, I am convinced that very few crops indeed fail from bad seed, especially if obtained from a reliable source, but failures are continually happening through mismanagement in sowing and planting, more particularly during wet weather. For the sake of experiment we have sometimes sown a short row of Peas very early in the season, when the ground was very wet, and the result was invariably the same, viz., failure, few plants showing above ground, and such as did struggle through were never robust and always deficient in fertility. On the other hand, seed sown in dry ground and in dry weather always grew luxuriantly and bore profusely. Let the ground only be dry and get the seeds snugly in, and it matters little what kind of weather may follow for a time. It is a common desire to get all seeds and plants in early, but this, in many instances, is disadvantageous. Many kinds of seeds sown under favourable conditions early in April with the soil in suitable order will be almost certain to give a supply as early and come to maturity as soon as those sown in Janu-



The Great Vinery at Chiswick.

gard to thinning. Stalk stout and strong, very short, the bunch frequently resting on the shoot.

BERRIES.—Large, of a true oval shape, quite black and covered with a dense blue bloom. Their foot-stalks thick, short, and slightly warted. Skin, thick and leathery. Flesh rather squashy, with a tinge of red, and adhering somewhat to the skin. Flavour in general somewhat earthy and disagreeable, but when well ripened, and after hanging a long time, they are more briskly and pleasantly flavoured, but seldom rich.

HISTORY.—There is no authoritative record of the introduction of this Grape. The name is Spanish, but it is applied to several varieties of Grapes coming from Spain. Dr. Hogg ("Fruit Manual") states that he has met with it in the vineyards of the south of France under the name of Espagnin Noir. It is no doubt the same as Speechley's Alicante; but it is to Mr. Meredith, late of Garston Vineyard, that the credit or popularity of this Grape is due. His excellent and extensive cultivation of it led to its being called Meredith's Alicante, in order to distinguish it from Kempsey Alicante, at that time much praised and recommended, but which was ultimately proved to be Black Morocco.

CULTURAL NOTES.—There are very few better constituted or more easily cultivated Grapes

all accounts the rainfall has been excessive throughout the country. This has doubtless greatly retarded kitchen garden operations, and should rainy weather continue to be the rule much longer many vegetable crops early in some seasons will be unusually late this year. Further than this, a general deterioration in quantity and quality may be expected. Nothing is more against the ultimate success of a crop than sowing or planting when the soil is in a pasty condition. In large places where work under glass can be forwarded by all hands in wet weather, and the same can be done in the kitchen garden when a favourable chance occurs, the ill consequences of working wet soil are not so liable to be encountered as in small gardens, as although many may take delight in attending to their frames or small conservatory, few will, I apprehend, take to the digging and cropping of the kitchen garden, this being mostly left to a "jobbing man." This useful individual has generally his time fully taken up at this season, and to meet all demands must push on with his work at each place, let the weather or consequences be what they may, hence disappointing results. Strange to say, however, these are hardly ever attributed to gardening in the wet, but are, as a rule, put down to bad seeds or some such plausible cause, but, from experience and close

ary or February in wet, retentive soils. I have known Onions sown in January irrespective of weather beaten by those sown two months later when the crop was harvested in September. I attach the utmost importance to having the ground in the very best of order for the reception of seeds, and I have a decided objection to anything like kitchen gardening during wet weather. We have no fixed dates for sowing anything; the weather alone is our guide. Some years we have had a good patch of spring Onions from seed sown by the middle of January, and at other times not a seed has been got in until the middle of March, but in the end the crops were about equally good, thus showing the advantage of waiting for fine weather. Considering the number of wet days which we have had lately, I fear many will be tempted to put crops in now when the soil is really not in the best of condition for sowing. In all such cases I would certainly bespeak patience. In wet seasons, changeable weather, or showery times it is an excellent plan to dig or fork and sow or plant as that goes on. A long piece may be turned up to-day with the intention of cropping it to-morrow, but a wet night may follow and prevent this being done for days, and even weeks, when the soil will have lost the sweet, mellow

surface which it possessed when first moved, and it may be necessary to dig again before the crop can be got properly in the ground. In cropping and digging at the same time I would begin say with early Potatoes. Let an opening be taken out at the end of the border or piece of ground, and plant one row very near the end, then as every 18 inches or 2 feet of the ground is turned over make a notch in the opening and put in another row, and so on to the end. Rows of plants may also be planted in this way, and seed beds may be formed whenever sufficient ground has been turned over to give the desired width. Lastly, if a stock of dry soil can be secured, covering over all seeds with it in a wet season will be a great benefit to them. During winter, or indeed throughout the whole season, we never throw away any of the old soil which accumulates in our potting shed; on the contrary, it is all sifted and put away in an odd shed to be kept dry for covering vegetable seeds. When drills are opened, 1 inch or 2 inches deep, we hardly ever fill them again with the ordinary soil, but use this material from our store heap, and as it generally contains a good deal of sand, leaf soil, and well decayed manure, the young seedlings push freely through it and thrive remarkably well in it, more especially in wet seasons. J. MUIR.

Margam.

A SELECTION OF POTATOES.

IN the following selections the choicest of the Potatoes in cultivation are arranged according to the purposes and soils for which they are best suited:—

FOR PRODUCTIVENESS AND HIGH QUALITY.—*White Rounds*: Bedford Prolific, Early Border, Early Market, Feltham White, Fenn's Standard, Lady Truscott, Premier, Early White, Rector of Woodstock, Sharpe's Victor, Sutton's Favourite, Sutton's Fiftyfold, Sutton's Early White Regent, Reading Hero, and Wiltshire Snowflake. *Coloured Rounds*: Adirondack, Beauty of Kent, Johnston's Downshire, Matchless, Reading Russet, Triumph, and Vicar of Laleham. *White Kidneys*: Myatt's Prolific Ashleaf, Avalanche, Bresee's Prolific, Cosmopolitan, Covent Garden Perfection, Edgemoor Seedling, King of Potatoes, McKinlay's Pride, Magnum Bonum, Myatt's Prolific, Pride of America, Sharpe's Duke of Albany, and Sutton's Magnet. *Coloured Kidneys*: American Purple, Beauty of Hebron, Manhattan, Mr. Bresee, Queen of the Valley, Salmon Kidney, Sutton's Prizetaker, and Trophy.

BEST FOR GARDEN CULTURE.—Ashleaf, Bedford Prolific, Cosmopolitan, Covent Garden Perfection, Early Border, Fenn's Standard, Magnum Bonum, Myatt's Prolific, Rector of Woodstock, Sutton's Early White Regent, Sutton's Fiftyfold, Reading Russet, Reading Hero, Sharpe's Victory, and Woodstock Kidney.

BEST FOR COLD WET SOILS.—Beauty of Kent, Bedford Prolific, Bresee's Prolific, Covent Garden Perfection, Fortyfold, Johnston's Downshire, Magnum Bonum, Reading Hero, and Scotch Champion.

BEST FOR SAND AND CHALK.—Beauty of Hebron, Bresee's Prolific, International Kidney, Early Rose, Manhattan, Matchless, Mr. Bresee, Pride of America, Schoolmaster, Reading Hero, Triumph, and Trophy.

BEST FOR EXHIBITION.—*White Kidneys*: Avalanche, Bresee's Prolific, Cosmopolitan, Covent Garden Perfection, International Kidney, King of Potatoes, McKinlay's Pride, Magnum Bonum, Model, Myatt's Prolific, Pride of America, Snowflake, Sutton's Magnet, and Woodstock Kidney. *Coloured Kidneys*: American Purple, Beauty of Hebron, Crimson Ashleaf, Garibaldi, Heather Bell, Manhattan, Mr. Bresee, Salmon Kidney, Sutton's Prizetaker, and Trophy. *White Rounds*: Bedford Prolific, Early Border, Feltham White, Fenn's Standard, Lady Truscott, Lord Mayor, Porter's Excelsior, Pride of Wilts, Rector of Woodstock, Sutton's Favourite, Sutton's Fiftyfold, Reading Hero, Schoolmaster, and White Emperor. *Coloured Rounds*: Adirondack, Beauty of Kent, Blanchard,

Grampian, Matchless, Radstock Beauty, Red Emperor, Scotch Blue, Reading Russet, Triumph, and Vicar of Laleham.—*Gardener's Magazine*.

DOUBLE CROPPING.

IT is a time-honoured practice with many to occupy the soil with two distinct crops, one of which is intended to be cleared off by the time the entire space is required by the other, or most important crop. Thus Radish seed is frequently sown thinly along with Onion seed, and the Radishes are generally cleared off before the seedling Onions have made much progress, while the gradual withdrawing of the Radishes tends to loosen the soil, and benefits rather than otherwise the Onion crop. In some parts of the country cottagers invariably plant the Mazagan or some other Broad Bean between the rows of Potatoes in their gardens, and the Beans do not, as a rule, prove injurious to the development of the latter crop. But in addition to this the cottager entertains a belief that the presence of the Beans tends in some way to mitigate the virulence of the Potato disease. Summer Spinach is also frequently sown between the lines of Peas, as in the early stages of their development the necessary space between the lines is not required, and by the time this is the case what may remain of the Spinach crop may, if the weather is dry, be used with advantage as a mulching for the Peas, or, if cleared off, the space between the lines may be forked or dug over, bearing the soil to the right and to the left, so as to give increased depth of mould to the roots of the Peas. Celery is mostly planted in trenches, and the soil thrown out of them forms ridges, which, when levelled on the top, form excellent stations for Cauliflowers, Lettuces, or any crop of quick growth, which may be cleared away by the time the soil is required to mould, or earth up the Celery. The increased depth of surface soil afforded the roots of plants occupying these ridges induces a rapid and exceedingly succulent growth in such gross feeding plants as the Lettuce, consequently some of the finest summer Lettuces are thus produced.

This dual system of cropping may with advantage be followed in the case of winter Broccoli, which not infrequently during severe winter, is entirely cut off by frost, a serious loss, as during early spring, the period when Broccoli is expected to come into use, culinary vegetables are as a rule seldom plentiful. The process mostly practised with the view of preventing the destruction of this crop is that known as laying, an operation effected by removing a portion of soil from one side of a row and pressing the plants down until they assume a somewhat horizontal position. The stems are then covered with soil taken from the side of the next line of plants, and so on until the entire plantation is laid down. The stem is found to be the most vulnerable part of the plant, hence the necessity of protecting it in some way, and a covering of soil is mostly found to have the effect of preserving it from the effects of very severe frost. The operation, at the same time, gives a salutary check to the plants, rendering them less susceptible to the injurious influence of a very low temperature than when in vigorous growth. On some light and poor soils, however, this check has also the undesired effect of inducing the plants to produce heads of smaller size than would otherwise be the case, and on this account the precautionary process of laying the plants down is frequently omitted, while by adopting the following plan the stems are protected and no check whatever is given to the development of the plants. The winter sorts of Broccoli intended to come into use during the following spring should be planted in lines, say 4 feet or 5 feet apart, and between the lines should be planted at the same time lines of Walcheren Cauliflower, Veitch's Autumn Giant Cauliflower, early Savoy, or Coleworts, which should be all cleared off by the middle or end of November, when the winter sorts should be at once moulded up close to the lower leaves, and in a manner similar to that practised with Celery. They thus sustain no check, and at the same time the stems are effectually protected,

and the trench thus formed between the rows tends to keep the soil in a dry and healthy condition. Plantations of winter Broccoli thus treated generally produce heads of the finest quality, and are seldom greatly injured during even the most severe winters. P. GRIEVE.

FORCING SEAKALE.

FEW who see the delicate white bundles of this vegetable lying in greengrocers' windows, or who enjoy it for their dinners, have any idea how it is grown, or of the great change that has taken place of late years in the mode of forcing it, a change which, by rendering the work much less laborious, has cheapened the article produced and placed it within reach of those who rarely, if ever, could taste it before. The old plan of managing Seakale was to have beds of a certain size with plants in clumps, so that they might be covered with large costly pots, made with lids at top for the purpose. This was only a very small part of the preparations required for forcing, as the more serious portion had to follow, which was the getting together of a huge mass of fermenting material to surround and cover the pots. This big pile of manure and leaves had then to be watched by inserting trial sticks to test the heat, which would perhaps get to a violent pitch, when, to prevent the Seakale being burned and spoiled, the whole heap had to be shaken over and turned. This turning at once effected the lowering of the temperature, and very often lost the heat altogether, when more manure had to be got and added to start fermentation afresh. Things would go on in this uncertain way, when, after a time and much searching, some of the pots might be found to contain a few crowns ready to cut, while plants in others had not moved at all, or were just beginning to push. Instead of the mountain now going to Mahomet, Mahomet has to go to the mountain, or rather the Seakale is taken where the heat is, which is much easier than the other way, as the roots may be dug up and wheeled in a barrow or carried in a basket, and packed together in a very small space.

By adopting this method, almost anyone can find a suitable place to force it in, as all that is needed is warmth, for no light or air is required; indeed, they must be excluded, or the Kale will not blanch. Where only a small quantity is wanted, a large deep flower-pot or tub is as good as anything, as the roots may be put in either, and filled in between with fine soil; and if then covered quite close over the top, the Seakale may be forced under the stage of a plant house, in a stokehole, cellar, or shed, in a stable, or anywhere that waste heat can be had. If there is no place available, the pot or tub containing the Kale may be buried in a bed of fermenting leaves or manure, where, if the heat does not run above 80°, it will shoot quickly and come very strong. Those who have only a limited quantity of roots and cannot spare any to take up for forcing, may still forward what they have by turning any spare flower-pots over the crowns, as the pots absorb and conduct the warmth from the sun to the air within, the temperature of which is raised considerably, and this excites and brings on the Kale. To have this bright and white, the pots must be well pressed on the ground and the holes in the bottoms blocked by dabbing a piece of clay over them so as to shut out light, otherwise the Seakale will be of a purplish hue. A good way of retarding this excellent esculent is to cover the beds with straw litter, which, by keeping off the sun from the ground, retards the roots considerably, and thus prolongs the season's supply much beyond the time it could be had without having recourse to this practice. Some use cinder ashes and others earth up the crowns of their Kale to blanch it, but when so buried the heads are generally stained and the Kale is never so good. Those who have not beds of this vegetable will find this a good time to make and start them, work which should be set about first by well preparing the land. The way to do this is to manure heavily and trench or dig deeply, as the roots of Sea-

kale go far down, and like plenty of rich stuff to feed on. Plants of Seakale may be raised in two ways—the one by means of thongs, or portions of the old roots, and the other by seeds, the former being preferable, as by adopting that plan very fine crowns may be got in a season.

In the selecting and making of the sets, the strongest parts of the lower roots should be chosen and cut up into lengths of 3 inches or 4 inches, but care must be taken when doing so to make a distinction in the two ends by making the top flat and the other sloping, as being of the same size all through, many of them would be likely to get planted upside down, and thus fail to grow. The distance at which the sets should be planted is about a foot, and 18 inches from row to row, which will give ample room for the spread of the foliage, and enable the plants to develop fine crowns. The way to put in the sets is to have a line, when by the use of a small dibble to make the holes the sets may be dropped in, and the holes filled up around them by raking the ground after, or by casting in a handful of sand, which is always advisable if the land is at all wet and stiff, as the sand preserves the root pieces from rotting. Seakale, being a maritime plant, is fond of salt, and if a sprinkling is sown over the beds when the plants are growing it will not only help them greatly, but be of much use in keeping down weeds, and therefore save both time and labour in hoeing. If seed is sown the earlier it is got in now the better, as it is important to give a long season's growth. The seeds being large may be sown in drills in rows the same distance apart as advised for the plants, and the seedlings thinned out when large enough, leaving the young plants about 10 inches or 12 inches asunder. S. D.

NOTES AND READINGS.

THE CATTLEYA WRANGLE.—Probably none besides the pedantic section of Orchid fanciers reads a line of the discussion now going on in all the papers relative to Cattleya "Percivaliana." If any do, it must be a source of profound wonder to them why so much ink should be spilled over a variety which the disputants label "miserable, inferior," &c., and as only fit for the rubbish heap by comparison. A perusal of what has been written on the subject suggests the idea that there is no such a thing as a "Percivaliana," and that it does not matter in the least whether there is or not. There are probably numbers of the same variety, hence the confusion. If the present reckless system of naming varieties of Orchids be followed much further, the Latin tongue, which has hitherto been considered inexhaustible for such purposes, will fail to specify the numberless distinctions the Orchid fancier professes to see. What subtlety of distinction, for example, and scholarly appreciation of the Latin adjective is manifested in the naming of six of the thirty or forty Cattleya Mossii in the list—*grandiflora*, *grandis*, *magnifica*, *majestica*, *splendens*, and *superba*. One would like to know where the comparative and superlative begin and end here. The truth is these so-called "varieties" differ from each other about as much as half-a-dozen wild Daisies gathered at random might do. Many other similar examples could be furnished showing the little weakness of our Orchid scholars. There are good reasons for supposing also that many of the so-called

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RARE VARIETIES OF ORCHIDS are not by any means exclusively in the hands of a few growers. We were standing the other day before a rosy-looking spike of a Vanda, in an extensive trade collection, in company with a well-known private grower of the species, who professes to be one of the few favoured mortals who possess a limb of the grand "Gloriosoni" variety described and figured no end of times, and we asked, "Now, what do you call that?" "Oh, that is —'s variety," was the answer; "exactly the same as my own." "No," put in the nurseryman, "that is *amabilis*; we got it out of the private collection

of Mr. So-and-So, who named it himself." A fabulous price had of course been declined for this variety. The London trade, those sly fellows who are always supposed to be on the scent of novelties, had tried to get possession, but had failed. No doubt "*amabilis*" will help on the confusion of fine varieties soon. The finest of all the Vandas is *suavis*, which should be grown at the rate of six to one of all the others. The bold, grand way it projects its spikes out from the stem, and the "excelsior" expression of the whole flower would strike a Doré. It is a free grower and flowerer too; it is said not to throw out side shoots very freely, but some finely-furnished specimens of it have been shown before now.

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LAPAGERIA PROPAGATION.—We revert to this subject to say that a collection of young plants now to be seen at Handsworth Nurseries is well worth attention. Twenty-two plants, in pots the size of tubs, and none of them exceeding four years of age, very nearly cover the whole roof, a 32-foot span, of a house 100 feet long, many of the shoots being 30 feet in length or more. These plants when taken up as rooted layers probably filled 12-inch pots at once, from which their growth, root and top, not long afterwards necessitated their removal to pots nearly a yard in diameter. Talk of cuttings!

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CRACKING GRAPES.—It is by no means certain that the cracking, not bursting, of the berries of certain Grapes like the Madresfield Court can be prevented by keeping the Vine dry at the root, or incising the branches, as has been stated. Professed experts have failed to do this in the case of Madresfield Court Vines growing in inside borders and perfectly under control in every way at the root. The theory that the cracking is caused by distension from within, owing to the force of sap, will not do at all, physiologically or otherwise. When anything bursts the contents run out, but who ever saw the sap running out of a cracked Grape berry? And why is it that when a berry is rent its entire length or for half its circumference the crack will continue to extend, and perhaps take a transverse direction if distension is the cause of cracking? When the Chasselas Musqué Grape cracks it does so like a mealy Potato exactly, and the Madresfield Court splits deeply, allowing the stones and flesh of the berry to protrude as if the disease was caused by some kind of vegetable scurvy. Hard forcing seems to aggravate the disease considerably.

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THE LATEST AUTHOR BUT ONE ON VINES recommends the canes to be trained a long way indeed from the roof. He has a span vinery 216 feet long and 30 feet wide, and the Vines are trained about 4 feet from the glass on the average, calculating that the wide lantern roof (a perfectly needless and expensive encumbrance on any vinery because it can hold nothing and is of no value otherwise) rises 7 feet or 8 feet above the trellis; the latter in a lofty house of this kind is only 8½ feet from the surface of the border at the highest part, and the practical man may therefore guess what length of rod, and consequently hundreds of pounds weight of good Grapes, are lost by such an arrangement in a vinery 216 feet long. Every foot of available bearing wood lost means weight in fruit. This is the serious disadvantage of a short trellis. The chief advantages are, according to the author, that "he can reach every bunch in the house without a pair of steps, except those immediately over the pathway." This is the set-off against the odd quarter of a ton of Grapes or so lost thereby. We do not believe one Grape grower in a hundred will be found to favour this idea. Four feet or even 3 feet from the glass is too far for Vines, and means a dead loss of space and nothing else, and it has besides been proved by some of the best growers of the Vine in this country that such waste of space is wholly unnecessary; nor has the author in this case shown, nor can he show, anything to the contrary. And it may be confidently stated

that an accurate gauge of his crops would demonstrate this fact conclusively.

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ROOTS v. TOPS.—We have lately been reading up on this subject, and have come upon a curious problem. A recent writer advises cultivators who may be driven to such an alternative as to have to sacrifice either the roots or tops of their Vines to choose the tops for future operations and let the roots with all their stored-up energies go. It certainly presents some notable advantages, this plan, because when the cultivator has to flit he can take his Vines on his back along with him like a bundle of faggots. This plan is, we believe, going to be introduced into France in a very short time, and it is supposed to have been the method adopted by the apostle to the Britons when he planted the Glastonbury Thorn. The author of this notion bases his idea on the fact that Vines root with equal freedom at either end, although he never read of Mr. Wildsmith's double rooters. That excellent cultivator will, therefore, not feel aggrieved at having been anticipated, but it would be interesting to know what he thinks of the plan, or if he has heard of it. We look forward with some anxiety to Mr. Barron's book, which growers are waiting to welcome in order to see if he also adopts this certainly "original" idea.

PEREGRINE.

OAK LODGE, THORPE, NORWICH.

FOUR years ago the land upon which this tasteful residence stands was a grass field. The house, a very pretty modern villa, is placed in the shade of a group of fine old Oaks, from which its name of Oak Lodge has been derived. The place is not large, scarcely more than two acres in extent, but it contains many interesting features. The old trees partially screen it from the public road, and a small strip of lawn and shrubbery surrounds the front door and extends northwards till it meets the terrace, on which the block of glass houses is built. A handsome conservatory is attached to the house on the northern side, lighted with gas, and very tastefully laid out, the beds and borders being raised and planted with Ferns and Palms, flowers not doing well in the gas-light. The collection includes several handsome *Dicksonias*, imported by Mr. Sendall direct from Australia, the trunks of the tallest pair being 8 feet high, with well furnished heads of fronds. I may mention as an instance of the skilful manner in which everything is made the most of here that this beautiful conservatory is built over the coal cellars. Minton tiles are laid in the paths, and have the advantage of being easily cleaned without raising any dust. In front of the conservatory is a small circular flower garden, approached by an arch covered with Clematises, which in summer must be a bright and striking feature. Round the flower garden, shutting it in, is a belt of fruit trees and evergreen shrubs, which include pyramidal Pears and standard Apples, intermixed with evergreens for winter greenery, the ground being raised into a broad based mound, which furnishes the fruit trees with a great depth of soil. By and by, as the seasons roll round, and they get well established, the little flower garden will be completely hidden from the kitchen garden beyond by a bower of fruit tree blossoms in spring and of fruit later on. On one side of the house facing the entrance is a fine collection of Roses; the soil here being specially suitable for their culture, a grand bank of blossoms is enjoyed in summer. The ground rises in a line from the house, the acclivity increasing till the wood-crowned summit of a hill in the distance is reached. Amongst

The glass houses on the terrace is a span-roofed orchard house, furnished with trees in pots—Plums and Cherries chiefly—and, judging from the state of the buds, there will be an abundant crop of blossoms. Tea Roses are trained along wires under the roof. The glass in this house is cut in a slightly circular form, a plan which gives more elasticity and prevents the frost cracking the glass by freezing the water between the laps; moreover, this mode of glazing does not

add to the expense of the building. Next came three span-roofed forcing houses, just the kind of houses with which any one would be pleased for forcing flowers or fruits, being light and well heated. They were full of plants either in flower or approaching that condition. Amongst them were handsome examples of *Imantophyllum miniatum* nicely in blossom, showing what a grand thing it is for forcing at this season. Numbers of double *Primulas*, including Gilbert's varieties, and a very fine assortment of zonal *Pelargoniums* bearing grand trusses of flower. The double white *Bouvardia* was in blossom, and its flowers are found to be valuable in a cut state. One of the late Mr. Nelson's *Lachenalias* (*L. pendula*) was furnished with a spike of flowers greatly superior to those of any of the old varieties. These houses also contained a good assortment of new *Coleuses*, *Begonias*, and some grand plants of *Eucharis amazonica*. The next house we entered, also a span-roofed structure, contained Pines on one side (I should mention all these houses had a path down the centre and forcing pits on each side) and *Gardenias* and other plants on the other; Tomatoes also were being led up to the roof and showing clusters of blossoms. The other houses included a range of lean-to's, furnished with Vines and Peaches, which were in good fruiting condition. A fernery under glass contained a good collection of all the best varieties of *Adiantum*, *Cheilanthes*, *Asplenium*, *Alsophila*, *Lomaria*, *Gymnogramma*, &c. But the most remarkable plant in this house was an *Allamanda Hendersoni*, and its mode of growth shows in a marked manner how little solid food plants require if well supplied with heat and moisture. In the centre of the house (a three-quarter span, 50 feet long), on the north side, is a tank which receives all the water that runs from the roof, and it is also supplied from another source in dry weather when the rain water fails. This tank is heated by means of hot-water pipes passing through it, and is covered in with slates; on the latter is a couple of inches or so in depth of shingle. Three years ago a small mound of peat was placed on the shingle over the tank, and a small *Allamanda* planted on it. There was nothing to keep the small mound of peat from crumbling down, and it gradually wasted away until now there is only a thin stratum 6 inches thick, and none has been added since the first basketful was placed over the tank. The *Allamanda*, nevertheless, has developed marvellously; right and left along the roof it has spread. It was not in flower when I saw it, but I was told that the flowers had been very fine and abundant, and so bright in colour as to attract special attention. The wood, I could see, was remarkable for substance and shortness of joint. Such wood will bear abundance of blossoms for a long period if well fed; but where were the roots to nourish the blossoms? Well, on closer examination they were found in great flaky masses floating on the water—sufficient, indeed, to support the great golden blossoms which for six months of the summer and autumn had hung in clusters from the roof. The roots, not finding food enough on the slates, had crept down the sides of the tank until the tepid water was reached, when all difficulties as regards culture were at an end. There is, however, nothing new in this; many a story has been told and many others might be narrated of the way in which roots take possession of drains and other sources of moisture, and how the appearance of the plants thus circumstanced undergoes a marked change for the better. A plant stove with its roof covered with creepers contained, amongst others, the useful old *Ipomœa Horsfalliæ*. The space under the stages and the edges of the paths in this house were prettily ornamented with the variegated foliage of such plants as *Panicum variegatum*, *Fittonia argyroneura*, *Gymnostachyum*, &c., the back wall being planted with the curious clinging plants *Scindapsus pictus* and *Ficus repens*. In two other houses a collection of Orchids has been formed, all the best genera being represented, many of the *Odontoglossums*, *Dendrobiums*, *Cypripediums*, &c., being in flower. Oak Lodge, indeed, is a *multum-in-parvo* kind of place, well worth a visit at any season. The houses, thir-

teen in number, are well warmed by one of Messrs. Boulton and Paul's improved saddle boilers, which heats 5000 feet of 4-inch pipe. E. HOBDAV.

ORCHIDS.

ODONTOGLOSSUM CRISPUM.

(STRIPED VARIETY.)

THE accompanying woodcut represents a flower of *O. crispum*, sent to us a short time since by Sir William Marriott, The Down House, Blandford. As may be seen by the illustration, the petals, sepals, and labellum are all spotted and striped on a white ground. These spots and stripes are a bright violet-purple, and there are also flushings of the same colour on the outer surfaces of the flower segments, the whole giving it an uncommonly beautiful appearance. We have frequently seen flowers of this Orchid flushed with purple, but not till Sir William Marriott's specimen came

limited in numbers, were known by repute, as well as by those who had seen them, to be of an extraordinary character, and certain to bring buyers enough of the right sort to enable them to reach their value. As to the importers of Orchids, there is not much needed to show them what would be conducive to their interests in the matter, as I fancy those who have already tried sales at some of the places named have seen sufficient to show them what to do. I have known imported stock in good condition sent long distances from London to be thus sold that I do not suppose made much more than the expenses attendant on the sale, leaving out of account the cost of collecting and transit to England. The name Orchid, according to many people's ideas, must necessarily be associated with extravagant prices; this, coupled with the mistaken notion that to grow Orchids well houses specially devoted to their cultivation were indispensable, has deterred more people from beginning to cultivate them than the whole number of those who have



Striped flower of *Odontoglossum crispum* (Alexandræ).

had we seen a striped flower. This is another instance of the wide variation of *O. crispum*, and, moreover, one of the most beautiful, and it is to be wished that the sport will become fixed. Each flower in the spike sent us was similarly marked. The form and size of the flower may be taken as typical of what orchidists now term a good form of *O. crispum*.

ORCHID SALES.

IN THE GARDEN (p. 147) it is suggested that Orchid sales might with advantage be held in the large provincial towns in place of being, as hitherto, mostly in London. I presume it is imported stock or such as is only partially established that the writer means. Anyone having a collection of established plants to dispose of, even if living in the immediate vicinity of one or other of the large towns in question, would be likely to think twice before sending them to any other place than London, for reasons that Orchid buyers are well aware of, having, as many of them have, those at hand, in or near London, who buy for them if they do not attend themselves. The fact is, London sales of these plants always bring more buyers than ever appear elsewhere, unless the plants have an especial reputation, such as the Manley Hall collection or those sold at Edinburgh belonging to Dr. Paterson, the latter of which, although

gone in for them. The latter of these mistakes is every day now being dispelled, for, as has been so repeatedly urged, not a few of the finest examples of Orchid culture that have ever existed have been grown in houses partially devoted to the growth of other plants of a nature wholly different from Orchids. But as to the other obstacle, price, a clearer conception is fast being arrived at, *i.e.*, with the exception of rare species which often do not produce flowers a fraction handsomer than others as plentiful as need be. Orchids in the shape of imported or partially established plants can now be bought at the nurseries of those who cultivate them largely at little more cost than ordinary trade-sized *Camellias*, *Azaleas*, *Heaths*, &c., and less than is paid for new varieties of *Fuchsias*, *Pelargoniums*, *Begonias*, *Roses*, and similar plants. The high figures constantly being heard of as obtained for individual plants of Orchids are often taken by the uninitiated as representative of the ordinary value, to which they are nothing more than an exception, and simply bear evidence of the lengths to which those who are enthusiasts in these as in many other things will go. Nor should anyone find fault with the spirit that actuates such buyers. Those who can afford and make a special hobby of Orchids merely act as people do in scores of other matters. Amongst instances continually occurring, only the other day at Stevens' room, where a number of

Cattleya trianae were sold in flower, there were many that went for about £1 apiece, whilst one or two plants no larger fetched eight or ten times that sum, and yet anyone who had no particular acquaintance with them, but was only an admirer of beautiful flowers, would not have seen as many shillings' difference in the value as there were pounds in the actual price obtained. T. B.

CATTELEYA LABIATA PERCIVALIANA.

ANYONE who has had an opportunity of seeing, as I have had, a good many plants of this *Cattleya* in flower, and has not had the luck to meet with more than one example that could be set down as better than extremely poor, cannot fail to see the justice of the complaints that have been made about it. Take, for instance, the three washed-out looking examples shown at the last meeting at South Kensington, and, allowing for the somewhat better condition in which they may appear when more strength has been attained, and those acquainted with imported plants know tolerably well how much to allow on that head, even those who are the greatest appreciators of novelty could not have set them down as above third rate, judging them by the standard of the many fine *Cattleyas* in cultivation, and the examples in question appeared to be of the average that may be looked for. The plant evidently varies a great deal, in this respect quite as much as *C. trianae*, with a preponderance of poor varieties. Before this *Cattleya* had received such a glowing character it should have been remembered that in addition to the old *C. labiata* we already had such magnificent kinds as *C. gigas*, *C. Reineckiana*, *C. Mossiae*, *C. Dowiana*, *C. Mendeli*, *C. Warneri*, *C. trianae*, and *C. speciosissima* in their numerous beautiful forms; then *C. labiata Percivaliana* might have been put in about its right place. In the matter of Orchids, as in other things, demand begets supply, and are not those to blame who go in for collections, and rush indiscriminately after everything new, regardless of its merits compared with others already in their possession? This, I venture to suggest, has something to do with the indifferent species sold under such exaggerated characters. Not that this is by any means sufficient justification for the proceeding; still, so long as there are buyers determined to have something new, so long will indifferent plants be forthcoming under characters they do not deserve when really fine novelties are not to be had.—T. BAINES.

— Four weeks having elapsed since January 27, the date my description of *C. Percivaliana* appeared in THE GARDEN, I thought Mr. Burbidge had come to the conclusion that this *Cattleya*, which has now been so fully discussed for and against had turned out better than he expected. But now I see by his letter in THE GARDEN of February 24, 1883, he is still as "of yore." In it he uses a new comparison, viz., *C. Warneri*. This is getting a little off *C. Mossiae*, and perhaps a step nearer identifying *C. Percivaliana* with the *labiata* section of the genus. Mr. Burbidge says I gave "a good many measurements of *C. Percivaliana* and a good deal of description not to the point." The whole actual description and measurements of the flower itself occupied but twelve lines in a column of THE GARDEN of January 27, 1883, though, of course, my letter on the subject was longer. Had it been much less it would have been a very little one, especially as the flower was that of a new plant, of which, I presume the public who took the pains to read my letter would like as accurate a *résumé* as I was able to give, leaving out the long words so much used in the authorised descriptions of the professors of botany, to whose language I never aspire. Had I had the help of a coloured plate, as Mr. Burbidge so often has, I would have dispensed with it all. I could have also given measurements of "the old *labiata*" had I thought Mr. Burbidge would have liked them, but as my letter was principally addressed to "F. W. B." (who I am pleased to see signs in full in THE GARDEN of 24th of February, 1883), I thought he would thank me if I spared him the tedious repetition so often seen in re-describing well-known things: As to my courage of

which he speaks, that did not fail me in the awful moment of writing a letter for a public newspaper, and I can now, as he seems to wish it, say, "firmly and decidedly" (to use Mr. B.'s own words) on my own part, that I consider *C. Percivaliana* to be handsomer than "the old *labiata*." I, of course, may be wrong, but there are others with me, and I am not alone. To what section of *Cattleyas* would Mr. Burbidge refer it, if not to the "*labiata* section?" *Mossiae* is of that section, and if *Percivaliana* is a *Mossiae*, then it must belong to that section also. I think if Mr. Burbidge had seen some of the fine varieties of it lately sold at Stevens' rooms, and also the blooms sent up by growers, and last, but not least, the collection of bulbs and flowers sent by Mr. Sander, he would not have formed quite such a hard-and-fast opinion of it as he has. He does say that he will publicly acknowledge he is wrong if I or others can convince him with fresh flowers. This I had hoped some time to do, but, unfortunately for me, he says in the next sentence, "I distinctly refuse the evidence of a writer who acknowledges he had two flowers of the true old *labiata* before him." Now this will be seen to be written in my letter printed in THE GARDEN, January 27, 1883; therefore that pleasure is denied me; but if I ever come across Mr. Burbidge I do hope to have a talk with him on this plant and Orchids in general, as he has them at heart. The main point between us originally was whether it was more like a *labiata* than a *Mossiae*. On his part Mr. Burbidge will find it hard to reconcile Prof. Reichenbach's description in *Gardeners' Chronicle*, January 27, 1883 (which, oddly enough, corroborated mine appearing in THE GARDEN of same date), and also his further remarks in ditto, February 24, 1883, with his own opinion of the plant and also that of Sir Trevor Lawrence, who says, "I speak of those which have flowered out of the numerous plants that I myself bought." Therefore we all write on what we see, and have each formed our opinions. There is always a great divergence of opinion on new and old things. For my part, I should like not only one "un-biased" grower to compare the opposite descriptions (he could only say which he agreed with, after all), but I would like the opinions of twenty-five well-known growers, whose names should be drawn by lot from all those who have bloomed it, and then we should see the preponderance. It would be very interesting to see such a conclusive bit of evidence. When the plant has thoroughly established itself and shown its full vigour it will show who are right. When once established all writing will be superfluous, and will be only the expression of individual opinion.—D. B. CRAWSHAY.

Phaius grandifolius.—The finest examples of this old and well known Orchid we have seen for a long time come from Mr. Field, gardener at Stanley Hall, Bridgenorth. The spikes measure between 4 feet and 5 feet high, and carry from fifteen to twenty blossoms. The foliage, too, is uncommonly large, being about a yard long and 6 inches in width. Mr. Field says he finds it a most useful Orchid for winter and an easy one to cultivate, but few grow it so well as he does. With this come some flowers of *Cattleya trianae* cut from plants imported last season. These measure 5 inches and 6 inches across with broad sepals, petals, and lips, and in point of colour, too, represent very fine varieties, thus showing what beauties one may sometimes turn up from a batch of imported plants. An uncommonly fine variety of *Lycaste Skinneri* is also sent. It is remarkable for the large massive blooms, the deep purple-crimson of the sepals and petals, and a broad white lip, also spotted with crimson.

Substitute for Orchid peat.—As good Orchid peat is now very difficult to be got, more especially on account of the excessive rainfall, I am going to try the outer shell of the Cocoa-nut chopped up into pieces suitable to the size of the pot. Will other growers give this a trial and let us watch the result?—ALEX. PATERSON, *Fernfield, Bridge of Allan.*

Oncidium phymatochilum.—At page 161 this *Oncidium* is spoken of as difficult to flower. I cannot quite agree with the writer on this point. We have a plant here which flowers freely annually, and has two flower-spikes showing at the present time. It is grown in a pot close to the glass in an intermediate house; it is in robust health, and has produced a quantity of roots outside the pot. My opinion is that if it is properly treated it will not be found difficult to flower. The greatest mistake is repotting this plant when it gets to the side of the pot; if let alone it will grow and flower freely.—EDWARD WILSON, *Fernside, Bickley Park.*

Lælia harpophylla.—A good variety of this richly coloured *Lælia* is now in flower in the Orchid house at Kew. There have been many amongst plants recently imported whose flowers have not come anything like up to the expectations formed by those who have had the pleasure of seeing Sir T. Lawrence's fine plant, which was exhibited at Kensington some five years ago, and excited so much admiration. No doubt the large numbers of this plant sent home were the result of the successful *début* of Sir T. Lawrence's plant. This Kew variety is quite as good as the best seen yet, the width of the sepals and petals, substance and depth of colour being specially marked in this plant.—B.

Orange-striped Cattleya trianae.—A very remarkable variety of this Orchid, one that we have not hitherto seen, has been sent to us by Sir Alexander Ramsay, Cheltenham. Its peculiarity consists in the two lowermost sepals, which are pale mauve, having a thick bar of bright orange-yellow running down the middle of each, which gives the flower a distinct appearance. There is a good deal of orange in the throat of the labellum, and this, in combination with the rich magenta-purple of the other part of the lip, and its frilled edging, makes a most attractive flower. It is large, measuring just 6 inches across. Sir A. Ramsay certainly possesses a most curious variety, and one if it should become fixed will be sought after.

Phalænopsis grandiflora aurea.—Of this rare and beautiful variety Mr. Vicary sends a very fine flower from Mr. Peacock's collection at Sudbury House, Hammersmith. The flower is $3\frac{1}{2}$ inches across, the lateral petals very broad and more rounded than in the type, while the side wings of the labellum are almost entirely of a rich chrome yellow, which makes the flower so attractive in contrast with the snowy whiteness of the sepals and petals. We see in this variety that the peculiar slender appendages to the labellum are also bright yellow, a character we have not observed in any other *aurea*. With this comes a spike of a splendid variety of *P. amabilis*, remarkable for its large, broad-petalled blossoms, and some of the deepest tinted varieties of *P. Schilleriana* we have seen. Among the latter is one with flower just upon 3 inches across, which is large for the species. A specimen of the lovely *P. Stuartiana* is also sent; it is as lovely as it is uncommon. It has flowers nearly as large as an ordinary *P. Schilleriana*; the three upper sepals are white, while the labellum and half of the lower sepals are beautifully spotted with cinnamon-red on a yellow ground. Quite different to any of the foregoing is one called *P. Manni*, a somewhat inconspicuous species, with flowers about an inch across with a tiny white lip, and narrow sepals and petals barred with brown on a yellow ground.

Phalænopsids.—I send you flowers of a variety of *Phalænopsis grandiflora* which some would call *aurea* on account of the yellow markings of the labellum, but, in my opinion, it is not so good as the varieties of *P. amabilis*, a bloom of which I enclose from a batch imported last midsummer. The plants were then entirely without leaves, but now have made stout leaves, and I have no doubt when the plants get stronger the flowers will be even finer. Some of them now have borne flowers considerably over 3 inches across. The petals are broad and full, and the lower sepals beautifully spotted; the lip is also much larger than that of the best *P. grandiflora*. We

have some varieties entirely without a blotch on the lower part of the lip; the markings on the lateral lobes of the flower sent are also much brighter than in most of the varieties. The flower of *P. Schilleriana* is of the ordinary type; we have several varieties as regards size and colour, but this one is very fragrant. Can any of your readers tell me why this one should be scented and not another among a hundred. The *Cologyne flaccida*, of which I also enclose specimens, is just coming in to take the place of *C. cristata* now past its best.—A. F. GORDON. [The *P. amabilis* alluded to is not often seen so fine; it is identical with that sent us by Mr. Voss, mentioned lately. The variety of *P. grandiflora* is not so fine as the typical form named *aurea*, the yellow blotches on the labellum not being so large. The *Cologyne flaccida* is a pretty and elegant plant, particularly useful for cutting, as the drooping spikes fall gracefully over the sides of a vase.]

AMERICAN NOTES.

The Washington Cedar.—As is now tolerably well known, the Mammoth tree of California was at first supposed to be a new genus, and named *Washingtonia* by Dr. Kellogg. Lindley also supposed it to be distinct, and, either ignorant of or ignoring Kellogg, named the supposed new genus *Wellingtonia*. But neither of these determinations stood the test of botanical rules, and the plant was finally referred to a genus already established, namely, *Sequoia*. Dr. Kellogg now claims, at least, priority for his common name, Washington Cedar. He says, "As historic truth demands it, it is but just to state, I, myself, took Mr. Lobb to the California Academy of Sciences, and showed him the first specimens he ever saw of this marvellous, now world-renowned, Washington Cedar, which was so named by me before he ever saw the tree. The fact is well known to the old charter members of the Academy, several of whom are still living. It is, therefore, the earliest among common names, and claims precedence, by all courtesy, in point of time, as also in appropriateness of honour. Our relations to its earliest identification we leave to the historian of the future."

Fertilising Moss.—The agent of the Dumesnil Moss Company called on me in June, and I consented to test the claims of his "secret." Accordingly he sent me a package of the Moss which we gave a thorough comparative test with our mixture used for Moss mulching, which is composed of about fifteen parts of Moss to one part of pure bone dust. Also to make the trial more thorough, the same number of plants were potted in ordinary soil. We used 12 plants of *Latania borbonica*; 12 *Coleus*, one sort; 12 *Caladiums*, one sort; 12 *Pandanus*, one sort; and 12 *Crotons*, one sort. We washed the soil from the roots and potted in 5-inch pots four plants of each with the Dumesnil Moss, four of each with our Moss and bone mixture, and four of each with ordinary soil. The plants were placed together on one of our greenhouse benches and were given exactly the same treatment. No difference was apparent in any of the three lots from first to last and all grew well, but there was no superiority whatever in those grown in the French Moss over the others. I last month invited the New York agent of the Dumesnil Moss Company to examine them, which he did, and expressed himself as being unable to see any difference in the three lots. The matter can be easily tested by any one. Moss and bone-dust can be got almost anywhere, and if it proves to be as useful for the purpose claimed as this French Moss, whose fertilising principle is a secret, then it is difficult to understand where the value of the "secret" comes in.—J. HENDERSON.

Is the Kalmia poisonous?—I have been observing the controversy regarding the poisonous qualities of *Kalmia*. I confess I cannot understand why chemistry fails to show that it is a most deadly poison. My earliest recollections are coupled with the aid the boys of my native

village gave to the men who drove cattle and sheep across the mountains before the days of railroads. Our village was at the base of the mountain, which was three miles to its summit, and the pike lined on either side by dense thickets of *Kalmia*—the especial dread of sheep drovers. The boys of the village were employed by the drovers to assist in keeping the flocks on the pike until the summit of the mountain was reached. I doubt if a large flock was ever driven across it without the loss of several from eating *Kalmia*. I have seen them lie down to die before they could be driven from the thickets into the highway. My grandfather kept large flocks of sheep, and I can remember one occasion when a deep snow fell leaving nothing green but the *Kalmia*, and the flock could not be found until late the following day (being in a very large range). When we found them a very large portion were dead with the *Kalmia* leaves in their mouths. They were found in groups about *Kalmia* plants; in one case five died just where they ate. Within two years my partner in the fruit farm had a valuable heifer in company with a small flock of sheep in a range where he had directed the hired men to cut out all the *Kalmia*. In a few places the *Kalmia* had sprouted up, and after a fall of snow looked temptingly green. The heifer was found dead with portions of the *Kalmia* protruding from her mouth. I could multiply these instances. But it seems to me that direct experiment would convince the most sceptical. Anyone willing to sacrifice a sheep by allowing it to eat *Kalmia* leaves could have it demonstrated to his satisfaction that it is a poison, chemistry to the contrary notwithstanding. Sheep accustomed to the sight of it were never known to eat it except when the ground was covered with snow; but flocks driven by it from the western country would eat it if permitted.—Q. A. LOBINGIER, *Steubenville, Ohio*, in *Gardener's Monthly*.

Kerosene for posts.—Please [state if refined kerosene will preserve fence posts as well as crude petroleum. I can get kerosene here at 15 cents per gallon, but the crude petroleum is quoted at 20 cents. Why is this?—R. I. H. [Kerosene is not so good a preservative for wood as crude petroleum, as the latter contains matter which becomes concrete after entering the pores of the wood, while the kerosene is more liquid and would not remain so long. There is no reason why dealers should charge as much for petroleum as for kerosene, except from a disposition to overcharge on an irregular sale.]—*Rural New Yorker*.

Starting tree seeds.—In these days of timber culture it becomes important to decide how to treat seeds as well as seedlings. Only nurse them through the first two or three years, and but little care will be necessary in the future. Some tree seeds, as those of the Oak and Maple, grow too readily, and occasionally the little radicle or first root in these may often, during moist weather, be noticed peeping out of the seed before dropping from the parent tree. Then again such seeds as those of the Holly, Juniper, and Yew will generally lie dormant in the ground for two or even three years. The proper treatment for the first is to dry them very slightly before committing them to their winter quarters; and for the latter class, place them in damp sand as quickly as possible after removal from the tree. It is an excellent plan to wash off all the fleshy covering from pulpy seeds, as this acts more as a preservative than as an incentive to germination. A proper care of the tender seedlings justifies us in protecting them from the direct rays of the sun and from the trying effect of high winds. This may best be effected by making frames of common, cheap boards, so as to form beds, say about 6 feet wide and of any length necessary. These are covered with lath racks or "shelters," 4 feet by 6 feet in size, with ordinary plastering lath tacked across them, leaving three-quarters of an inch between. Here may be started all seeds of difficult germination, as well as the rare species that we desire especially to grow. Many kinds, depending greatly on the size of the seed, must be covered very slightly with sand; in fact, merely

hiding them from sight would be desirable. Others, again, of larger size require rather more soil over them, and those of larger dimensions, as the Walnuts, must be placed beneath the surface for 3 inches or 4 inches. An excellent rule to observe, however, is to cover too little rather than too much, as seeds during germination decay very easily. Sharp, gritty sand or light, sandy soil are about the best for covering seeds, although when peat or leaf-mould are readily procured they will be found very serviceable for the purpose. When the young seedlings are two years old they must be transplanted, or if very close in the beds they may be pricked out into other beds at one year old. Pinch off the tips of all long tap-roots and dip in thin mud before dibbling in their new homes. Again cover the lath shades, and mulch with Moss if very valuable. Should dry weather set in water thoroughly with a coarse rose or sprinkler, but towards autumn take off the racks to hasten the ripening process by means of the sun's rays.

Potato fibres.—Dr. Sturtevant made an examination of the depth to which the roots of the Potato run. A plant was selected which grew on a high ridge, the seed having been planted 6 inches deep. A trench was dug at the side to expose the soil, and the roots were washed with a stream of water turned against them, laying the fibres bare. One root was found to reach 34 inches below the top of the ridge, or 28 inches below the tubers. The deeper roots appeared most fibrous. Very few roots were found above the tubers. The soil did not allow the tracing of the finest roots. This experiment seems to indicate the importance of a deep soil for the Potato, an indication which repeated experiments fully corroborate, and in very dry seasons the crop on deeply trenched soils has been more than double that on ground ploughed at common depths, and both equally fertile.—*Prairie Farmer*.

PLANTS IN FLOWER.

CHRYSANTHEMUM NUIT D'AUTOMNE.—I send you the last of our Chrysanthemums. It is the variety *Nuit d'Automne*, a Japanese sort, with long narrow plum coloured petals. We have had Chrysanthemums in flower since the second week in August without a break. We then commenced with *Illustration*, *Mexico*, *Cassy*, and *Nanum*, and very useful we found them throughout the autumn months.—GEORGE KEMP, *Edgeley House Gardens, Stockport*.

VELTHEIMIA VIRIDIFOLIA.—Some unusually fine specimens of this old Cape of Good Hope plant reaches us from Mr. Field, Stanley Hall, Bridgenorth. The stout flower-stems are 15 inches high, and are terminated by a dense cluster of flowers, each about a couple of inches long, after the manner of the Flame Flower (*Tritoma Uvaria*). The colour of the flowers is a kind of glaucous pink, very attractive, and contrasting finely with the broad green foliage. It is a capital greenhouse plant of easy culture, and it possesses the advantage of continuing to bloom for months in succession.

RHODODENDRON EARLY GEM, one of the early flowering or *davuricum* class, is the finest we have seen. Like other varieties of this type, it is dwarf in growth and very floriferous. The blossoms, produced in dense massive trusses, are fully 2 inches across, and of a beautiful rosy lilac hue; the petals being wavy-edged, add to the attractiveness of the flower. As it is so dwarf and compact in growth, and, moreover, a very early bloomer, it is particularly adapted for pot culture, and a few plants interspersed with others in a conservatory have a pleasing effect. It is now beautifully in flower in Messrs. Veitch's nursery at Coombe Wood, where we believe it originated a few years ago.

A NEW WHITE VARIETY of *Cydonia japonica* now in full bloom in Messrs. Veitch's nursery at Coombe Wood, under the name of *nivalis*, is among the most chastely beautiful of early flowering shrubs. The flowers are identical with those of

the ordinary kind, but are as white as driven snow, and it retains its purity throughout the flowering season, thereby differing in an important degree from the common white variety of *Cydonia alba*, which changes to a pinkish colour by age. This variety *nivalis* is, like the original, a very free bloomer, and long shoots are perfect wreaths of white, so abundant are the blossoms. Beautiful as these snow-white flowers are on the bush, they seem to reveal additional beauty when cut and associated with a little greenery, and they last a considerable time in water and half-opened buds fully expand, though not such a pure white as those that expand in the open air. As a companion plant to the high coloured varieties of the favourite Japanese Quince the plant under notice is recommended. For wreath and other floral devices it is invaluable at this season.

CORBULARIA CITRINA.—A bunch of flowers of this charming Hoop Petticoat Daffodil has been sent to us by Messrs. Collins & Gabriel, who received them from the south of France. It is scarcely known in English gardens, yet it is so beautiful and so distinct from any other variety of *Corbularia* that it should be grown by every body. It is just like the ordinary Hoop Petticoat in size and form of flower, but the colour, instead of being bright yellow, is of a soft pale lemon hue. The rim of the crown, too, is cut off straight. Judging by the quantity of flowers which this firm has, it is not a rarity in the south of France, where it evidently grows to perfection. It of course is a variety of *Narcissus Bulbocodium*.

NARCISSUS MINOR.—After the Hoop Petticoat *Narcissus* this is the first to bloom. In Messrs. Barr & Son's unique collection at Tooting it may be seen in all its glory, not in little tufts, but in spacious beds with hundreds of little golden flowers nodding as if they had not strength to hold up their heads. It is very dwarf, never more than 4 inches or 5 inches high, but usually only 3 inches. The cup, which is the most conspicuous part, is a bright golden yellow. As it is so dwarf, so that, as Parkinson quaintly says, "its nose for the most part doth lie on or touch the ground," it is advisable to plant the bulbs beneath a surface of some trailing plant such as *Spergula*, thereby protecting the flowers from dirt. It is the "least Spanish yellow Bastard Daffodil" of Parkinson.

COLCHICUM CROCIFLORUM.—Flowers of this newly introduced species come from the New Plant and Bulb Company, Colchester. It is not a large nor very showy species, but very interesting, as it is so different from the other kinds. The outspread flowers are about 1 inch across, and the six segments are white within and stained with reddish purple on the outside. It flowers before the foliage appears, and its resemblance to some species of *Crocus* no doubt suggested its specific name. It is a native of Southern Persia. Another interesting new plant is also sent from Colchester; it is called *Bulbocodium persicum turkestanicum*. It has small white flowers produced with the half developed leaves. It is much like the true *Colchicum montanum*.

ANEMONE FULGENS.—A basketful of flowers of this brilliant Windflower comes to us from Messrs. Collins & Gabriel, Waterloo Road, to whom they were sent from the south of France. The sight of such a charming gathering indicates plainly that the climate of Southern France even in February is a most genial one for flowers, reminding us of April and May here, when this Windflower unfolds its brilliant blossoms in our open borders. Three forms are sent, the single, the semi-double, and one called *multipetala*, which has numerous narrow petals arranged in two or three rows; all are beautiful, and we hardly know which to admire most. The colour in all is of that refulgent crimson-scarlet such as one sees in no other flower in the open air.

ANDROMEDA JAPONICA.—Flowering so early in the year as this shrub does, it is particularly welcome, and its flowers combine a delicacy of colour with elegance of habit seen in no other *Andromeda*. In this country it usually is a dwarf bushy

shrub, furnished with leathery bright green foliage. The flowers, which remind one of those of Lily of the Valley in size and colour, are borne in a branching cluster terminating the shoots, each branchlet of the cluster being a long one-sided spike, all the flowers being arranged on the under sides of the stalks. It is an uncommonly pretty shrub, quite worth growing in pots for conservatory adornment, though we never remember seeing it treated in that way. It is one of the most interesting hardy shrubs in full bloom in the Coombe Wood Nursery. Another species belonging to the same subgenus (*Pieris*) is also worthy of mention. It is *A. calyculata*, a North American shrub, with small bronzy foliage and leafy racemes of white blossoms.

ERICA CODONODES.—There is no hardy Heath so beautiful as this when well grown. It forms a small shrub from 2 feet to 4 feet high; the branches are slender and erect, and clothed with small foliage similar to that of *E. hyemalis*. At the present time each of these slender erect shoots is completely wreathed for about a foot in length with myriads of tiny bell-shaped blossoms. The unexpanded buds being of a deep rosy pink, and the open flowers pure white, there is a pretty contrast in colour such as we have seen in no other Heath, and each shoot being terminated by a few inches of green foliage, its effect is heightened. Such an extremely pretty shrub as this only needs to be seen to recommend itself for cultivation, and the fact that it is hardy adds greatly to its value. In the Coombe Wood Nursery it is now beautifully in bloom with other hardy kinds, among which the well-known *E. herbacea carnea* and *E. mediterranea alba* are the most noteworthy, and both admirable plants especially for the rock garden.

THE FIRST BOUQUET this season from Mr. Joseph Stevens' garden at Grasmere, Ryefleet, contains many beautiful and interesting hardy flowers and shrubs. Some of the most noteworthy are *Forsythia suspensa*, a pretty Chinese shrub, whose long slender shoots are wreathed with bright yellow blossoms. It is an excellent plant for planting against a sunny wall, though perfectly hardy to stand in the shrubbery. No garden should be without it. Branches of *Berberis Darwini*, profusely laden with blossoms, is among the brightest in the bouquet, but it is too well-known to need describing, and the same remark applies to the old *Cydonia japonica*, *Andromeda floribunda*, and *Veronica imperialis*, a deep magenta variety of *speciosa*, which Mr. Stevens assures us has been in flower throughout the winter. A sweet-scented Honeysuckle, *Lonicera Standishi*, is worthy of note; and among herbaceous plants are *Doronicum cordifolium*, a bright yellow, Daisy-like flower; *Hepaticas*, double red and single blue, both charming; and the true *Helieborus orientalis*, which has large cup-shaped flowers, the sepals of which are greenish white.

FREESIA LEICHTLINI MAJOR.—Of this charming Cape bulbous plant Mr. Smith sends from his Caledonia Nursery, Guernsey, some wonderfully fine flowering specimens. The flower-spikes measure 15 inches high, and are branched at intervals of 3 inches or 4 inches. The main stem carries a one-sided spike, consisting of from nine to twelve blossoms, all looking sideways. The side branches are also terminated by flower clusters scarcely less numerous than those of the main one. The tubular flowers are some 2 inches long, pale yellow, with a conspicuous blotch of orange on the lower petal. Not the least noteworthy point is the delicious perfume emitted by the blossoms, a combination apparently of that of Primroses and Violets, but much more powerful than either; indeed, the scent of one spike alone diffuses itself throughout a good-sized room. In these remarkable specimens we have an additional proof of the skill with which bulbous plants are treated in Mr. Smith's nursery, and they show well what good culture, combined with a genial climate, may do for *Freesias*, which, singularly enough, seem to be very little known as yet. As regards the variety Mr. Smith sends, there is no doubt that it is decidedly a major form of *F. Leichtlini*, larger in every respect than the type.

CAMELLIA C. M. HOVEY.—This new variety fully sustains the high opinion which its American raisers had formed of it before it crossed the Atlantic. It is now pronounced by competent authorities to be without exception the finest *Camellia* of its colour in cultivation—in short, the very ideal of perfection; such were our thoughts on seeing a specimen of it about 8 feet high the other day in the *Camellia* house at the Royal Exotic Nursery, Chelsea, where, though surrounded by every variety of note in cultivation, it has no peer, whether we take into consideration its size, growth, floriferousness, or the size, form, and colour of the flowers. The bush in question was carrying a score or so of blooms, some of which measured 5 inches across. The flowers are perfectly circular; the petals, though not large, lap over each other in a beautiful way, and the centre, often the weak point, is not coarse in any stage. The colour is a sort of crimson-lake, with a peculiar and indescribable brightness about it which makes it so much admired, particularly when seen on the plant associated with the broad, lively green foliage. Mr. Hovey, of Boston, the raiser of this variety, might well be proud of having sent to Europe one of the finest *Camellias* as well as having stolen a march upon Italian raisers.

QUESTIONS.

Flower beds.—Will any of your readers kindly furnish me with the names and arrangement of any really pretty flower beds in any of the London parks last summer?—H. M.

Striking Japanese Privet and *Garrya elliptica*.—May I ask the help of your correspondents as to how best to strike the broad-leaved Japanese Privet and *Garrya elliptica*?—R. H.

Blinds in plant house.—Can any reader of THE GARDEN advise me as to the best blinds for a house 60 feet long facing the south? Should they be inside or outside, and on rollers?—SUB.

Edging tiles.—Can any reader give me any practical suggestion as to the best kind of edging tiles for a kitchen garden? I require about 600 yards, and wish to combine economy with efficiency. I thought of having Staffordshire blue tiles with a plain rolled top, as being least liable to be broken by a wheelbarrow passing over them. Where can these be procured to the best advantage?—E. L. M.

Onion and Carrot grubs.—Will some of your readers be good enough to tell me how to cure grubs in Carrots? They attack not only the main crop, but even the bed of Horn Carrots, which we sow in August to use now, when not much larger than Radishes. The soil is light, and formerly we piqued ourselves on Carrots and Onions; the latter are also now much injured by a different grub in early summer. Soot and salt we have tried, but fear to overdo salt in these cold wet seasons.—R. H.

Lilies.—I should be greatly obliged if some of THE GARDEN readers who know anything of *Lilium concolor* *Parthenion* would tell me if it is distinct from the variety *Coridon*; and if so, in what way and what kind of soil does it require for its best development. I am led to make these inquiries from the fact that I have received two Lilies under this name, which are not only unlike each other, but are also quite unlike the *L. concolor* *Parthenion* or Japanese Lady's Lily, as it is sometimes called, and which is said to bear only white and yellow coloured flowers.—H. H.

Stove shelving.—I have built a greenhouse which can be brought up to almost any heat, and as I think of converting it into a stove, will some of the readers of THE GARDEN kindly tell me what is the best sort of shelf for stove plants—wooden spars, slate, stone, or what? It is heated with hot-water pipes. What flowers easy of culture would be suitable for a stove? I have only one other conservatory; therefore require flowers in bloom all the year round. If the shelves are of wood, stone, or slate, must the pipes be high or low near to the ground?—EUCHARIS.

* * Our readers will greatly oblige by replying, so far as their knowledge and observation permit, to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

GARDEN DESTROYERS.

APHIDES IN ADVANCE OF THEIR FOOD.

It is bad enough to have these or other pests pounce upon and devour the flowers or tender leaves of Peach, Cherry, Plum, or other fruit trees or plants as soon as they are partially developed, but it is worse to find them prowling about in wait for them while they are yet in a state of rest. Such trying phenomena are more common than usual this spring, alike indoors and out. These early flights of aphides are also harder skinned and more difficult to destroy than those fed on more tender and succulent food; this is rather singular, considering that it is by no means obvious what they live upon. They are mostly found clinging closely to the bark in close proximity to the buds, but they do not seem to eat the latter, at least to any extent. Still, I do not quite believe these pests live on nectar, and it is not safe to leave even unopened fruit buds at their mercy; hence one or more heavy smokings should at once be given where the plague of aphides are found on fruit trees early in the season under glass. In the open air tobacco water or a dusting of damaged snuff are among the surest remedies. But prevention is far better than cure, and the best mode of preventing the appearance of these early aphides is to clean the trees in the early autumn and dress them with some sort of smear. Its character and composition are of far less moment than its quantity. Its beneficial action is chiefly mechanical, though a little tobacco juice, soap, soot, lime, nux vomica, or Gishurst adds to the adhesive and penetrative properties and killing or preventive power. The latter quality is of great importance, for aphides, like most other insects, seem to have rather sensitive organs of smell and taste, and hence arises the usefulness of nauseous compounds and the efficiency of tar as an ingredient in any plant smear. Notwithstanding, however, the high authorities that have recommended tar in Vine smears, I have seen so many cases of injury from its use as a preventive to hares and rabbits, that I still hesitate to use it. Neither has anyone, so far as I am aware, recommended tar as a smear for stone fruit; the flower buds of these being so prominent and so early developed, would be more easily injured than the skins of the buds of berries. The bark is also of quite a different character and far more susceptible of injury from strong and pungent smears. These facts also point to the prudence and importance of applying such dressings in the autumn or early in the winter, though not a few cultivators smear their Peaches and Plums on the walls in February or even March. Of course this ensures that such smears shall be stronger as well as thicker than those applied in or before winter. But on the whole the earlier after the fall of the leaf these anti-aphide smears are applied the better. The buds being dormant are less susceptible of injury, and this part washed off will serve a useful purpose in clearing the trees of Mosses and Lichens, and probably will find its way into nooks, cranies, or crevices, where insect larvæ or eggs have been deposited.

D. T. FISH.

Slugs.—I find nothing better to get rid of slugs than hemispherical traps made of the half peel of an Orange (often recommended in your columns), especially at this time of the year when the ground is little occupied. By placing these near newly-planted small subjects the slugs will go to them in preference to the plants. They should be examined each morning, or oftener, and the slugs destroyed; large numbers will thus be caught. One day last spring I found twenty-eight under one trap, and six more close by. This morning (February 28) I found twenty-three under one trap. Water made milky with a little Fir tree oil is an excellent mixture to put them in. The same mixture will last for some time.—A.

Ants.—Some few years since, being much troubled with ants, I tried chloride of lime as a cure and found it perfectly effectual, and am now

of the opinion that sixpennyworth of this article is quite sufficient to drive away all the ants from a very large establishment, or at least from such parts of it as they may be at all troublesome in. A pinch or so taken between the finger and thumb and rubbed into the wall round about and near to the cracks from which they emerged, or dusted about their runs, was sufficient for each colony. As much as will lie on a shilling or a two-shilling piece at the utmost is enough for a large colony. Their entire disappearance will follow a few hours after the application. This is so simple and easy a remedy, and does not seem to be generally known, that I think it may be a valuable one to many of your readers.—J. E. EWING.

RAINFALL IN 1882.

It may be of interest to see a comparative statement of rainfall in two places—one (Belvedere House) in the centre of Ireland, near Mullingar, the other in one of the midland counties of England, Belvoir Castle, near Grantham; both are furnished by competent and intelligent men, but the curious result is that while at Belvedere, which is on the limestone plain, near a large lake, the rainfall is 42·46, that at Belvoir is 35·73, and in the former the days are 189 against 226 at Belvoir Castle, so that there were more rainy days in Leicestershire than in Westmeath.

RAINFALL IN 1882 AT BELVEDERE GARDENS, WESTMEATH.

Month.	Total Depth.	Greatest Fall in 24 Hours.		Number of days on which .01 or more fell.
	Inches	Depth.	Date.	
January.. ..	2 57	.46	4th	13
February.. ..	3 08	.76	27th	13
March	2 34	.65	25th	15
April	4 15	1 22	27th	15
May	3 18	.98	24th	14
June	3 28	.53	17th	20
July	5 31	.54	6th	24
August	3 49	.93	30th	14
September.. ..	1 84	.57	1st	12
October	3 33	1 06	18th	13
November ..	6 28	.88	11th	20
December ..	3 61	.60	24th	16
Total	42 46			189

RAINFALL IN 1882 AT BELVOIR CASTLE, LEICESTER.

Month.	Total Depth.	Greatest Fall in 24 Hours.		Number of days of which .01 or more fell.
	Inches.	Depth.	Date.	
January.. ..	1·87	·51	30th	13
February.. ..	1·33	·67	15th	13
March	2·44	·93	26th	13
April	2·91	·81	30th	19
May	1·97	·45	26th	13
June	4·32	·84	4th	18
July	3·01	·60	12th	25
August	2·89	·69	26th	18
September.. ..	2·74	·70	29th	18
October	5·23	1·25	25th	26
November	3·31	·45	7th	26
December	4·11	·80	26th	24
Total	35·73			226

BRINSLEY MARLAY.

Rose insects (E. S. S.).—Your Roses are attacked by a species of frog fly, an insect very nearly allied to the common frog-hopper or cuckoo spit insect. Take the plants out-of-doors and shake them well, and then syringe them with soft soap and water or tobacco juice; in the course of a few hours wash the plants clean. A cloth might be thrown over the plants before they are moved, so as to prevent the insects flying about the house. They disfigure the leaves by sucking their juices from them.—G. S. S.

Rosa berberifolia.—I think Mr. Wm. Paul must possess this Rose, because I sent him seed of it just two years ago. I had received it from Teheran, Persia, where it grows on sandy hills. I

have sown some of it, but I lost the plants last year. It is very delicate. I also sent some seed of it to Mr. Ellacombe, who, I hope, will have been more successful with it than I have been. If your correspondent cannot obtain *R. berberifolia*, I would recommend him to procure *R. Hardyi*, which is a seedling of *R. berberifolia*, a cross from *R. clynohylla*, raised by Mr. Hardy about fifty years ago. Although delicate, it is much more robust than its parents, and must be in the possession of English rosarians. If not, it can be procured in Lyons.—JEAN SISLEY, *Monplaisir, Lyons*.

—“K.” will find this in Messrs. Paul & Son's catalogue. I had it from them two years ago, and it grows and flowers freely in the open border.—J. R. DROOP, *Stamford Hill*.

RECENT PLANT PORTRAITS.

THE January number of Regel's *Gartenflora* contains coloured portraits of the following plants:—

Aphelandra pumila var. splendens.—A fine dwarf-growing species, with handsome velvety foliage resembling that of one of the Gesneras, and brilliant orange-scarlet flowers borne on a short stout stem.

Delphinium cashmerianum (Royle).—A handsome large purple-flowered hardy perennial Larkspur, which possesses the great merit that slugs will not touch it, whereas they usually particularly affect this ornamental family of hardy border plants.

The second number of the *Révue Horticole* for February contains a coloured plate of hybrid varieties of Hellebore in several shades, from pure white to rosy purple.

The February number of the *Illustration Horticole* contains coloured portraits of the following plants:—

Dendrobium bigibbum (Plate 476).—A beautiful Orchid said to be one of the most ornamental of its family, and bearing a spray of large rosy purple flowers; a native of Torres Straits.

Aralia gemma (Plate 477).—A charmingly graceful and most distinct foliaged stove shrub, introduced from New Caledonia, in 1875, by Mr. Linden's collectors, Messrs. Panchar and de Maerschalk; said to be admirably adapted for table decoration, and a welcome addition to collections of elegant stove shrubs.

Cypripedium Lawrenceanum (Plate 478).—A fine plate of this very handsome Lady's Slipper, which was sent to Messrs. Veitch, from Borneo, by Mr. F. W. Burbidge, and flowered at Chelsea for the first time in December, 1878.

W. E. G.

Tuberose (p. 179).—In the fourth line from the bottom instead of “as dry as possible,” read “as dwarf as possible.”—W. C. T.

Tusilago fragrans.—During a lovely walk to-day (Feb. 25) I came across two grand plots of this fragrant weed. One was just on the borders of Hanbury Churchyard, Worcestershire, and another on a roadside bank between Hanbury and Stoke. In both cases this plant was quite at home and growing vigorously.—H. M.

Mistletoe Oaks.—Allow me to add one to the list of Mistletoe-bearing Oaks. I discovered it about twenty years ago on the estate of Mr. P. W. Godsal, Iscody Park, Flintshire. The tree was a young one, and the parasite had a stem about as thick as my little finger. I have not seen it since.—J. OFFLOW (hall keeper), *Mechanics' Hall, Nottingham*.

Names of plants.—*R. Sp. ncer.*—Both Orchids you send are *Dendrobium Wardianum*; No. 2 is the finest variety of it we have seen.—J. Mitchell. *Dendrobium barbatulum.*—J. B.—*Odontoglossum odoratum.*—W. B.—*Celoglyne flaccida.*

COMMUNICATIONS RECEIVED.

Alpha.—H. P.—R. A.—J. G.—Somerset.—Observer.—R. M.—W. E. B.—Peregrine.—J. R.—H. B.—J. H. B.—F. F.—A. V.—J. D.—J. B.—W. A.—G. S. S. (next week).—J. H. E.—H. H. C.—A. R.—C. W. D.—F. W. E.—J. G.—Vitis.—G. D.—A. D.—J. B. (next week).—A. B. W.—B. T.—R. A. H. G.—W. E.—E. H.

"This is an Art

Which does mend Nature : change it rather : but
THE ART ITSELF IS NATURE."—*Shakespeare*.

CAMELLIAS AT WALTHAM CROSS.

The display of Camellias just now in perfection in Mr. William Paul's nursery at Waltham Cross is a striking proof that the Japan Rose—the scentless Rose of spring—receives as much attention as the fragrant Roses of summer, for which this nursery is so justly celebrated. The Camellia collection here is indeed a grand one, richer in varieties and finer in every respect than any we have hitherto seen. It represents no fewer than 220 sorts, omitting unnamed seedlings and others, a number which may be fairly said to represent the Camellia in every important variation from the typical variety to the beautiful new sorts raised during the past few years. Such a full collection as this is not only an imposing sight, but one of considerable interest, inasmuch as it shows what strides have been made with regard to the improvement of this flower. Here side by side, and in direct contrast, are the representatives of the very earliest varieties imported over half a century ago and those of the present day. When we compare the flower of the typical *Camellia japonica* with one of our new varieties, the zealous labours of our florists become manifest. In Mr. Paul's collection one may single out almost the identical type figured by Curtis in the *Botanical Magazine* as far back as 1790,—one of the earliest figures of it. It was then no stranger to botanists, but was known chiefly by Thunberg's "*Flora Japonica*," where it is described as "growing everywhere in the groves and gardens of Japan, where it becomes a prodigiously large and tall tree, highly esteemed by the natives for the elegance of its large and very variable blossoms and its evergreen leaves. It is found there with single and double flowers, which also are white, red, and purple, produced from April to October." Thus it may be seen that the Camellia even in its natural state is a most variable plant, and this variability has been taken advantage of by florists, and a long work of seedling raising and intelligent selection of the finest has brought the flower to the high state of perfection at which it has arrived. Advantage, too, has been taken of the plant's liability to sport, and by fixing these sports most of the best varieties have been secured.

The greatest help the Camellia improvers have had has been that received from the Japanese and Chinese gardeners, who have doubtless cultivated the Camellia from time immemorial. A large number of their garden varieties were introduced to Europe about the end of the last or the beginning of the present century, and it is a remarkable fact that these include even now the very cream of our finest varieties. Among those imported at that early date were *alba plena*, the old white *fimbriata*, the fringed white *anemonæflora* (the *Waratah* Camellia), *myrtifolia*, *atrorubens*, *Sabiniana*, *Parksi*, *imbricata*, *pæoniæflora*, and *incarnata*, or *Lady Hume's Blush*. These are only a few of the Chino-Japanese varieties, but they have been the most useful in forming a basis for the hosts of beautiful varieties now to be found in gardens. The greater number of these old varieties may be seen in flower side by side in the Waltham Nursery, thereby add-

ing much interest to the collection as a whole. Probably the greatest worker in the improvement of the Camellia was Mr. Chandler, whose nursery (still in the memory of many) in the Vauxhall Road was almost exclusively devoted to this popular flower, and whence many a beautiful variety was sent out. Since then the Camellia has been steadily improving, though not so much in this country as in sunny Italy, where the climate is peculiarly suitable to the Camellia, and where seed saving and seedling rearing may be carried out advantageously; hence the greater part of our finest varieties have been christened with Italian, not always euphonious, names. From America has emanated some good sorts, but all previous varieties have been surpassed by the two or three that have within the past few years come from Mr. Hovey, of Boston. This Waltham collection represents all these; indeed it has for years been the aim of Mr. Paul to collect from every available source any variety of Camellia of importance, so that those interested in them may be able to judge for themselves of the merits of any particular variety, and there can be no better plan to further this object than to collect the whole series under one roof.

The culture and propagation of this vast collection take up an extensive amount of house room; the bulk of the specimen plants is housed in two capacious span-roofed houses 120 feet long by about 30 feet in width. As it is important not to have the entire collection in flower at one time, the plants in one of these houses are induced to flower some weeks in advance, thereby extending the Camellia season over a long period. The later crop of bloom is just now in full beauty, and a magnificent sight it is, there being thousands of flowers in all stages of development and representing every conceivable shade of colour from the purest white to the deepest crimsons. The majority of the flowering plants are huge specimens exclusively in tubs or pots, so as to be readily moved at any season. The plants form two solid masses corresponding to the angles of the roof of the house, which runs north and south, in order the more equally to distribute the light. Though no Camellias are planted out here, nothing could well surpass their luxuriant growth. This is a good proof that planting out in free soil is not an essential condition of Camellia culture. However, there is no doubt but that greater care and attention are necessary in pot culture than when the plants are in borders. It is interesting to observe how a few particular varieties predominate in the stock plants. For example, scarcely too many plants can be grown of the old Double White, which is always in demand, and about a score of others are almost as popular. The propagation is chiefly carried on by grafting, and for stocks the old single red is used.

The routine of culture practised at this nursery is as follows: As soon as the flowering season is past, which is about the end of March, the Camellia houses are kept closed and artificial heat applied, in order to obtain a temperature of about 65° by day and 55° by night. The plants are freely watered to encourage vigorous growth, and are thoroughly syringed with a garden engine every morning. After about six weeks, in genial weather the air from the outside is gradually admitted, at first during the day only, and afterwards at night also. This ensures the hardening of the wood and the formation of flower-buds. At about

the end of June the plants are all taken out of doors and placed in a shady position under a hedge with a north aspect, where the process of ripening the growth is perfected. The plants are returned to the houses early in the month of October, and are kept entirely without artificial heat until the commencement of frosty weather, when just sufficient warmth is given to prevent the frost from spoiling the flower-buds. The plants are then allowed to flower naturally, no forcing being resorted to. A few flowers are produced in November, and the number continues to increase till March, when the plants are at their best flowering state, some of the largest specimens being then literally loaded with blossoms. When the flowering season is at its height, air is given to the plants from the top inside ventilators throughout the day, and if the weather is mild, at night also. This tends to preserve the freshness of the flowers considerably.

A selection of varieties from such a full collection as this is no easy task, but as a list of a score or so may be useful, it may be as well to name some of the most prominent in flower at the present time. Some of the old varieties with single or semi-double flowers make grand bushes and are highly effective, as most of them are high coloured and extremely floriferous, but unsuitable for cutting as the flowers lack that refined symmetry so much admired in a first-class Camellia. To this class belong such well-known varieties as *Donckelaari*, *Chandleri*, *corallina*, *elegans*, *picturata*, *tricolor*, *punctata*, *reticulata*, and *conspicua*, most of which have been in gardens for at least half a century. In selecting from what may be termed the florist's class, it is convenient to range them according to the predominant colours. Among

Whites there is no peer to *alba plena*, or the old Double White, as it is oftener called. It is too well known to need describing; it may be easily recognised by its large flat flowers, with snow-white petals neatly lapping over each other. Some, perhaps, would like the fringed white (*fimbriata*) quite as well, for there is a peculiar charm about the fringed petals seen in no other Camellia. Mr. Paul considers *Ninfa Egeria* to be one of the best whites he has. It is a vigorous grower and has large and beautifully formed flowers with closely imbricating flat petals of snowy whiteness. *Alba elegantissima* is also a good white, as is also *Casoretti's White*, and both may be classed as first-rate. Other whites of note are *Innocenza*, with large and regular flowers; *Princess Charlotte*, which sometimes comes striped with pink; and *Targioni*, also inclined to a suffusion of pink. *Montironi* and a form of it called *vera* is also a good sort.

Peach or pale pink colours are somewhat scarce. The finest are *Marchioness of Exeter*, one of the best; *Principessa Aldobrandini*, *Mdme. de Strekaloff*, and *M. d'Offoy*, all with large and well-formed flowers produced plentifully. For bouquets and cutting, one called *Principessa Rospigliosi* is an admirable sort, the flowers being small, but of good shape and abundantly produced. The finest of this colour in flower in the whole collection was *Contessa de Hainaut*, with large and beautifully shaped flowers and closely imbricated petals. A plant of this covered with bloom was quite a floral sight in itself.

Reds and crimsons are plentiful, and it is difficult to select the best of the old kinds. *Mathotiana*, *Eximea*, *Imbricata*, *Manara*, *Coquet-*

tina are among the finest, and other admirable sorts in these colours are C. M. Hovey and C. H. Hovey, the two new American kinds alluded to in THE GARDEN last week; Comte Botourlin, large and fine; Henri Favre, an extremely richly-coloured variety, first-rate in every respect; Mdme. Lebois, one of the best of its colour; and Leeana superba, an old, but admirable sort.

Striped and edged varieties are also abundant; among the best are l'Avenir, one of the finest Camellias grown; Auguste Delfosse, Archduc Carlo, Lucrezia Gazzarrini, Passimiana, Teutonia, l'Insubria, Leopoldo Benucci, all of which are pink or red, banded with white. Of the pink and rose are Eugène Massina, and Vicomte de Nieuport. The finest of those flaked with red or pink on a white ground are Lavinia Maggi, very fine, Bonomiana, Jubilee, Adelina Benvenuti, Princess Clothilde, and Adamo.

Blush-tinted varieties are very lovely; one of the best is Cup of Beauty, which is inclined to more white than others. Lady Hume's Blush is well known.

These form but a fraction of the entire collection, and probably some worthy sorts have been omitted not being in flower at the time these notes were taken, but by far the best way is for everyone to see for themselves such an imposing exhibition of this popular spring flower as Mr. Paul has now on view.

W. G.

NOTES OF THE WEEK.

PROTECTION OF OPEN SPACES.—A committee has been formed to protect the common lands and open spaces in the parishes of Mitcham, Beddington, Wallington, and neighbourhood. A guarantee fund is being raised for the protection from building on Mitcham Common at Beddington Corner. The committee does not propose to limit its labours to the defence of the land at Beddington Corner, but intends, if sufficient support is forthcoming, to get the whole of the common, some 500 acres in extent, placed under proper management, so that it should no longer be spoiled by being turned into a gravel pit. This common has suffered from time to time from encroachments, which show how desirable it is that some new Act should be passed restraining lords of manors from selling parcels of common or waste lands.

EARLINESS OF SPRING FLOWERS.—The following list of the dates at which some of the earliest spring flowers have bloomed may, perhaps, interest some of your readers. The plants are all grown on heavy clay soil in the north of England exposed to fogs, smoke, and north-east winds.

	Flowered.	
	1882.	1883.
Crocus Sieberi	Jan. 20	Feb. 9
Winter Aconite	" 22	" 9
Single Snowdrops	Feb. 3	" 9
Saxifraga oppositifolia	" 6	" 15
Crocus versicolor	" 6	" 15
Crocus vernus	" 12	" 15
White Mezerion	" 12	" 21
Rhododendron dahuricum	" 14	" 26
Arabis alpina	" 19	" 26
Chionodoxa Lucille	" 22	Mar. 6
Erica carnea	" 23	" 1
Erica reticulata	" 23	Feb. 25

—M. P. F.

A GROUP OF PERNETTYAS in Mr. G. F. Wilson's gardens at Wisley is about the prettiest sight we have seen in the way of hardy shrubs for a long time. The group forms a large oval mass several square yards in extent, and is composed of about a dozen distinct named varieties of *P. mucronata*, differing from each other in the colour of the berries with which each shrub is abundantly furnished. In all the berries are of the size of large Peas, and hang in massive clusters all along the erect branches. In some the colour is a deep crimson, and there is well-nigh every

intermediate shade between that and pure white. The varieties thus intermixed make a most attractive group such as is rarely seen, and the dark shining green foliage shows the colours off finely. This group is planted in full exposure on the hill-side. The soil used is an admixture of peat with the natural soil of the hill, and with some of the black vegetable mould from the adjoining wood garden. Treated thus, the plants seem to luxuriate, and will in future form a fine feature to the place. On seeing such a group as this it occurred to us that the Pernettya must be very imperfectly known, or one would oftener meet with it. There is assuredly no finer winter shrub, and it is attractive from autumn throughout winter till spring, for the berries if untouched will remain intact. Mr. Wilson has besides the group in his Wisley garden a similar one in his wood garden at Weybridge, but, singularly enough, the plants have been stripped of their berries, presumably by pheasants or other birds. This teaches us not to plant the Pernettya where its chief attraction may be spoilt; on the other hand, it may prove to be a good covert shrub.

SUPPLEMENTARY CARNATION SHOW.—Mr. Dodwell, now located at Oxford, inaugurated a supplementary exhibition of Carnations and Picotees in that city last year, and a very successful one it was. It is therefore intended to hold a similar exhibition on July 31 this year in the Royal Nurseries, Slough. In 1849 a large exhibition of Carnations and Picotees was held in Mr. Turner's nursery. Mr. Dodwell, in a note to me, says that he took part in that exhibition, and that it was the finest display of this flower that he had up to that time seen. The date is a suitable one for north and south to meet together, and it is to be hoped that this exhibition, supplemented as it would be with Mr. Turner's collection, will surpass any that has been hitherto held. Mr. Dodwell, Stanley Road, Oxford, is collecting prize money, and will be grateful for any help which he may receive from lovers of these flowers.—J. DOUGLAS.

NEW PARK AT BEDFORD.—The corporation of Bedford, having recently decided to appropriate sixty-one acres of land adjoining the cemetery for the purpose of forming a public park, offered a prize of twenty-five guineas for the best set of plans for laying out the same. The Park Committee met on Friday last and unanimously decided to adopt the plans of Messrs. Barron & Son, of Elvaston Nurseries, Borrowash. The site is admirably adapted for a public park, the ground sloping gradually to the south. The prize plans provide for a piece of ornamental water in the south-east or lower portion of the park, about three acres in extent. Large open spaces are devoted to cricket, football, and parade grounds. The two main entrances are at either end of a new road 100 feet in width, which the corporation propose to construct along the southern boundary of the park. A refreshment pavilion, surrounded by a flower garden, occupies a conspicuous central position, leading from which is an avenue of Lime trees, terminated by a fountain. Tennis lawn, bowling green, an archery ground, and a gymnasium are provided; also designs for an entrance lodge, band stand, and rustic shelter.

EDINBURGH ROYAL BOTANIC GARDEN.—Mr. Robert Lindsay has been appointed curator of this garden, a post for which he is well qualified. The world-wide fame of the Edinburgh Medical School necessitates a well-appointed botanic garden and class rooms; and while the latter are now almost all that could be desired, the former, under a succession of able curators, has long been maintained in a high state of excellence. By the appointment which has just been made, we confidently anticipate that this satisfactory condition of things as regards the Botanic Garden will not only continue, but that with advancing science and the adoption of better methods of cultivation progress towards greater perfection will be made. Mr. Lindsay has had all the advantages of a thoroughly practical training, having been connected with the Edinburgh Royal Botanic Garden from boyhood, now nearly a quarter of a

century, with the exception of a short period spent in the Botanic Garden, Chelsea. For a number of years he was at the head of the propagating department, under the late Mr. McNab, by whom he was held in the highest estimation. Mr. Lindsay's skill in this important branch of work is well known, numerous interesting and successful experiments in hybridisation, propagation by root cuttings, &c., having been performed by him. On the appointment of the late Mr. Sadler to the curatorship, Mr. Lindsay continued to act as principal foreman, with credit to himself and benefit to the garden. His wide knowledge of plants and his thorough mastery of their culture, the result of close study and long application, joined to a love of his profession, all combine to prove the wisdom of the present choice.

ORCHIDS.

Cattleya Gaskelliana.—We saw the first blooms of this new Cattleya at Stevens' Rooms on Thursday last, they having been sent by Messrs. Backhouse, of York. It is a splendid variety, with flowers as large as those of *C. gigas*, being 7 inches across, with wide petals of a soft lilac-mauve tint, and the lip is broad and shallow, frilled at the edge, and of a rich magenta-crimson. It is stated to be a variety of *C. labiata*.

Orchids in bloom.—Among a host of Orchids in flower at Mr. William Bull's nursery, Chelsea, are the following rare kinds: *Cirrhopetalum picturatum*, *Cymbidium Devonianum*, *Cœlogyne cristata*, Chatsworth variety, a plant between 2 feet and 3 feet over, producing a magnificent effect; *C. cristata alba*, pure white; *Odontoglossum cristatellum*, *O. facetum*, *O. crispum-roseum*, *O. blandum*, *Phalæopsis Stuartiana nobilis*, *Masdevallia Estradæ delicata*, *M. xanthina*, and *M. militaris*.

Pilumna fragrans.—Amongst Orchids now in flower few are better worth a word of praise than the fragrant *Pilumna*; it combines an elegance of growth with chaste purity of bloom, and a powerful, yet delightful, perfume which can be likened unto no common scent. It is an ever-green species, having long narrow leaves produced in a dense tuft, from the base of which the flowers spring. These are borne on spikes about 6 inches or 9 inches long, carrying four, five, and six blossoms, which are snow-white save an orange spot in the throat of the ample labellum. We have rarely met with this Orchid better grown than in Mr. Southgate's garden at Selborne, Streatham, where it is evidently a great favourite; numerous fine specimens are grown in an intermediate house. These plants are now in full beauty, bearing numerous spikes of bloom, the odour from which pervades the entire house. It is a plant of tolerably easy culture, and one that can be cheaply bought.

Varieties of Cœlogyne cristata.—There are now three distinct varieties of this popular Orchid besides the common typical form, and we had an opportunity of seeing all in flower the other day at Messrs. Veitch's nursery, Chelsea. These varieties are *alba*, with pure white flowers borne as profusely as in the ordinary form. The spotless white blossoms of this are lovely, very few flowers being so entirely without a trace of colour. It is as yet very rare, even tiny plants of it commanding high prices. A second form is *Lemoniana*. This is at once recognised by the hairy crest of the labellum, being of a pale primrose-yellow instead of orange-yellow. This likeness is a lovely variety, the colour of the crest being so delicate in contrast with the snowy whiteness of the petals, and it is a singular fact that by artificial light this pale yellow is scarcely visible, so that the flowers may take the place of really pure white blossoms. A third form is called the Chatsworth variety; it is remarkable for the flowers being much larger than ordinary, the sepals, petals, and lips broader, and in producing more flowers on a raceme, often as many as nine or ten. The variety *Lemoniana* takes its name from Sir Charles Lemon; not from the lemon tint on the lip, as some suppose.

ANGRÆCUM SESQUIPEDALE.

THROUGHOUT the numerous tribes of orchidaceous plants now to be found in gardens few are so interesting as this *Angræcum*, a native of the hot jungles of Madagascar. When introduced some years ago by the Rev. W. Ellis, a missionary in that island, it was considered to be a wonderful production, nothing in its way having hitherto been seen. It remained for years a rarity, only to be met with in the richest plant collections. Now, however, it is comparatively common, and its large, grotesque-looking creamy white flowers may be seen in most Orchid houses during the early part of the year. Its culture, too, is better understood than formerly. It succeeds best in a hot, moist atmosphere such as that maintained in what is termed the East Indian Orchid house, and

ance. Some plants, too, flower when only about 6 inches or 9 inches high, while in others the flowers

cut was sent us by Mr. Kemp, Dunlop, Ayrshire, who had a plant about a month ago bearing fourteen flowers on three spikes, an unusual number, and the fact shows that Mr. Kemp thoroughly understands the requirements of this Orchid.

CATTLEYA PERCIVALIANA.

THERE is in this discussion something a little deeper than "individual opinion" on a new *Cattleya* which, poor as some of us think it to be when compared with the true old autumn flowering *C. labiata*, might well have been introduced on its own merits. Especially is this so if Mr. Crawshay's individual opinion be justly true, and this *Cattleya* is really "handsomer than the old *labiata*," as Mr. Crawshay states it to be (p. 211). As to Professor Reichenbach's description to which he alludes, I simply pass that over for what it is worth. The plain fact is that the Orchid-buying public are not quite so fond of "descriptions" as they used to be a year or two ago. Indeed, some of us think that there has been a little too much of "description," and lately a great deal too much of—well, of something else. Take, for



Flower-spike of *Angræcum sesquipedale* (half natural size).

ing found mostly on trees in its native habitat, it does not like to be hampered with much solid potting material about the roots. A very light soil, consisting of lumps of turfy peat and live Sphagnum Moss, is the best compost in which to pot it. It particularly objects to be overpotted; indeed, the pots used for it should be small compared with the size of the plant. It requires abundance of watering when in active growth, but should be kept drier in winter. When well grown a large specimen of this Orchid is very handsome, even when not in bloom, for it has deep green leaves about a foot long, prettily arranged one above the other in two rows on either side of the stem. It is a slow-growing plant, taking years to form a good specimen, that is, one about 2 feet in height. A well grown plant is usually furnished from the base to the top with healthy foliage, but in some cases the bottom leaves decay despite the efforts of the cultivator, rendering the plant what gardeners term "leggy." This defect may, however, be remedied. The stem may be cut through just beneath the foliage, and the top placed in the soil, in which it will strike root, but it is always best to have a few live roots attached if possible to the top portion thus cut off. There are two recognised varieties of this *Angræcum*, one having larger flowers than the other, produced later in the season and in greater abund-

are only produced when the plant has attained a foot or 15 inches high. The subject for our wood- example, those modest little sketches shown in auction rooms of new Lilies, Irises, Orchids,

and other plants. If Mr. Crawshaw has *C. Percivaliana* in flower he can get a fair and unbiased opinion of it from the floral committee at South Kensington. Perhaps the plant has been certificated there already; if not, it is a great pity its light has been hidden so long. Mr. Crawshaw firmly and decidedly asserts that the plant in question is handsomer than the old *labiata*, but of this we desire proofs. We have heard the same statement made elsewhere, but I, for one, did not give it credence.

The flower of *C. Percivaliana* referred to in *THE GARDEN* (February 24, p. 171) as being the finest as regards colour which had been seen was sent to me, and I at once made from it and other living material a carefully coloured drawing, and I took particular pains to make it faithful in all ways, and all who saw the drawing and flower in direct comparison agreed that it was so. This drawing I sent to *THE GARDEN* office for inspection, so that Mr. Crawshaw will perceive I am as anxious to be just and unbiased in this matter as he is himself. After all, the plant must stand or fall on its own merits, and yet it is interesting to know what professional and practical men think of it. Here is the advertised account of *Cattleya labiata Percivaliana* (Rehdb. fil.) from the *Gardeners' Chronicle*, January 28, pp. 102-105 (1882). In years to come, even if not just now, this advertisement will have a niche or corner in Orchidæ history: "*Cattleya labiata Percivaliana*, true autumn-flowering *labiata* . . . a wonderful importation of this magnificent *Cattleya*. It is well known there are numerous varieties among the old *Cattleya labiata*, such as *Pescatorei*, *picta*, &c., and the varied bulbs show that many varieties are among the lots offered. It is true autumn-flowering. Flowers will be on view of this, the finest Brazilian *Cattleya*; sepals and petals broad, deep rose or light purple; lip broad, large, splendidly fringed with deep velvety purple; in some varieties quite one half of the lip is dark, throat golden yellow. We have never previously imported a *Cattleya* so floriferous; there is hardly a bulb which has not flowered, and whose spike does not show three and four flower sheaths. Mr. Seidl, the lucky discoverer, states that one mass alone had 380 flowers fully expanded when collected, and many others had faded. This piece had to be cut into four to facilitate its transport to the far distant coast. We are extremely pleased at being able to offer it to the public, having looked for it without success for many years. The green and red-leaved varieties are among the importation, which is altogether in simply superb condition. The whole will be given into Mr. Stevens' hands, and will comprise all that could be found, and none sold privately; but Mr. Sander earnestly invites prior inspection."

After the plant had bloomed we find the following advertisement of it in *THE GARDEN*, p. 2, February 3, 1883: "The first flowers* of this grand *Cattleya* opened in the middle of December last, and there is no doubt that the established plants will flower in November and December this year, and a little later than the old *labiata* flowers; it is, however, a far grander species—the superb coloured lip and its freer habit making it such. If the time of flowering, its exceeding floriferousness, fine and free habit, and the fact that among *C. Percivaliana* is never found what may be termed a bad variety are taken into consideration, we think that we do not say too much in stating that it is the finest Orchid we have had the pleasure to introduce. Petals larger and far rounder than in any other *labiata*, and often of that magnificent plum colour so rare in *Cattleyas*; its lip is grand, and it is hardly possible to describe it."

In the *Gardeners' Chronicle* of March 3, 1883, p. 288, the editor states in reply to "F. S. & Co.": "Its claims to be a variety even are open to doubt, for it seems from the specimens we have seen to have more variety than constancy about it."

Here is another advertisement from the gardening journals of January 6, 1883, respecting which I make no comment: "*Cattleya labiata*,

extraordinary double-sheathed form. . . On Thursday next, Jan. 11, at half-past twelve precisely, a grand importation of *Cattleya labiata*, nearly the whole with double sheaths, and found in a district where no previous traveller collected; the plants are in most superb health and found in flower; the latter will be on view, and are exceptionally beautiful. They have every mark of the old *labiata*, of which the double sheath also reminds. This, together with the time of flowering and the long leaves, remind us stronger of the true old form than any *labiata* we have ever imported before." Messrs. Veitch & Sons in their plant catalogue for 1882, p. 21, offer *Cattleya labiata Percivaliana* from a guinea each, and remark that "although at present thought to be so near the true *C. labiata*, we are inclined to think it will eventually prove quite distinct from that species." In *THE GARDEN*, March 3, 1883, Mr. T. Baines, having seen a good many plants, all save one being "extremely poor," considers it a "third rate" novelty. These are a few unbiased opinions on both sides of the question, and Orchid amateurs and others interested must draw their own conclusions respecting it.—F. W. B.

—I must confess that I was greatly disappointed with the flower of this *Cattleya* sent to Mr. Burbidge from London. It was a poor wretched, crumpled-up thing. The lip is good in colour, but so small as to be scarcely worth calling a lip. As to its being a form of *Mossia*, I must differ from other correspondents; the flower before me shows close relationship with *C. Trianae* or *C. labiata pallida*, and if a natural hybrid, I should say that *C. Dowiana* was the pollen parent. To compare it with the old autumn flowering *C. labiata* is like comparing a counterfeit sovereign with good gold. Under cultivation *C. Percivaliana* may improve, and if it had been allowed to stand on its merits no one would have had cause to be dissatisfied.—T. BEDFORD, *Stratford, Kildare*.

COCOA-NUT HUSKS FOR ORCHID GROWING.

I FEAR Dr. Paterson will not succeed with growing Orchids in this material. On one occasion, a good many years ago, I had a quantity of imported *Cattleyas* and *Lælias* that arrived in excellent condition. Early in the spring, as soon as they began to grow, I attached them to pieces of these husks, on which they did well so long as the season's growth continued, and through the winter whilst dry and at rest. Before they began to move in spring I placed the whole of them in pots just as they were attached to the pieces of husks, but as soon as they were again freely supplied with water, the whole mass of fibry matter became white with mould in which the roots refused to move at all, and I had no recourse but to take them off and fasten them to pieces of wood for the season. I do not like this material in any shape for growing any plant in, much less allowing it to come in contact with the roots of valuable things such as Orchids. There is no difficulty in getting good peat in the south of England that does well for Orchids, for which I may say there is no need to be quite so particular as many growers suppose; if it contains plenty of fibre, even if this does not consist of the roots of Ferns, which alone satisfies some cultivators, it will answer just as well, as I have found by trying it. Peat and Sphagnum are the only materials that I ever found free from a disposition to mould when water is given after it has undergone the drying process consequent on withholding water whilst the plants were at rest. I once thought I had met with a commodity that could not fail to answer—the fibrous roots of a *Tillandsia* that had been used for packing some plants from Brazil. Nothing could have looked more likely to suit the purpose. I put a few plants in it mixed with crocks in the usual way, but in a few weeks after they began to move and receive water the whole of the material was quickly a mass of mould, out of which I was at once obliged to move them. T. BAINES.

Cattleya Trianae at Cleveland.—Cleveland at Southport, the residence of Mr. R. P.

Percival, is so gay at present with glorious flowers of this *Cattleya*, that the sight will not easily be forgotten by those who have seen them. No fewer than 300 flowers were to be seen there last week, their great variety and grandeur producing a brilliant display. The varieties having been selected with judgment, are, with few exceptions, excellent; and if it be taken into consideration that these *Cattleyas*, already good sized specimens, have been purchased as imported plants during the last two years only, some conception may be formed as to the skill with which Orchids are cultivated here. All the plants of *Cattleya Trianae* are abundantly rooted, have plump, strong bulbs, and leathery, healthy, dark green leaves. It is difficult to pick out of a collection such as this the best variety, but one struck me as being particularly beautiful. It is a plant marked 94 with very short thick bulbs and broad leaves; it had 18 flowers on it fully expanded, and individually large; petals broad, wavy, of fine texture, and of a lovely rose colour; sepals rather lighter in shade, broad, and possessing the rare merit of being flat to the very tip, the upper half not turning back, as the sepals in so many examples of *Trianae* do; lip broad, open, flat, and heavily fringed, the edge and exterior of the throat being of a uniform rose colour; the lip itself is velvety maroon-crimson, a colour which advances well towards the throat, and terminates in a deep yellow slightly lined rose at both sides.—VISITOR.

FERNS.

ASPLENIUMS.

(Continued from p. 186.)

A. caudatum.—This gracefully pendulous species from the East Indies is very well adapted for large hanging baskets. It is a good and easily grown plant, producing from a succulent and slightly creeping rhizome its elegant pinnate fronds from 2 feet to 4 feet in length and about 8 inches in breadth; the pinnae, long and comparatively narrow, are attenuated towards their extremities. The whole plant is of a beautiful dark, glossy green, and its beauty is also enhanced by the very conspicuous sori, making, too, lines parallel to and close to the mid-rib. The fronds being of a coriaceous texture possess the advantage of remaining a long time on the plant. This is one of the few species which prefer a mixture of peat and sand only without any loam whatever. Stove.

A. cicutarium.—A very handsome Fern from Tropical America, whose numerous feathery fronds are produced from an upright, short stem. They grow to about 15 inches or 18 inches long, are very finely cut, of a delicate green colour and of a nearly erect habit; they are lanceolate in shape, tripinnate, with the pinnules very small. Stove.

A. Colensoi.—This very pretty and highly decorative species from New Zealand has long been grown under the erroneous appellation of *A. Hookerianum*, also a New Zealander, but to which it does not bear the slightest resemblance. This is much more in the way of the well-known *A. bulbiferum*, but more compact, and of a much smaller growth in all its parts. The fronds are produced from a thick fleshy rhizome in great quantities. They are of a bright green colour, and studded all over with young plants, which render them very effective; they very seldom reach more than 10 inches in length. Greenhouse.

A. contiguum fissum.—A variety of comparatively recent importation from the South Sea Islands. It is a distinct-looking and very interesting addition to the list of cultivated Ferns of evergreen habit from these islands; it has ovate, smooth fronds of leathery texture; the pinnae, few in numbers, are distinctly placed and stalked, with two basal segments and an elongated, attenuated, distantly toothed apex, the teeth of which are simple, or sometimes forked. The basal lobes or pinnules are wedge-shaped and unequally toothed at their extremity. Stove.

* The first plant of *C. Percivaliana* bloomed in Messrs. Shuttleworth & Carver's nursery, at Clapham, in June (17th) 1882 (vide *GARDEN*, Vol. XXI., p. 410).

A. dimorphum (biforme, diversifolium).—These significant synonyms under which this very fine Norfolk Island Fern is found in cultivation are all three very applicable names for a species, whose barren and fertile fronds, or portions of fronds, are so entirely different. The gracefully arching fronds of this noble-growing kind are produced in great abundance from a fleshy creeping rhizome, which keeps on the surface of the ground. They are of a shining bright green colour, and often reach 24 inches to 30 inches in height. The barren ones are bipinnate, with broad and somewhat toothed pinnae, whereas the fertile ones are very finely divided and tripinnate. It is not unusual to find that part of the same frond will be barren while other portions are fertile. As an evergreen decorative plant very few Ferns indeed can rival it for elegance and strength of constitution combined. It is also very prolific and of easy propagation. Greenhouse.

A. ebeneum.—A charming small-growing species from North America. Its fronds, which are pinnate and lanceolate, are produced from a slightly underground creeping rhizome. They are provided with a beautifully shining black stem, and generally reach 8 inches or 10 inches in height. The pinnules, of a dull green, are slightly dented, and set far apart. The general appearance of the plant is that of an erect-growing form of our own common *Asplenium Trichomanes*. Greenhouse.

A. elegantulum (obtusilobum).—This pretty dwarf trailing species from the Fiji Islands is an excellent plant for Fern cases, and also for baskets of small dimensions, as each frond is prolific at its extremity where it roots freely, and makes a dense, compact mass, rarely exceeding 6 inches high. The fronds, which are elegantly cut, are produced in profusion; they are pinnate, and from 3 inches to 6 inches long, with pinnae deeply cut and wedge-shaped. The whole plant is of a bright dark green colour. Greenhouse.

A. Fabianum (fœniculaceum).—A fine ornamental species from Australia with fronds produced from a thick fleshy rhizome; they grow from 18 inches to 24 inches in length, and are of a dark, shining green colour, besides being gracefully arched, as every pinna becomes beautifully pendulous from the weight of the mass of young plants borne upon it. It is a plant admirably adapted for table decoration, for vases, &c., as very good sized plants can be grown in comparatively small pots, and as it is perfectly evergreen. This species, although growing very well in the mixture recommended for *Aspleniums* in general, thrives more luxuriantly in peat and sand alone, in which soil it will be found to produce fronds of larger dimensions, and especially of a much brighter green. Greenhouse.

A. Fernandezianum.—This very pretty little species, native of Juan Fernandez Island, is exceedingly useful wherever decorative plants of small dimensions are required as also for planting in a Fern case for the room, as it is not at all particular as to the temperature to which it is subjected. Its pretty pinnate fronds of a deep sea-green colour are produced in great abundance from a short upright stem; they rarely reach more than 8 inches in length and are prolific at their extremity. The pinnae, closely set, sometimes overlapping, are incised at the margins and frequently, especially when the plant is in a very vigorous condition, are also lobed at their base. Stove.

A. ferulaceum.—A beautiful species from New Guinea, and one possessing very little of the general appearance of an *Asplenium*. The fronds, which are of a very light and pleasing colour, are very minutely divided, and resemble more those of the rare and beautiful *Gymnogramma Pearcei*, or those of the well-known *Pteris scaberula*, than any of the other *Aspleniums*. They spring from the crown of a short stem, making a miniature little Tree Fern; they are broadly triangular, spreading, arched, or curved, and ovate acuminate in outline, the pinnae much divided and finely cut; the pinnules are linear, slightly flattened, and very delicate and fine in texture.

It dislikes loam and grows more luxuriantly in peat and sand, and enjoys its stem being kept constantly moist. Indeed, to grow this beautiful plant in perfection a close, moist place is required in the stove.

A. flabellifolium.—This extremely pretty, slender-growing New Holland species is wrongly put aside by many amateurs, its merits being generally underrated by most Fern growers. Yet it is well adapted for growing in baskets of small dimensions, where the peculiarly frilled or fringed appearance of its slender fronds shows the plant off to perfection. It is also very useful for covering the ground of small Fern cases, as it makes fronds from 12 inches to 18 inches long, proliferous at their extremity, where they root very freely when in contact with the soil. They are pinnate, the pinnae fan-shaped, dented all round with reddish brown sori on the underside and of a bright green above. Indeed, it is so very distinct from anything else that no collection should be without it. Greenhouse.

A. flaccidum.—A popular Tasmanian evergreen species, and one of the best appreciated of all cool basket Ferns, for which it is well suited on account of its long pendulous fronds being produced in great abundance, and often reaching 18 inches long. They are bipinnate, with narrow pinnae, leathery, and of a rich deep green colour. Greenhouse.

A. fœcundum (compressum).—This very robust growing Fern, native of St. Helena, is an evergreen species with thick, fleshy, pinnate fronds, from 18 inches to 24 inches high, rising from an erect, scaly rhizome. It has a very peculiar appearance, inasmuch as the pinnae, which are large and flat, of a light green, have their upper surface studded all over with young plants. Greenhouse.

A. formosum.—This elegant tropical American species soon becomes a favourite with whoever comes in contact with it, yet it is not very commonly found in cultivation. Its beautiful fronds are produced in great numbers from an upright stem; they are of a delightful green and grow from 12 inches to 15 inches long; they are pinnate, with pinnae deeply cut and opposite, borne on slender, wiry, shining black stalks. It is a very pretty evergreen, bearing always a mass of fronds curving outwardly in a very elegant manner. This species does not like loam, but it is greatly benefited by a little crock dust being added to the mixture of peat and sand. PELLÆA.

GARDEN IN THE HOUSE.

SCREW PINES FOR INDOOR DECORATION.

THE Pandanads, or Screw Pines, furnish us with excellent subjects for indoor decorative purposes. Though they thrive best in our stoves, yet they can be successfully grown in a temperature that does not often fall below 55°. When grown thus, in what might be termed a cool stove, they need less water at the roots, and likewise overhead, than when in a higher temperature. We have found them to damp off in the heart if this precaution is not taken. The Screw Pines are a class of plants that will be found to put up with a good deal of rough usage. The foliage retains its healthy character exceedingly well, not being so liable to turn brown and decay at the points, as that of some Palms, for instance. Once, however, a fair stock of the most approved varieties is obtained, it matters but little if an occasional plant is sacrificed by being kept in a disadvantageous position too long. Young plants are easily raised from offsets or suckers, and such losses are therefore easily repaired. All the Screw Pines usually grown are graceful in habit and elegant in outline, making, when in a small state, excellent subjects for the dinner table. Later on, when too large for this purpose, they will be found useful for large vases and various receptacles in other rooms, in entrance halls and corridors; in any position, in fact, where not too much exposed to violent draughts of cold air. All the stock set aside for decorative uses should have their pots well filled with roots, and as large heads of foliage as

can be had in comparatively small pots. It is astonishing to what a size *Pandanus Veitchi*, for instance, can be grown in a 4½-inch or 6-inch pot. These plants when thoroughly pot-bound will be found more hardy and durable than when such is not the case. If used frequently after a recent shift the young rootlets are apt to suffer and the plant thereby weakened.

The best kind is *Veitchi*, without doubt the finest of the genus. To obtain this in its best condition for table decoration, propagation should be proceeded with whilst the suckers are very small, about 3 inches in length being quite sufficient. In the case of a tolerably large plant these can be found pushing forth from among the roots just above the soil. These take longer to establish themselves than larger material, but when this has been secured they are preferable to larger growths, inasmuch as they develop foliage of a more graceful, drooping character, and the variegation is brighter and better, and to such an extent is this so that when in a small state a plant thus grown might easily be mistaken for one of another variety. *Pandanus javanicus variegatus* is a pretty kind, but not equal to *P. Veitchi*. It will not be found to be so compact in habit as that kind. The spines also with which it is furnished on the underside of the mid-rib (in an opposite direction to those on each edge of the leaf) render it a difficult subject to deal with when syringing is resorted to. *P. graminifolius* we find to be a most serviceable kind. It is not grown so much as it deserves to be, making as it does a very pleasing change as a dinner table plant. Being slender and delicate in growth, pairs of this kind can be advantageously used. We find this species to be about the hardiest of any. *P. Vandermeerschii* is very distinct and handsome; its foliage somewhat narrower than that of *P. Veitchi*; the spines with which it is armed are an ornament to the plant, being dark crimson. It is a useful variety, quite different from any of the aforementioned. *P. ornatus* is pretty when small, but it quickly grows out of bounds if not starved at the root. *P. elegantissimus* is preferable to *P. utilis*, being less robust. Unless there is an abundance of accommodation, neither of these two last named kinds will be found of great service. We find the Screw Pines to thrive in a compost of good peat and fibrous loam, with plenty of silver sand; frequent potting is, however, quite unnecessary. When an abundance of water can be applied, never allow the plants to become dry at the root.

Gunnersbury House.

JAMES HUDSON.

RECENT PLANT PORTRAITS.

THE March number of the *Botanical Magazine* contains portraits of the following plants:—

Caraguata musaica (Plate 6675).—A fine Bromeliad from New Grenada, with brilliant red and yellow flowers, and remarkably veined and marbled foliage, which bloomed for the first time in Mr. Bull's nursery in 1875, and has been already figured in the *Belgique Horticole* by M. Morren under the name of *Massangea*, by Mr. Moore in the *Florist* under the name of *Tillandsia*, by M. Dailier in his "Plantes à feuillage ornementale" under the name of *Vriesia*, and by Dr. Regel in his *Gartenflora* under the name of *Bilbergia*, so it has plenty of names.

Eucharis Sanderi (Plate 6676).—A beautiful new variety of this lovely family, intermediate in size of bloom between the well-known *E. amazonica* and the more recently introduced *E. candida*. It was introduced by Messrs. Sander, of St. Albans, after whom it is named, and flowered at Kew for the first time in November, 1882.

Thunbergia Kirki (Plate 6677).—A small slender growing stove shrub with pretty tubular violet flowers, sent by Sir John Kirk to the Royal Gardens, Kew, from Mombasa, near Zanzibar, and bloomed for the first time in September, 1882.

Fraxinus Mariesi (Plate 6678).—Native of North China. A small tree which is likely to become a favourite in our parks and shrubberies from its profusion of white flowers, which are

more conspicuous and ornamental than those of the Manna Ash (*Fraxinus Ornus*) of Southern Europe, to which it is nearly allied. Seeds of this new flowering Ash were sent to Messrs. Veitch by their collector, Mr. Maries, from the province of Kiu-Kiang, and it bloomed for the first time in their Coombe Wood Nursery in May last.

Compæretia macroplectron (Plate 6679).—Native of New Grenada. A rather dull-coloured Orchid, with spikes of pendulous pale rose-coloured flowers, said, however, to be the handsomest of its family.

Saxifraga cortusifolia (Plate 6680).—Native of Japan, a dull, white-flowered Saxifrage nearly allied to the old Strawberry Saxifrage (Plate 92 of this work), and also to *S. Fortunei* (Plate 5377, figured from specimens sent by Messrs. Veitch, who raised it from seed sent to them by Mr. Maries). The *Revue de l'Horticulture Belge* for March contains a coloured plate of

Two new varieties of Ageratum likely to be useful for bedding, as their colours seem to be distinct, and their habit, especially the blue one, sufficiently compact and dwarf. They bear the names of *Perle Bleue* and *Perle Blanche*, and are now being sent out by M. G. Bruant, of Poitiers, Vienne, France. These novelties, which I hope to be able to prove by comparison with others during the coming summer, seem to be a decided improvement on anything yet introduced in this way.

W. E. G.

NOTES.

Willow catkins or palm.—Will some kind reader be so good as to inform me of the best kinds of Willow to grow for catkins or palm or "pussies," as they are popularly called? Is it the weeping Kilmarnock Willow, which is bearing buds like burnished silver—at a distance they look like pearls—in a corner of my garden just now. The soft, downy yellow "pussies" of *Salix lanata* were much admired here last season. They reminded me of little chicks fresh from the shell; someone said they were like "baby canaries," so soft and golden were they just as they emerged from the hard brown sheath which envelops them in their early stages. I am so pleased with these two kinds, that I wish to know if there are others equally good or better in cultivation. Alder catkins are, as a friend writes to me, quite as beautiful as are those of Willows.

The winter Heath.—Standing in the early spring sunshine before a spreading mass of *Erica carnea*, I cannot help wondering that it is so seldom seen in even the best of gardens, public as well as private. There is a white variety, but I prefer the pink one with its dark brown cluster of anthers thrust outside its little flask-shaped bells. It lasts long in a cut state; its sprigs and slender sprays of rosy pink flowers are useful for bouquets, and it is as hardy as a bit of the granite rock beside which it nestles. Perhaps this is one reason of its having gone through the "middle ages" of neglect.

The mountain Saxifrage, both carmine, purple, and white, are now lovely draping water-worn boulders and sandstone alike with its delicate tracery of tiny green sprays and star-like flowers. From mountains in Britain or Ireland it goes pretty nigh the North Pole—need we say of such a pretty little arctic explorer that it is quite hardy.

Among the Crocuses—golden, purple, and white—on a sunny border, there are here and there glints of a vivid scarlet Poppy-like blossom swaying and fluttering in the brisk spring breeze. It is the scarlet Pyrenean *Anemone fulgens*, than which few spring flowers are more showy or more welcome. What has become of Mr. John Poë's splendid *Anemone* from the Lemon terraces above Mentone?—the one with vivid scarlet petals and an amber ring around its black centre. Where are now the late Mr. Nelson's very fine seedlings with velvety scarlet blossoms 6 inches in

diameter, and petals (forgive me, oh botanist!) over 1 inch in breadth? "Measured, or guess work?" I hear someone say. Yes, actually and truthfully measured. Oh! for a day in the Vine fields of Pau, where this gorgeous beauty is "at home to all visitors."

The common purple Crocus (I mean our native one, which now, or perhaps a little later, will throw a hazy mist of lilac over the fresh green meadows at Nottingham) is of all the best for naturalising on lawns and sunny nooks in gardens, or even in grass fields near to the house, or in churchyards, or anywhere where a glint of spring beauty is desired. At Nottingham, I remember, it grows very deep down in the clay; it is submerged for weeks, months sometimes in winter. It is most beautiful and abundant in spring, albeit that its leaves are mown off with the grass in the most matter-of-fact way. Verily do they "bloom to-day, and to-morrow are cast into the oven."

Prickly Ivy.—A lady wishes to know to what particular Ivy this name is applied, and asks what kind of leaf it produces. The accompanying



Spray of Smilax aspera.

woodcut will show it better than any description in words. The species is *Smilax aspera*, of which both leaves and stems are prickly. Some kinds are nearly smooth, but the tendency to asperity is indicated in most of them. I did not allude to the economic interest of some South American species, because I thought the fact of *Sarsaparilla* being their produce was generally known. When raised from berries we are informed that the seedlings vary much in size of leaf, as well as in general habit, and in the silvery markings characteristic of this species, and one or two other kinds.

The Holly-leaved Hellebore (*H. argutifolius*) is now putting forth its large and shapely pea-green flowers; when cut and arranged in fresh wet Moss with *Anemone fulgens* or crimson *Rhododendron* flowers, it is a great treat, its colour being, perhaps, well-nigh unique amongst flowers. It is a strong growing perennial easily raised from seeds, and makes a pretty foliaged plant the first year, and flowers quite freely the second and third, and so *ad infinitum*. As one of the most distinct and effective of the evergreen Lenten Roses, it well merits good culture. Speaking of the

Hellebores, now is the time to hybridise the late flowering kinds, or to fertilise them in order to obtain plenty of their shining black seeds.

From seed they grow freely, and generally bloom the second year. Mr. Frank Miles, I think, told us to sow in a box or pan as soon as ripe in early summer, and to cover with a slate or tile, which preserves equable moisture, keeps away slugs and birds, and—and quite stops the growth of adventurous weeds, ever eager to poke their noses up among one's pet seedlings.

Rough stone edgings to beds, borders, and garden walks are in many ways preferable and much cheaper than Box, and the wonder is that they are not more generally employed. Such edgings, well made, last for years, and when planted with Sedums, Saxifrages, *Sempervivums*, and other dwarf rock or alpine plants are as interesting as they are beautiful. Box is ever a nidus for slugs and snails; it costs sixpence a yard to purchase and something more in labour to plant it and keep it in good order. A cart-load of granite from the quarry here costs us three shillings; a load makes thirty yards of edging, and two men will lay a hundred yards of it per day. We must perforce purchase our stones, but in many places they cost nothing, and so this edging becomes still cheaper. A stone edging made three years ago, and planted with different mossy Saxifrages, is now much admired. Such edgings are especially suitable for positions where Box will not grow, as under trees and tall fences.

The Daffodils are now coming into bloom. *N. maximus* opened its first flower on the 24th, *N. minor* on the same day, and the pretty Tenby Daffodil, *N. obvallaris*, is opening to-day (26th ult.). *N. eystettensis* is also opening its buds, and a variety of *N. tazetta* is likewise in full bloom on an open border. This variety is floribundus, the same having come to us from St. Michael's Mount, Penzance, in Cornwall, where it is abundantly naturalised. In pots in a cold greenhouse, the best are *N. bicolor* Horsfieldii and the true *N. tazetta* var. *Bazelman major*, perhaps best described as "the best of the *Tazetta* race."

Nuttallia cerasiformis is an old white blossomed shrub now rarely seen. On a wall it has just produced its fragrant white clusters of flowers among the soft green leaves. Why is it not more generally grown? Does it ever fruit in Britain?

Pleione humilis var. tricolor is a perfect little gem amongst rare Orchids now in flower. Why is it so rarely seen? It seems to be the one most amenable to cool-house culture of all the varieties of Indian Crocus, and so perhaps a high temperature has caused an exodus of it from our collections. It has the smooth dark purplish green shining bulbs of *P. humilis*, and bears pale, rosy lilac flowers 3 inches to 4 inches in diameter, the segments glistening like frosted silver in the sunshine. The lip is widely expanded at the mouth, and deeply fringed around its trumpet-shaped mouth. It is suffused with warm chame-yellow, and profusely blotched with brown or brownish red in front, these blotches and the lines of the crest vanishing into dots, which become smaller and smaller as they approach the base of the column. The idea of perspective distance thus given is very pleasing—indeed, one observer, remarking the perspective himself, said the lines of the crest reminded him of the straight lines of a railway as seen under a bridge, the bridge being represented by the column and over-arching sides of the lip. It is a dainty little beauty, well worth more general culture.

The Pau Anemone (*A. fulgens*) is now in full blaze of beauty, but how comes it that we so seldom see the glowing, broad-sepalled form from the Grecian shores? "Ah!" said a lover of all hardy flowers, and of *Anemones* in particular, "if we only could get hold of a few ounces of the cottony seeds of *Anemone fulgens*, and of the long awned ones of *A. alpina* and *A. sulphurea*, we should soon get a stock of these in our gardens."

The two latter and *A. Pulsatilla* more especially are difficult of increase by division, and it does seem a pity in one way that the seed should be blowing about so plentifully on the Pyrenees and so little of it procurable either for love or money here at home. Where are now all the varieties of *A. Pulsatilla* of which we used to read accounts years ago. White, violet, purple, ruby-purple, and lilac were only a few of the colours named as belonging to seedling forms of this sun worshipper among Anemones. At Biarritz, where the sulphur *Corbularia citrina*, *Anemone fulgens*, and other beautiful plants grow, I am told "the summer sunshine is almost tropical, followed by drenching dews at night," conditions under which most bulbs and tuberous-rooted plants flourish.

The best Snowdrops.—For hardihood and floriferous vigour none are better than the typi-



Flowers of *Galanthus Imperati*.

cal *Galanthus nivalis*, as grown by the acre in the lowlands of Lincolnshire. In stature and size of individual flowers, however, the type is exceeded by three or four other kinds, no matter whether species or varieties. Here with us *G. Imperati* is the largest and best; then comes *G. Elwesi*, good forms of it being very fine, but some imported roots of this plant which I obtained from Erfurt (misnamed *G. Imperati*) are very poor and weedy, albeit they have the characteristic blotch at the base of the inner segments. Our engraving represents accurately a fair average flower and bud of *G. Imperati*. It is curious to note that here the slugs are very fond of *G. Elwesi*, while they leave *G. Imperati* entirely unmolested. I never saw *G. Elwesi* finer than in Barr's grounds at Tooting soon after its introduction, the bulbs being part of Mr. Elwes' own importation. *G. nivalis* var. *Melvillei* is a giant form of the type, the flowers large, having widely expanded segments, and the whole blossom dangles from the scape at the end of a long flaccid pedicel in quite a peculiar way. The above and *G. plicatus* are the best five Snowdrops in cultivation, and my estimate of them is in the order named from an all-round point of view.

Cultivators and botanists are both divided in opinion as to whether the above are specifically distinct or merely varieties of one widely distributed and divergent kind. Be they

species or varieties, however, they are readily divided into two sets or sections by their leaves. Thus *G. Imperati*, the great Neapolitan Snowdrop, is so like *G. plicatus*, the Crimean, in port and leafage, that I look on them as simply geographical forms. *G. Melvillei* is avowedly a seedling raised at Dunrobin Castle from the common *G. nivalis*. *G. Elwesi* has also narrow leaves, and may be to the typical *G. nivalis* what *G. Imperati* is to *G. plicatus*, but the deep green blotch on its inner perianth segments is a most characteristic and sure distinguishing mark. *G. Redoutei* (= *G. latifolius*) is also distinct, and the early and late forms of the type, although not showy, serve to extend the Snowdrop season in our gardens.

Snowdrops are rarely too abundant in even the best of gardens. For cutting, they and Violets are especially welcome. They should be planted in all sorts of positions in sun and shade, on borders and on grass, and in the shelter of Holly bushes, in places where the dead leaves may blow around them, as in this way their season is much prolonged.

Daphne Blagayana, from the woods on the Austrian Alps, is now in flower—dwarf, sweet, white, and pretty for rockwork, or the front of a sheltered shrubby border.

Ferula communis is now springing from the mossy turf beneath our Pine trees, as fresh and as finely cut and as tender in its greenery as any Todea or Filmy Fern whatever. (I hope Dr. Cooper Forster and Mr. Neill Fraser may not happen to see these notes.) We have yet much to learn as regards all branches of the garden art; but as to gardening on the grass, we are yet only in the most rudimentary state; scarcely through our A B C, in fact.

Chionodoxa Lucillæ and the pretty white-flowered Rush Lily form a pretty contrast just now; so do also *Narcissus minor* and the Siberian Scilla on a carpet of common green mossy Saxifrage.

Scarlet-berried Aucubas are now at their best. In pots in cold houses they are especially bright and attractive, being quite distinct from aught else in their way. Small bushes in pots are very useful for indoor decoration, or for contrast with early flowering bulbous plants.

Forsythia suspensa.—A lady writes to say that this plant in blossom always reminds her of "a swarm of golden bees." It is now most lovely, and the paler blossomed *F. viridissima* now bears it company. I rather like the idea of the "golden bees." It is truthful and also suggestive.

Saxifraga Burseriana is most lovely; also another, and as I sometimes fancy a more vigorous and satisfactory species, *S. coriophylla*, which bears its white blossoms from a little spire or rosette of deep green leaves. It grows like a weed here; whereas its allies *S. juniperina* and *S. Burseriana* are always rarities with us.

Anemone coronaria of various kinds from seed, scarcely two alike, are now very pretty in the early sunshine. For cutting both half-opened buds and the finely-cut leaves are highly valued.

Dentaria digitata and its white variety are now very pretty in sheltered sunny nooks, along with Hepaticas and Hose-in-Hose Primroses, Galagiskins, Jackanapes-on-horseback, and other quaint old varieties so common in our grandmothers' days.

Cocoa-nut husks for Orchids.—I am very pleased to see that Dr. Paterson intends to try this material, and no doubt there are many others besides myself who would like to know where the entire husks may be purchased. Mr. Burbidge tells me that in the gardens of the

eastern colonists and Government officials Phalænopsids and other Orchids are commonly grown in these husks suspended as baskets from the verandahs, or fixed in the branches of Orange trees, or in those creeper-laden tabernacles of wood which so often do duty for glass houses in the Tropics. Mr. Burbidge says that he had *Cypripedium Lawrencianum* growing in this material—simply rough coir fibre—for some months, as they were tied up in bundles, leaves outwards, for transport, and that they rooted into it with evident satisfaction. Mixed with clean Sphagnum Moss, or with charcoal, or with crocks, according as the rooting medium it affords is desired to be wet, moist, or moderately dry, I feel very sanguine of its proving a success for many things, and especially for *Cypripedes*, *Vandas*, *Aerides*, *Odontoglossums*, and *Masdevallias*; and yet, when I remember Dr. Paterson's splendid plants and their superlative vigour, I can only wonder if improvement is possible with him in his culture.

Alnus cordata and its allies *A. macrophylla* and *A. rubro-nervia* yield beautiful male catkins at this season, long tails drooping gracefully and laden with that golden dust of life-giving power we call pollen. The last named has dark brown catkins, *A. cordata* has pale green or golden ones, both long and graceful for decorative purposes, such as fringing an Etruscan tazza, or for dangling gracefully from the rim of a bit of old Venetian glass. These Alder catkins come in at a time when those soft grey tassels of the male *Garrya* fade (where may female plants of *Garrya* be obtained?); and in a vase with silvery or golden Willow buds, *Clematis cirrhosa* blossoms, or a spray or two of the rosy magenta flowered *Rubus spectabilis* they are all most ornate and lovely indoors.

White Rush Lily.—No more dainty spring blossom opens its eyes to the sunny days of March than this little beauty, which now reminds one of St. Bruno's Lily, as it blossoms beside *Narcissus minor* and *Chionodoxa Lucillæ*. It is a real gem among spring blossoms.

Hardy Primulas as annuals.—Primulas and Polyanthus of Clapham's strain, a mere pinch from a generous friend, are now flowering



Seedling Polyanthus

quite freely in sheltered nooks and corners. Some few individuals are very pretty rich violet or

plum-purple selfs, or rich crimson-maroon with gold specks around the margin of the corolla, as in the variety known as Rockery Gem. Some of the fancy Polyanthus varieties are most lovely in the spring sunshine, and, as I think, these seedling plants, albeit not as yet a year old, are far more vigorous and free flowering than are divided plants or old-established clumps with us, and then their variety is infinite. Mr. Wolley Dod long ago told us that *P. capitata* especially and some other species never did well unless treated as biennials by raising batches from seed, and I am convinced that we shall never enjoy the full beauty and variety of which our own native Primrose and Oxlip or Polyanthus is capable unless we save seed by carefully crossing good varieties and treat them as annuals. So treated, the large sulphur white and orange race of Oxlips may be increased *ad infinitum*; and the gold-laced section even yields some little variety in this way, the plants being especially vigorous and free.

*

Aponogeton distachyon, or Cape Pondweed, is now flowering in our tiny pond, and *Primula japonica* and *Iris Kämpferi* planted around its margin are now coming up fresh and strong, although they have been entirely submerged for months together. *Richardia æthiopica* thrown in last autumn is alive and healthy, and is now making new leaves.

VERONICA.

FLOWER GARDEN.

NARCISSUS MONOPHYLLUS.

AFTER reading Mr. Wolley Dod's note (p. 164) in reply to "Veronica" (p. 130) on *Narcissus monophyllus*, I referred to Gerarde and was disappointed on failing to find any mention of *Narcissus monophyllus*, or of *Corbularia*. In chapter lxxvi. "Of the Bastard Daffodils" there appears: "*Pseudonarcissus anglicus* and *hispanicus*—common yellow Daffodilly," over a woodcut of what plainly represents our common wild Daffodil, and a variety thereof. The letterpress reads as follows: "The common yellow Daffodilly or Daffodown-dilly is so well known to all that it needeth no description. We have in our London gardens another sort of this common kinde, which naturally groweth in Spain very like unto our best knowne Daffodil in shape and proportion, but altogether fairer, greater, and lasteth longer before the flower doth fall or fade." Gerarde further says: "The yellow Spanish Daffodils doth likewise decke up our London gardens where they increase infinitely," and later on in describing "The Vertues," he proceeds: "The distilled water of Daffodils doth cure the palse if the patient be bathed and rubbed with the said liquor by the fire. It hath been proved by an especial and trustie friend of mine, a man learned and a diligent searcher of nature, Master Nicholas Belson, sometime of Kings Colledge in Cambridge." It will be seen that the description has as little reference to *N. monophyllus* as Master Nicholas Belson's use of Daffodil water has to the cultivation of the plant. It is true that my copy of Gerarde, alas! lacks title page and contains some evidence that it is not of the original edition, yet I would prefer to learn that "Veronica" has made a rather curiously amusing slip in transcription rather than to find that my old volume is an unfaithful reprint. Another word. I am sure that many readers of THE GARDEN must be puzzled like myself by correspondents sending notes relating to the hardness or the reverse of doubtfully hardy plants without specifying the locality of the observation. For instance, in a recent issue there is a note to the effect that *Dracena indivisa* has stood for two winters unprotected and is unharmed. Does the writer date from the Land's End or John o' Groats? Locality is the essence of the information to us who live in unfavourable spots with a high rainfall.

Since writing the above it has been pointed out to me (by the kindness of Mr. Brockbank) that in the later edition of Gerarde, enlarged by Thomas Johnson, and published in 1636, the

white Hoop Petticoat *Narcissus* is figured as *N. omnium minimum montanus albus*, and is one of the editor's additions. It does not, however, appear in the same chapter with the reference to Master Nicholas Belson. The 1636 edition of Gerarde makes considerable use of Parkinson's "Paradise."—RHO.

I am afraid my knowledge of the requirements of this pretty little plant will not enable me to offer much that shall be really useful to its admirers, but as the plant has been growing at Kew for several years both under glass and out of doors (with protection), a few words on the treatment it has received here may perhaps be of some little value. Some five years ago about a score of bulbs of this *Narcissus* were sent to Kew, where they were planted in a bed in the herbaceous ground along with other members of the genus. The soil used was equal portions of loam and peat with a good sprinkling of silver sand. Beneath this a good layer of drainage was placed. A small hand-glass was placed over the bulbs after planting, the top of which was removed in warm weather and replaced during the wet and cold season. Under this treatment almost every bulb produced a flower. There has been a slight decrease in the number of bulbs through death, and several of them have been presented in exchange for other plants, so that at the present time there are perhaps not more than half the number originally planted. These, however, are in good condition and at the present time there are half-a-dozen good sized flowers on them. From the above it may be reasonably inferred that there is not much wrong in our treatment, the protection from the excessive wet afforded by the handlight and good drainage being perhaps the chief cause of success, good soil also, no doubt, playing an important part. This *Narcissus* is also grown as a greenhouse plant, and so far it has thriven fairly well under treatment similar to that enjoyed by like bulbous plants. Mr. Joad, who adopted what, judged by its results, was certainly an excellent plan for the cultivation of this and many other small bulbs of a delicate and miffy nature, grew this *Narcissus* fairly well. Anyone looking over that grower's collection could not fail to admire the beautifully grown terrestrial Orchids, Cape bulbs, *Arisemas*, and other Aroids, and many other rare and choice plants all thriving in beds, none, or at most very few of them, being grown in pots. I am of opinion that we have yet to learn much in the direction of Mr. Joad's system of cultivation before we shall succeed with many choice little things of the nature of *Narcissus monophyllus*. Of course it is a question of space, but where a house can be spared in which beds of well prepared soil may be made for the reception of such plants as those above mentioned, so that after planting they can be let alone, the excellent plan of planting these little things out instead of keeping them in small pots is bound to prove satisfactory. So taught that keen cultivator, Mr. Joad, and in many, very many, instances the plants proved the wisdom of his views by finer and healthier specimens than was ever becoming possible in pots.—W. WATSON, Kew.

With reference to this plant, I may mention that I have referred to Gerarde's "Herbal," and for the information of Mr. Wolley Dod can state that the name given by Gerarde to the white Hoop Petticoat *Narcissus* is *N. omnium minimum montanus albus*. From the description given of this plant on the same page it is evident that Gerarde adopted the name from Lobell, because he says Lobell calls this last described *Narcissus* by the name I have just quoted. I have made a hasty glance at the figures in Parkinson's charming old book, but I do not find this plant figured there.—J. C. CLARKE.

I quite well remember the friendly advice which Mr. Rawson gave me about the cultivation of *Narcissus monophyllus* some four or five years ago. Before that time it was an insolvable puzzle to me; since then it has been an annual blessing. I insert this note just to say that the same bulbs unquestionably blossom year after year (p. 164). Any secret that I possess about this matter

came entirely from Mr. Rawson himself. He has moved northwards, and *Narcissus monophyllus* declines to follow him. That is all that has happened. I cannot think that the hand of so skilful a master has lost its cunning as yet.—H. EW-BANK, *St. John's, Ryde, Isle of Wight*.

Mr. Wolley Dod says, in answer to "Veronica," that Gerarde's "Herbal" was written half-a-century before Parkinson's "Paradise"—not after, as "Veronica," by a slip of the pen, seems to say. Now, in chap. lxxvi., Gerarde says: "Now those that require all their figures (of Daffodils) and more exact descriptions, may find full satisfaction in the late work of my kinde friend, Mr. John Parkinson, which is intituled '*Paradisus Terrestris*.'" Here Gerarde alludes to the late work of Parkinson. I rather fear joining issue with Mr. W. Dod, so, perhaps, he will reconcile the paragraph for me.—M. LOCKWOOD, *Harlow*.

HELLEBORUS MAXIMUS AND ANGUSTIFOLIUS.

HAVING recently received a plant of *H. angustifolius* from a friend in Lancashire, I am quite ready to endorse all that "Veronica" claims for it as to beauty and purity of colour, but it is no disparagement to say that it is not equal to *maximus* in massive foliage nor in the larger wider-spalled flower of the latter. My reason for drawing attention to the difference between the one and the other was that in consequence of "Veronica's" notice in THE GARDEN I was applied to for some distinguishing characteristics of *maximus*, and I gave them. As regards the exquisite coloured figure given in THE GARDEN, I cannot agree with "Veronica" that the flowers were past their best, too old for figuring—on the contrary the artist reproduced bud, perfect flower, and fading bloom, all pink, all true to Nature, as they are occasionally, but not, as regards the perfect flower, of the usual colour, which is white. In this respect it was misleading, and actually did mislead, since in this case also I was applied to by an unknown correspondent to say whether any such pink variety existed, and whether it could be had. My answer was, of course, in the negative. While in momentary conference with "Veronica," may I ask whether he (or she, as the pseudonym would seem to suggest) can give any information as to the first appearance of *H. maximus*? It seems to be always assumed that it came from Scotland; but is this a fact? Did it travel from north to south or from south northwards? I suggest the doubt, because ten years ago *H. maximus* was the common Christmas Rose of this part of Devon, and niger was absolutely unknown. The plant was then common, and the clumps old and long established. I remember an old friend, and no tyro in gardening, complaining that he had just paid five shillings to a London nurseryman for what he called *H. maximus*, and that he had sent only the common Christmas Rose, of which he had quantities in his own garden. The plant sent was, however, quite correct, but my old friend had never seen niger. Perhaps some one of the old Devonshire authorities can throw some light on this matter. May I take this opportunity to correct an error in my enumeration of Hellebore species (GARDEN, Feb. 3). I inadvertently placed *fœtidus* with the non-persistents. The mistake was too palpable to mislead, since *fœtidus* is the most persistent of all we have, more so even than *argutifolius*, *fœtidus* preserving both old foliage and old stem; whereas in *argutifolius* the stems and leaves are the growth of the season, and in other persistents the leaves only remain through the winter.—T. H. ARCHER-HIND, *South Devon*.

Since writing the above Mr. Wolley Dod has been able to inform me that *Helleborus maximus* was first introduced into Miss Hope's garden in 1863, from Aberdeenshire, but I have a letter from a very early collector of the family (I do not know that, like mine, his collection began more than forty years ago), and he tells me that what is now niger *angustifolius* he bought twenty years ago from Mr. Salter, of Hammersmith, as

niger major; and, with regard to *H. maximus* in 1879 he saw a plant in Torquay in the garden of a gentleman who said he had had it as long as he could remember, which must have been over half-a-century. From this testimony and from the fact that *H. maximus* prevails not only all over Devon, but extends also into West Somerset, I think we may fairly conclude, so far as present information goes, that Devon, and not Scotland, is the earlier habitat of the great Christmas Rose, and that *niger angustifolius* is the niger major of earlier date.—T. H. ARCHER-HIND, *South Devon*.

HEPATICAS.

In the *Horticultural Cabinet* for 1835 will be found a very excellent article by "Snowdrop" on the culture of the Hepatica, and it is curious to note how little has been added to our stock of knowledge or of varieties since. He commences with "the double white Hepatica being still a desideratum and its existence doubted," precisely as we should state the case to-day. There is a sort of lingering belief that the double white exists somewhere, but I have never yet been able to find it or to hear of any florist who can say that he had seen it.

Rumour stated that it grew in a quaint old garden where the present Sheriff of Newcastle-on-Tyne lives, but my friend Mr. Henry Clapham writes me: "My gardener tells me there is the tradition that it existed in our garden in 1881, but before I bought this place, about that date, there was a sale of all that was valuable, and he supposes the double white Hepatica went also, as we have not got it now. This is coming very close to the present, and I hope some of your readers in the neighbourhood of Jesmond Cottage will see if by any chance it has strayed into their precincts, or if it can be heard of and its actual existence in 1881 vouched for. An old Yorkshireman says he remembers seeing it in the garden of Sir Marmaduke Wyvill, at Burton Hall, near Leybourne, when he was a lad; but here again the trace of it is lost, as the place has changed hands and the old garden has been broken up, no Hepaticas surviving at this time. Another local Hepatica is the single yellow figured in the "*Hortus Floridus*," published at Arnheim, in Holland, 1614; there are also figured the double blue, single white, and single blue. What has become of the yellow? Will our friend, Mr. Krelage, try to hunt it up, if it ever existed?

Parkinson ("Paradise," 1656) gives the following list: 1, great single blue; 2, small single blue; 3, purple, or dark blue; 4, lesser white; 5, great white; 6, ash coloured, or argentine; 7, white with red threads (stamens); 8, red blush or pale red in the description; 9, double purple; 10, double blue. It will be seen that this is a pretty full list of sorts still in cultivation. We have the following which are not mentioned by Parkinson: 11, white with pale anthers; 12, Hepatica angulosa, the grand single blue, with flowers larger than half-crowns; 13, double pink. There are several shades of pink, one a rich carmine, and there is the purple Hepatica Barlowi, which I do not possess. If there are any others I shall be glad to hear of them. There is no prettier and no more welcome flower than the Hepatica; it is one of the earliest heralds of spring.

"Some like stars to tell us spring is born," may well be taken as Longfellow's allusion to the Hepaticas, coming as they do out of the dark ground so star-like and so lonely-looking without their leafage. In old gardens where they are to be seen in masses the effect is most lovely. They ought to be planted in the most sheltered nooks, alike protected from the coldest winds and the hottest summer sunshine. They like to nestle behind a Box edging or under the lee of a big rockery stone, or at the foot of a west wall. The soil does not matter so much as the situation, and they do not like to be divided or disturbed; leave them alone under proper conditions and they thrive apace. The strongest variety is the double pink, and it carries the strongest tuft of leafage. Three weeks ago

so dense was the clump of leaves on our plants that I wondered how the flowers could possibly be seen when they came; but by-and-by the old brown leaves fell to the ground, encircling the dense mass of buttons which were just visible, and which soon sprung up and burst forth into the most lovely rosettes of rosy pink. They are just now the gayest plants we have, and will last some time in great beauty. We have a Scotch variety of *H. angulosa*, the great Hepatica, which is the most beautiful single; the petals are more rounded than the English variety and set closer. It is larger than a half-crown. The Scotch white variety has very small flowers. The large white variety has the pink anthers noted by Parkinson. *Brookhurst, Didsbury.* WM. BROCKBANK.

ALPINE AURICULAS FOR BEDDING.

We make a bed of these every year, as they give but little trouble. Our stock is not composed of the best and choicest varieties, but in the first place the sorts were named. They may therefore be considered to be superior to ordinary seedling plants. Be that as it may, they are very acceptable plants in the spring garden, as they make variety and are interesting to many. Our course of management is very simple. At the end of May we shall lift them from the beds; the largest plants we shall divide into two, and leave the small ones as they are. They will then be taken to a north border under the shade of a high wall. There they will be carefully planted about 9 inches apart each way, placing some fine soil pressed firmly about the roots. It is necessary to take them up carefully and plant them in their fresh quarters without any delay, as they will be in active growth, and rough treatment might weaken them. During the summer, more especially during the months of June and July, they must have an occasional watering, and water must be given in sufficient quantity to moisten the whole of the soil about their roots, and as a matter of course they must be kept free from weeds; with these little attentions the plants will go on until the time comes round for planting them where they are to flower. We reserve a bed for them in autumn, because I do not like to plant them at that time, having found from experience that, although hardy plants, if they are put out in the autumn they suffer more from damp than when left undisturbed until spring. I therefore defer planting them where they are to flower until the middle of February, or as soon after that time as the condition of the ground will allow. A fairly rich soil broken up rather fine is better for them than a poor sandy or heavy staple. J. C. C.

PENTSTEMONS AND THEIR CULTURE.

THAN the Pentstemon, thanks to the hybridist, few plants have of late years made more rapid strides in the way of improvement. The individual flowers are very much larger and opener than formerly. Many of them, too, are placed stiff and erect on amazingly long dense spikes. Pentstemons, moreover, are free, continuous flowerers, numerous beautiful spikes of bloom following their predecessors in rapid succession. They are very easily grown, and will do well in any good garden soil—the richer the better. They are not liable to insect pests or disease, and where a good selection of varieties is grown, coupled with even average cultivation, they are strikingly effective even when looked at from a distance. Our mode of cultivation is very simple; in fact, very much the same as that for a crop of Cauliflowers. The ground is trenched 2 spits deep in autumn. If poor, a good layer of manure is spread on it and trenched in. In that state it is left until planting time, which usually takes place about the latter half of March. A good layer of well decomposed manure is then wheeled on and carefully dug in. Young, soft, well-rooted plants are then selected and planted about 15 inches apart; care is taken to thoroughly water in very dry weather, as if this is not attended to their tendency is to run prematurely to flower before they have gathered sufficient

constitution and strength to carry good spikes. The only attention they now require is to stake and tie them as they increase in growth, and of course keep the ground clear of weeds, &c. Cuttings taken off any time during August or September, and inserted from 2 inches to 3 inches apart in light, sandy soil in a cold frame, will strike freely. They should be about 4 inches in length, and if taken off with a heel will strike all the better. After being inserted give them a good soaking of water, put on the lights, and shade from strong sunshine for a few weeks until they show signs of growing, when air should be freely given them. They may remain there until planting-out time. Plenty of air should be admitted during the winter whenever the weather is sufficiently open to permit of it. The following are selected as being very choice from a collection of nearly 200 varieties, viz., Henry Cannell, Andrew Sinclair, Mrs. A. Smith, Sir William Forbes, Helen Wood, Climax, Decision, Hebe, Mrs. McKelvie, James Begg, James Eddie, Walter Scott, James Leadbetter, Lady Sinclair, John Fairlie, Czigane, Inimitable, Corsair, William Milligan, James Gowans, Mrs. Melville, William Saddler, Robert Osborn, Miss Arnot, and Mrs. J. Allan.

Hawick.

JOHN FORBES.

SPRING NOTES.

THE Snowdrops and other bulbs peeping above the Grass at this season show one how necessary it is to plant all such subjects in dense masses if planted at all. Snowdrops scattered thinly over the ground are really and truly "lost," and it is years before they multiply sufficiently to produce a noticeable effect. We say, therefore, confine your planting to masses a yard or two across, and dibble in thickly, allowing an inch or two between the bulbs only. A mass like this even will look thin for a year or two, but it will be visible and striking compared with the "scattering" system. Crocuses produce a better effect than Snowdrops, and some of the white and silver varieties are excellent for lawn planting, producing a fine effect. They should also be planted thickly in the ground, and the different colours should be kept by themselves. The same advice applies to Daffodils and all the Narcissus family thus planted for naturalisation. We put in a lot of the better kinds last autumn, putting two or three dozen in a patch, and filling the spaces between the groups up thickly with Primroses, so that we shall have a body of colour—at least of harmonising tints. We notice they are just pushing up amongst the Primroses, the latter seedlings of last year, and all showing flower. Primroses like a good soil to grow in, and it is quite surprising what strong crowns they make when well done, too, in that way, and what a quantity of flowers they produce. The little Narcissus Bulbocodium is pushing its slender leaves up also, but it remains to be seen how it will do in our climate. This variety has a doubtful reputation as a grower, not that it is not hardy enough, but it is particular as to soil and situation. We hear of it doing well in Ireland and in Cumberland, and failing altogether in places where the climate and soil are both better.

Plants on rockeries are putting forth growth in sunny situations, and care should be taken to mark and preserve the better and weaker species. The surface of the soil and crevices should be cleaned and hand-weeded, and everything done to give the surface a clean and neat aspect as far as that can be done without interfering with a rusticity of aspect. Cleanliness is a great matter even in a rockery, which should be covered in every part with its proper subjects, but not by weeds and litter.

We have been noticing this spring the difference between Holly trees planted at different seasons of the year. Several trees moved by the woodman here during mid-winter of 1881 have hardly recovered yet from the effects of removal, and some have died outright. It was a case of urgency the moving of these at that time. On the other hand, several large trees, perhaps forty years of age, which were transplanted in May have hardly shown

the least sign of a check, but are green and growing, and made good foliage the same year they were planted without losing their leaves. It is always a better sign, however, in transplanted Hollies losing their leaves altogether than their withering and remaining on the tree. In the first case there are good hopes of the tree recovering, but none in the other.

Scarcity of birds.—For some years back our singing birds, especially blackbirds and thrushes, have been unusually scarce, and this spring they appear to be fewer than ever before. We do not remember to have seen or heard so few of the last species for many years back. Not many years ago our pleasure grounds here used to swarm with them, as none were ever killed, and hardly a thick bush was without a nest; but it is different now. The deep snows we had in December starved numbers to death, no doubt.

Forced Forget-me-not.—We are trying to force this pretty subject this year in the cool greenhouse. Thousands of self-grown seedlings of *Myosotis sylvatica* came up in our borders last year, and in November we potted up a couple of hundred tufts in 5-inch pots and placed them on a ledge near the glass in a cool frame, where they are making excellent progress and throwing up their flower-stalks. If this plant will only do well in the greenhouse, there is no prettier subject, for a Forget-me-not plant grown in rich light soil makes a fine bush and produces its beautiful turquoise flowers in thousands. We advise those who have plants in their borders to take some up and try them.

The Cape Hyacinth (*Hyacinthus candicans*).—We once praised this subject in your pages, but have to modify our opinion concerning it a little. It is hardly enough, and flowers well in the open border, but it has not been tried long enough in this country to test its enduring capabilities. It is of little good, however, planting it singly. To look well and be effective it must be grown in masses some yards square. In the rather exposed and cold Handsworth Nurseries, near Sheffield, I saw a fine mass of it last September. J. S. W.

Clematises.—*C. florida* is one of the most charming plants imaginable, its beautiful white, single, Anemone-like blooms lasting for a month or six weeks at a time. At a place in Norfolk one was planted against an Apple tree standing in the pleasure ground. It climbed all over the top of the tree, and when in bloom was a sight not soon to be forgotten. How beautiful it would be in the wild garden climbing about everything with which it comes in contact. *C. flammula* is another lovely old plant for the wild garden, climbing about as it does on everything it can get hold of; it is so useful for cutting, too, for lighting up bouquets or vases in rooms, or for the hand.—E. SENDALL.

Tropæolum speciosum (p. 191).—After two or three failures we have succeeded in growing this *Tropæolum* in the south of Ireland and on a dry gravelly subsoil. It has established itself on a part of the rockery which is partially shaded in summer by a Sycamore. As few summer plants grow on this shaded bit of rockwork, it can come up when it pleases (by no means always in the same spot), and scramble over anything it can lay hold of. It looked especially pretty climbing up the tall flower-stalks of *Campanula pyramidalis*. It receives no particular treatment; the soil is not rich, but a top-dressing is annually given. Once the plant is established it should be left undisturbed. This *Tropæolum* grew well against the house amongst Ivy on a north wall, but disappeared last year, probably killed by slugs, which were more than usually destructive last spring.—C. M. OWEN.

Imported Anemone flowers.—Can anybody tell us the name of the double and semi-double narrow-petalled scarlet Anemones which are now being sold by the florists? At Southport a lady friend of mine was told by the flower seller in the market, who had it in quantity, that it was a

Pyrethrum, and he booked her order for many dozens of plants of it, to be delivered in about four weeks. I daresay he thought it was the double *Pyrethrum* Captain Nares, which it somewhat resembles; but the flowers are those of Anemones, and I suppose they are imported from the sunny regions of the Mediterranean. It would be worth forcing in our greenhouses, as its bright blossoms are most valuable at this season. Since writing the foregoing I notice your notes respecting imported Anemones in last GARDEN (p. 213), and suppose the flowers to be the multipetala variety of *Anemone fulgens*. I enclose specimens of each for your inspection.—BROCKHURST.

[The flowers sent represent an inferior double form of *Anemone fulgens*.]

***Calceolaria Kellyana*.**—Mr. W. Dod (p. 199) asks for information respecting the hardness of *Calceolaria Kellyana*; my experience of it is very short, but it has a direct bearing on the point raised. Suspecting its hardness, I at once divided somewhat severely a strong specimen sent to me from Edinburgh by the late Mr. John Sadler. The divisions were potted separately in sand and peat, and plunged in sand in a north aspect, but otherwise quite exposed. In such a position they have been all the past winter, and to-day they are fresh and growing, being still in their winter quarters. What may happen when planted out or during a more severe winter I cannot say, but I am sure that this *Calceolaria* is capable of enduring 23° of frost under the above conditions.—J. WOOD, *Kirkstall*.

Surface stirring flower beds.—We make it a practice every year about the end of February to stir up the surface soil between spring flowering plants, especially such as *Violas* and *Pansies*, *Forget-me-nots*, *Daisies*, *Polyanthuses*, *Silenes*, *Saponarias*, &c., and we have done so again this year, but I do not remember the beds requiring it so much as this season. The heavy and continuous rainfall had beaten the surface into a hard, battered crust, so much so that after the first few dry days the soil had so run together that with a pointed stick it could be lifted up in cakes half the size of a man's hand. To a greater or less extent the same thing will have occurred in most gardens not only amongst spring-flowering plants, but in mixed borders as well. The inexperienced should therefore take note of the condition of their beds, and if anything like what they may expect to find them, they should have them seen to at once. Amongst plants such as *Wallflowers* and *Polyanthuses* a small Dutch hoe may be used to break up the surface crust, *i.e.*, if used with care, but amongst smaller growing plants a pointed stick is best to prick up the open spaces with. If the seeds are on Grass the edges should be clipped, and any dead leaves and other rubbish removed; any plants, too, that are partially drawn out of the soil by the action of the frost should be pressed into their proper positions—all necessary alterations at this season. I can already see a marked difference between the appearance of the plants thus treated and others not operated on.—J. C. C.

SHORT NOTES.—FLOWER.

Primroses (*J. S. S.*).—A very prettily striped variety, and one well worth propagating, particularly as you say it flowers early in February.

Hybridising hardy Cyclamens.—Could you induce some skilful person to improve the various hardy Cyclamens, especially *Coum verum* now in bloom? its tiny size is the flower's only fault.—R. H.

Narcissus viridiflorus (pp. 164 and 189).—After seeing the correspondence between Mr. Maw and Mr. Rawson I much doubt whether my bulbs are true to name. However, my authority was M. Durando, of Algiers, and I shall hope on until the flowers decide the question.—A. KINGSMILL.

***Mentha arvensis purpurascens*.**—There is no doubt that this will soon become a plant that will be found in everyone's garden, owing to the relief given by its oil and crystallised camphor in cases of neuralgia. It is rapidly propagated by the roots as well as by means of cuttings.—W. H. CHRISTY, *Malvern House, Sydenham*.

***Oenothera eximia*.**—"T. H. D." asks for some further information as to this plant. I first saw it some years since at Mr. Ware's nursery at Tottenham, but failed to obtain it thence. Subsequently I got a plant from a friend's garden at Enfield, who had previously had it from his relative, the Rev. John Nelson, of Aldborough. My plant flourished exceedingly, and seemed to me to answer "T. H. D.'s" description, as far as I now recollect. It differed from *O. acaulis* and *taraxacifolia* in not being of a trailing habit, but running underground. I think that the leaves were larger than those of the former species, and not divided, as those of the latter, and my impression is that the flowers were larger and more opaque. I did not, however, keep it long enough to find out if its travelling habit rendered it such a nuisance as *O. speciosa*. Mr. Nelson had lost it himself, but thought he knew where it was still growing, and had promised to obtain it for me just before his death.—E. H. EGLES.

GARDEN FLORA.

PLATE CCCLXXXIX.

ABUTILON VITIFOLIUM.*

THIS most beautiful and free-flowering hardy shrub or small tree (as it has attained a height of



Abutilon insigne.

30 feet in one shrubbery that I know of in the county Wicklow) is a native of Chili, whence it was introduced to European gardens in the year 1836 by Captain Cottingham, of Dublin. Seeds of it were also sent in 1844 to Messrs. Veitch by their collector, Mr. Lobb, and they bloomed it in a greenhouse in a small state in the following year. It is also known under the name of *Sida vitifolia*, and is figured under that name in the 72nd volume of the *Botanical Magazine*, tab. 4227. The late Dr. Moore, curator of the Glasnevin Gardens, always maintained that its more correct and appropriate designation was *Sida malvæfolia*, and a large bush of it formed for many years when in

* Drawn from a plant in Mr. Gumbleton's garden, Belgrove, Queenstown.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



ABUJAH WHITE MAJESTY

flower and covered with its large cupped porcelain-blue blossoms one of the most conspicuous and beautiful objects growing in the open border of those interesting and well-stocked gardens, and when at last it died it was not, if I recollect rightly, from any severity of weather, but simply because by nature it was apparently not a long-lived plant. With me it is by no means a quick-growing plant, but blooms profusely on the tops of all the young shoots about the month of May, and occasionally, but rarely, sets and ripens an odd pod of seed, which is of the true Abutilon form. Its foliage before falling towards the end of the year assumes a fine golden hue. When grown under glass it is subject to red spider, but is quite free from this pest in the open air. W. E. G.

OTHER KINDS OF ABUTILON.

As in the case of many others of our most popular garden plants, some of the most beautiful of Abutilons owe their origin to the judicious selection and skill of the hybridist, who has succeeded in raising some very distinct and useful kinds, both as regards habit and colours of the flowers. In Vol. XIX., p. 524, were figured some of the handsomest of these, for most of which we are indebted to Mr. George, of Putney Heath, whose success in the hybridisation of Abutilons has been most marked. Of the species of Abutilon, of which there are some fifty or sixty described, there are about a dozen good garden plants known to us, most of the others, although by no means lacking useful qualities for the cultivator, being hardly worthy of mention here. The following are, however, well-proved plants, most of them being valuable both for indoor and outdoor summer gardening. It may therefore be worth while to offer a few descriptive and cultural remarks on them for the guidance of those who are not already acquainted with them.

The plate for this week is a representation of one of the most beautiful of the species of Abutilon. Although the introduction of this plant dates back some fifty years, it is still a rare plant in gardens. In the *Botanical Register*, vol. xxx., p. 57, there is an excellent figure of this Abutilon, where it is spoken of in the highest terms by Lindley, who describes it as being hardy in Ireland and a very ornamental plant for the shrubbery. From Ireland came the specimen from which the annexed drawing was made, Mr. Gumbleton, whose love for choice plants equalled by his success in their cultivation, having it growing in his garden, where it proves itself to be a useful and handsome plant. For the cool greenhouse or conservatory this plant will prove a worthy subject, its shrubby habit, floriferousness, and the singularly coloured flowers being especially serviceable during the autumn and winter. Lindley figures it with half a dozen flowers on one small shoot. Besides the lilac of its flowers this species is remarkable in the absence of the long stamens which in most Abutilons are united so as to form a sort of club, but in this, as will be seen in the figure, they spread much the same as in the *Sidas*, to which it has been by some referred.

A. Darwini is a handsome, large green-leaved plant of good habit, growing into a large shrub, and producing an abundance of large, bell-shaped, orange-red flowers, beautifully veined with blood-red, and produced in the axils of the Sycamore-like leaves. As a winter-flowering plant this species may be specially recommended;

by growing it freely out of doors during the summer months and placing it in a warm greenhouse in the autumn it produces its useful flowers all through the winter. For the introduction of this Abutilon we are indebted to the great naturalist after whom it has been named, Mr. Darwin having received seeds of it from S. Brazil, and flowered it in his garden, where a figure of it was made in 1871 for the *Botanical Magazine*. This species is the progenitor of many of our finest seedlings. The variety *tessellatum* is a beautifully variegated plant of great value for summer bedding, for which purpose it is freely used about London, and in combination with the Castor-oil Plant, Tobaccos, &c., it proves very effective. As a stove or warm greenhouse plant it may be used with satisfactory results.

A. insigne.—An excellent garden plant, with large green heart-shaped foliage and white and dark maroon flowers, reminding one of those of the rich coloured *Pelargonium* Captain Raikes. These flowers are produced in axillary pendulous racemes very freely, even small plants 18 inches high flowering well. This plant might be used with good results by the hybridiser. It produces its flowers in the winter, and therefore should be grown as advised for *A. Darwini*. It forms a handsome shrub when liberally treated.

A. pæoniæflorum is a red-flowered plant with large ovate green leaves. The flowers are not as large as those of the kind previously mentioned; but from their distinct colour they are very attractive on well-grown plants.

A. striatum.—One of the most useful of plants for training up a back wall or covering a pillar, being a quick grower and very free flowerer. It also forms a handsome greenhouse shrub if freely pinched back, and when so grown there are few plants more attractive. The rather large lobed green foliage, with long slender petioles, forms a good background to the richly coloured flowers, which hang so gracefully on their long curving stalks, and are orange-yellow with a thick reticulation or veining of blood-red. It is a useful autumn bloomer, though, like most of the species, it may be had in bloom at almost any time of the year if skilfully managed.

A. venosum.—This is distinguished by its palmate Ricinus-like foliage and unusually large flowers. It is a tall grower, serviceable for standing among shorter plants, over which its head of drooping yellow and red flowers looks very graceful. These flowers are 3 inches in length and bell-shaped, so that for cut-flower purposes this species is valuable.

A. megapotamicum and its variegated variety, known as *A. vexillarium*, are useful in a number of ways. The flowers, which are very pretty, the calyx being yellow and the corolla deep purple, may be used for bouquets and similar purposes. The foliage of the variegated kind also is useful in the same way; branches of this plant look very well among flowers and stand in water for some days. For covering rafters, pillars, trellises both kinds are of great value, and as standards, which may be had by grafting them on the tall stem of a stronger kind, they are useful greenhouse plants. The graceful drooping habit of this species makes it effective in either of the above positions, and as it is a free grower and flowerer it cannot fail to prove satisfactory. In the spring it is a good plan to prune the shoots well in, or they get long and naked. It flowers all through the autumn and winter.

A. Sellowianum marmoratum.—Grown in the stove, this is a most valuable foliage plant its large, tomentose beautifully marbled leaves being highly ornamental. It may be used for table decoration when in a small state, and by gaslight the yellow and green leaves have a pretty effect. We grow quantities of it every year both for the stove and for summer outdoor bedding; used for the latter purpose in a favourable manner, there are few plants to equal it. It is easily propagated, and a very free grower.

A. Boule de Neige.—I am unable to trace the origin of this plant. Perhaps some of our readers may be able to enlighten me. It is very distinct, although most likely a garden hybrid. The merits of this—one of the most useful of all plants—are so well known and appreciated, that little need be said respecting them. As a greenhouse plant we all know its worth, and for bedding it is almost as useful. The pure white flowers are useful to the bouquetist, who pinches out the stamens and turns the petals back, making them more serviceable and lasting. To this and *A. Darwini* Mr. George and others owe their first successes in hybridisation. Although there are other whites in cultivation, there is none of so much service as this the "Snowball" Abutilon.

Turning to the hybrids and seedlings, we have a great number of kinds—white, all shades of yellow, pink, red, scarlet, and verging even on to violet colours, while in habit and foliage the variety is almost as great. To attempt anything like a description of these would be out of place here, and perhaps quite unnecessary, as the characters of the best of them will be found described in any good nursery catalogue. Continental hybridisers have been working as hard and quite as successfully on these plants as their brethren on this side the Channel, and the result is a large addition to our winter and spring-flowering plants. Mr. Barron has rendered signal service to horticulture in getting together so many of these popular garden plants for trial, and, by growing and exhibiting them at Chiswick, has provided such excellent means of judging as to the merits of each, that it is hardly possible to make a bad selection. The following list includes some of the most useful:—

Rose coloured flowers.	Yellows.
Cleopatra	Reine d'Or
Venousum roseum	Blandi
Rosina	Phyllis
Richesse	Lemoinei
Roseoflorum	Couronne d'Or
Louis Marignac	Zara
Reds.	Variegated.
La Lorraine	Mignon
Louis van Houtte	Roi Soleil
Firefly	Tritute
La Grande	White.
	Boule de Neige

Hybridisation is easily effected in the case of Abutilons. The stamens of the seed-bearer should be carefully removed and pollen from the other intended parent placed on the stigma. This should be effected in the morning of a sunny day, fertilisation being easier accomplished then than when the operation is performed on a dull day. When the seeds are ripe they may be sown in a mixture of loam, leaf-mould, and sand, and placed in a warm house, where they will soon germinate, and if sown in the spring plants may be had to flower in the following autumn. Cuttings of the whole of Abutilons strike freely. All of them delight in a rich compost.

B.

Spring flowers.—With the bright sunny weather of last week spring flowers are making

their appearance in numbers, and every day adds something fresh. Snowdrops on grass and in plantations are making a grand show. Winter Aconites and Primroses are increasing daily. In herbaceous borders and in the rock garden I notice the following already in bloom, viz.: *Anemone blanda*, *Hepatica angulosa*, *Bulbocodium vernum*, *Cyclamen Coum vernum*, *Crocus*, *Draba cuspidata*, *Daphne Mezereum*, double Daisies, *Erica carnea* and *carnea alba*, *Galanthus Imperati*, *Houstonia cerulea alba*, *Hepatica triloba rubra fl.-pl.*, various *Hellebores*, *Jasminum nudiflorum*, *Leucojum vernum*, *Myosotis dissitiflora*, *Pansies*, *Polyanthuses*, *Primula denticulata*, *P. pulcherrima*, *Polygala Chamebuxus purpurea*, *Scilla sibirica*, *Saxifraga oppositifolia maxima*, *S. Burseriana* and *Burseriana major*, and should the present mild weather continue, in a few days the number just recorded will be doubled, including *Narcissi*, *Iris reticulata*, *Sisyrinchium grandiflorum*, and other interesting plants.—J. SIMPSON, *Hurworth Grange, Darlington*.

SEASONABLE WORK.

FLOWER GARDEN.

Bocconia cordata.—This hardy perennial in deep sandy loam grows to a height of 8 feet. The foliage is large and deeply serrated, and the flowers, which are produced in panicles on the upper portions of the stems, are of a whitish brown colour; under favourable conditions as to shelter from wind this plant will continue in flower from July to the end of September, a fact that justifies its being placed amongst the best of the taller growing section of hardy flowering plants. It is well adapted for planting in large masses in the back lines of herbaceous borders, but undoubtedly seems more at home on turf, something after the way in which the Pampas Grass is generally planted, i.e., in separate tufts in front of shrubberies to break or relieve the oftentimes unavoidable formality of straight lines. For the "wild garden" it is every way suited, for the less the roots are disturbed, the better the plant grows. It is increased by division, which requires to be done with great care, the best time being just as the plant is starting into growth.

Violas and other bedding plants.—Where spring bedding is not practised and the beds vacant, several kinds of hardy flowers may now be planted, each bed, as regards manure and digging or trenching, being given such treatment as the intended occupants demand to produce the best results. Violas, Pansies, Calceolarias, and Verbenas never thrive satisfactorily without abundance of manure and deep digging, but, given these, failure is all but impossible; on the other hand, it should be remembered that it is possible to have too much of a good thing; for instance, in rich soil many kinds of Pelargoniums, though they will grow like weeds, refuse to flower, and the same may be said of *Ageratums*, *Heliotropes*, *Lantanas*, and many others. Still, it will not be safe to follow this line of treatment too severely; there are always exceptions to rules; for example, fine foliaged Pelargoniums must have as liberal treatment as Violas and Calceolarias if they are to grow and colour to perfection. But to return to Violas; plant them out as early as possible in the richest soil, and no other spring or summer flower will be able to match them for free and continuous blooming, and few kinds equal them either for massing or edgings. The best all-the-year-round varieties are *Bluebell*, *Tory (blue)*, *Crown Jewel (blue)*, *Princess Teck (light mauve)*, *Snowflake (white)*, and *Lutea (yellow)*. On the terrace at Hampton Court Palace one summer the blue varieties were used more effectively than we ever before saw them as a carpet or setting for the tall variegated *Abutilons Thompsoni* and *Darwini*. Several large oblong beds were so planted, and though there were most elaborate carpet beds, grand beds of Pelargoniums, Verbenas, &c., none were half so beautiful as these, and it should be added that the simplicity of the arrangement in no small

measure enhanced the general effect. Had the beds in question been planted with an outer marginal edging of golden variegated *Arabis*, the arrangement would have been as near perfection as it is possible for any bedding arrangement to be. Once arrangements are completed, there are sundry other kinds of hardy bedders that should be planted at this early period, not only because the plants will be likely to do better, but also because much precious time will be saved when the busy season arrives. Among these are the variegated *Arabis*, *Ajugas*, *Cerastiums*, *Golden Feather*, variegated *Thymes*, variegated *Lamiums*, *Lavender Cottons*, *Veronica incana*, and *Euonymus radicans*. This last makes a striking and permanent edging and is especially well suited for edgings to beds of *Cannas* and *Ricinus*, or indeed for any fine foliaged plants.

Annuals and biennials.—It is now time to sow many of these, and especially those intended to be used in the general bedding arrangements. The endless varieties of good kinds of *Pelargonium* have pushed to the rear many good old annuals that twenty years ago did excellent duty on the parterre, foremost amongst which may be named *Sanvitalia procumbens*, compact and dwarf, with light yellow flowers having a black disc; *Saponaria calabrica*, similar in habit of growth, but slightly taller; *Brachycome iberidifolia*, same habit as the last, but having bright blue flowers; *Portulacas* of several colours, but all of low dense growth, and alike suitable either for outer lines of beds or for massing in small beds; *Silene pendula compacta*, not unlike the *Saponaria* just named, but, owing to the habit of the plant being tufty, the effect produced by the two plants is very different; *Tagetes signata pumila*, bright yellow—in poor soil it is dwarf and keeps in flower for months. These are a few only of the many kinds of annuals that may be relied on for summer bedding, and which, if used in fair proportion to other kinds, will tend to obviate the charge of sameness often made against bedding arrangements. They should be sown now on a south aspect in the open garden. If lights can be placed over them till fairly well out of the ground, all the better; but after this the more they are exposed, the more robust will be their growth. If sown thinly, no transplanting will be needed till they can be placed in permanent positions. *Asters*, *Stocks*, *Zinnias*, *Phloxes*, *Indian Pinks*, and *Everlastings* should also now be sown in frames; and *Wallflowers*, *Antirrhinums*, *Sweet Williams*, *Larkspurs*, &c., in the open air. To guard against loss through slugs and birds whilst the plants are in the seedling state, when possible all the kinds should have the protection of frames or hand-lights; lacking such structures, sow the seeds on a plot of ground by themselves, and as soon as sown sprinkle the ground thickly with wood ashes and soot, the best preventive against injury from slugs; and against injury from birds, net over the entire plot.

FLORAL DECORATIONS.

On a recent occasion, in order to provide an arrangement as a centrepiece for a dinner table of considerable size, a shapely, handsome plant of *Geonoma gracilis*, furnished with about seven leaves, the plant itself being nearly 3 feet high, including the pot, was selected. This *Palm*, having been grown in a 4½-inch sized pot, was well adapted for my purpose. It was turned out of the pot on to the centre of an oval meat dish measuring 2 feet 3 inches in length, and made secure in its position with sand, filling up to the edges of the dish. After this we plunged six or seven small plants of *Asplenium Veitchi* that had been grown in 2½-inch pots around the base of the *Geonoma*. At the two ends we used two very small plants of *Pandanus Veitchi*, nicely variegated and well developed; also four small growths of *Pandanus graminifolius* at the sides. As a base to rest on the cloth we secured small leaves of variegated *Begonias* and of *Alcacia metallica*, and a few fronds of *Nephrodium molle*. In order to hide the sand we covered the surface with fresh green Moss. Having some spikes of *Eucharis*

amazonica with the last flowers just expanded, we used four with five flowers in all, and stems from 1 foot to 15 inches in length, placing them around the centre plant, not too closely. To harmonise with these we had several stems with fresh foliage of *Cyperus alternifolius*, and some spikes of *Narcissus* (*Paper-white* and early Roman), and growths of the same cut off close to the soil. Around these we dotted some growths and good spikes of *Lily of the Valley*. A few spikes of Chinese *Primula*, chiefly white, completed the arrangement, which, when on the table, which was lighted with candles, had a very pleasing effect. Had the room been lighted with gas, it would not have looked nearly so well; the foliage of the *Geonoma* would then have cast a shade on the surroundings. Two small plants of *Cocos Weddelliana* were placed in two soup plates, and secured there with sand and green Moss, amongst which were dotted a few *Tulip* blooms and a base of large growing forms of *Adiantums*, with a few fronds of the *Malden-hair* among the *Tulips*. Blossoms of *Camellias* in various colours were used in specimen glasses. No costly perges or valuable glass were used, yet the entire arrangement gave every satisfaction. Those of us who have much bouquet work to do ought to grow *Staphylea colchica*, for which purpose it appears to be a valuable plant. Choice cut *Roses* should be made the most of; individual flowers look well in specimen glasses, but should neither be set in a draughty place, nor where there is too much heat; in either case they will soon fade.

ROSE GARDEN.

THOSE who have not had their *Rose* beds dug and well dressed with manure should now lose no time in doing so. All Hybrid Perpetuals may now be pruned, leaving the *Teas* until later in the season. Here we never saw *Roses* in the open air so forward before. Indeed, plants which have not been disturbed have been full of life and activity all winter, many varieties remaining evergreen. Under these circumstances they will, when pruned, bleed freely and lose much of what we would rather was retained, but the longer the delay in pruning the greater the evil. Should no break in the present mild weather occur, we shall have an early flowering season.

INDOOR PLANTS.

Bulbous plants, such as *Hyacinths*, *Tulips*, and *Narcissi*, as well as hardy shrubs used for flowering in pots, do not require much forcing after this time, as they naturally come into bloom under glass without much fire heat; where there is any deficiency of the ordinary spring-flowering greenhouse stock to keep up the requisite supply of bloom to follow the forced plants, a portion of bulbs and other hardy subjects may with advantage be kept back by giving them no more warmth than that afforded by greenhouse treatment. The indifferent usage which forced bulbs frequently receive after flowering makes them of little use subsequently; whereas if fairly cared for, *Tulips*, *Narcissi*, *Crocuses*, and even *Hyacinths* answer well for outdoor cultivation. With their foliage soft and tender, consequent on the forcing to which they have been subjected, they are often at once put out in the open air; whereas if turned out into a bed of prepared good soil in a frame and well attended to until their growth stands a chance of getting matured, they will do good service in after years planted where they are to remain.

Hardy shrubs.—These are also often badly used when they have done blooming under glass. *Lilacs* and *Laurustinus*, especially such of these as have been prepared for pot culture along with double *Prunus*, *Ghent* and the *mollis* varieties of *Azalea*, and *Rhododendrons*, should have a place in a pit or any spare structure where their growth can be fairly matured before being exposed to the open air. *Deutzia gracilis* should, if room can be found, be kept in warmth, such as that afforded by a vinery at work, until the wood is hard and the next year's flower-buds visible.

Camellias.—As these go out of flower they should, if affected with white or brown scale, at once be cleared from it, as it will increase apace under the warmer treatment to which the plants ought to be subjected whilst making their growth. I have found nothing better to assist them during the time when growth is being made than soot water, which not only has an invigorating effect and improves the size and colour of the leaves, but also banishes worms from the soil, should these be present. A little shade will now be beneficial to those that are making growth, and also to those that are in bloom, as the flowers will not last long if subjected to bright sunshine. In the case of examples that are turned out in beds as well as in pots or tubs, be careful that the whole of the soil is sufficiently moist, for Camellias more than most plants cannot endure drought at the root, particularly whilst their flowers are opening and their growth is being made.

Azaleas.—Such of these as have been forced to come in during the winter and have done blooming should immediately they are out of flower have the seed-pods picked off, as the production of seed exhausts the plants even more than the flowers. If they are not at once placed in a little heat, and kept growing until their bloom-buds are fully formed, the time of their flowering next season can be accelerated. The course here advised is different from that of keeping the plants after flowering for a time in an ordinary, dry, cool greenhouse temperature, and then placing them out-of-doors early in the summer with the season's shoots only partially matured. So managed they will bloom in a certain way, but the fact of Azaleas flowering at all under such treatment only shows their accommodating nature; the growth and bloom so produced are extremely meagre and poor compared with that which is attainable under more liberal management. In all cases care should be taken that the plants before being started into growth are quite free from their worst enemy, thrips. Tobacco water is the safest and best remedy out of the many I have tried for the destruction of these pests and their eggs. It is much better not to shift any plants that require potting until the young shoots have made some progress, as the roots of Azaleas do not begin to move nearly so early as the top growth. Plants required for late blooming, to come in say at the end of May and the following month, should now be moved to a north house, and kept as cool as possible without subjecting them to absolute frost.

Roses, such as are grown in conservatories, or in any structure along with other plants, require especial care at this season to see that they are free from aphides. Where planted out, if the soil needs manurial assistance, this should at once be given, as on this mainly depends the successional crop of bloom. Where Hybrid Perpetuals are used in quantity for forcing they should now be introduced to the Rose house in succession; these will give flowers at a time when the Tea varieties that have been earliest at work are beginning to fall off more or less, but even in the case of the latter it is surprising how they will keep yielding a succession of bloom if they are regularly supplied with manure water from the time when they are first started; without this the after growth comes too weak to bloom strongly.

Lilies.—Any of these that have been wintered in cellars and under plant stages should, immediately the shoots appear above the soil, be placed in a light position, or they will become drawn and weak, a condition that no after treatment can rectify. See that the soil is sufficiently moist, but not too much so. The different varieties of *L. speciosum*, *L. auratum*, and a few others as soon as they begin to grow do well in a cold pit where they can be kept near the glass. In this way they make strong, sturdy growth, calculated to flower well. *L. eximium*, than which there is no more useful species, coming in as it does before the other kinds, should be grown by all who have a greenhouse. From this time forward it will bear a little warmth if its early flowering is desired. It is most serviceable when two or three

good strong bulbs are grown together in a 7-inch or 8-inch pot.

FRUIT.

Pines.—By this time the most forward Queens will have reached the flowering stage, and if well ripened plants were selected the remainder of the first batch will be showing their fruit. So far mild weather has favoured the maintenance of steady temperatures, and we may now hope that brighter days will enable us to strengthen the plants and economise fire heat by running up to 85° or 90° after closing with atmospheric moisture. The latter may be produced by damping all available spaces and gently dewing the plants about the axils of the leaves in preference to overhead syringing, but care must be observed, as plants which are closely plunged in tan or leaves are often injured by having too much water at this critical stage. It will of course be necessary to examine them regularly and to keep them moderately supplied with weak liquid or guano water, otherwise they will suffer from the opposite extreme. Let the bottom heat range from 85° to 90°, maintain a steady night temperature of 70°, and stir the fires early every morning in order to admit of timely ventilation when the warmth of the house approaches 80°.

Succession plants.—If the strongest of these were selected early in February and plunged in a bottom heat of 85° they will be making the growth which usually precedes the appearance of the fruit. Gradually raise the temperature to 70° at night and 10° higher by day, water carefully, and defer overhead syringing until the fruit is well above the foliage. If not already done, get the strongest successions shifted into their fruiting pots. Let the crocks, pots, and soil be dry and warm, ram the latter very firm with a blunt-pointed stick, plunge in a sweet bottom-heat of 85° to 90°, and withhold water from the roots until they begin to work in the new compost. It often happens that this department at this season contains a number of good plants in rather large pots which they have not filled with roots. These should be examined, and if crocks, roots, and soil are not quite satisfactory, shake out and repot in pure loam, using pots one or two sizes smaller. Plunge in a sharp bottom-heat and treat as spring suckers. Examine the first batch of suckers which were potted about the middle of the past month, and give them a little water when the roots reach the crocks; also dew them over with the syringe on fine days and close early with sun-heat to start them into growth. If the heat in the bed has not receded below 85°, but little fire-heat will be needed in mild weather, as it will not be wise to force an elongated growth before the roots get well established in the new soil. Keep the young plants near the glass, ventilate on all favourable days, and cover up with mats at night.

Vines.—Practical Grape growers who have to keep Mrs. Pince, Black Alicante, and Lady Downes fresh, black, and plump until new Hamburgs are ready will not have to be reminded that the houses should now be closed and the buds fairly moving by the middle of the present month. Assuming that the roots have the run of external and internal borders resting upon ample drainage, the inside roots, previously watered with cold water, may now be mulched and copiously watered with diluted liquid at a temperature of 90°; and as well matured wood has a great deal to do with compact shows, perfect fertilisation, and finish, a little extra fire-heat combined with early closing on fine days will enable the cultivator to steal a march upon the spring, and give more time to the colouring and finishing process, which should be complete by the month of September. Having so often drawn attention to the importance of an early start, a repetition of the above remarks seems uncalled for; but when we find Grape growers inquiring how they must proceed to make their Mrs. Pince indifferently coloured, and their Lady Downes become shrivelled to insure their keeping, one begins to feel that some at least are still in urgent need of the practical

advice which will be found reiterated in the Calendar. When the buds begin to swell a higher temperature than that recommended for early houses may be indulged in; indeed, to have Lady Downes thin skinned, full flavoured, and capable of keeping fresh and plump until May, the Vines should receive Muscat treatment until the Grapes begin to colour, when Hamburg treatment will insure colour. Black Morocco and Gros Colmar, when properly managed and allowed a long growing season, are valuable to use from January up to March, but they should be ripe in September. Gros Colmar should hang for some time on the Vines after the leaves fall, and a few weeks in a warm Grape room will remove the earthy flavour which makes badly ripened examples uneatable. A promising late Grape, Mrs. Pearson, is well worthy of a place in every autumn and winter vinery. As a grower it is quite as free as its inferior relative, the Golden Queen. It shows an abundance of handsome bunches which set well, and my experience justifies me in saying it will keep for a long time and improve in quality after it is ripe.

Early houses.—When all the Grapes are thinned and the berries begin to swell away freely give the inside borders another liberal supply of warm diluted liquid and maintain a healthy growing atmosphere by damping the walls and floors with the same. Let the night temperature range from 65° to 68°, with a chink of air when practicable, and ventilate freely through the early part of the day to maintain the colour and texture of the foliage. A rise of 10° by day when fire-heat is applied will be quite sufficient, but 85° for a short time after the house is closed with sun-heat will add greatly to the size of the berries without distressing the Vines. If any part of the trellis remains uncovered, tie down the laterals in preference to hard stopping, and let all, with the exception of the strongest, have full play when the stoning process sets in.

Pot Vines.—The above treatment applies to fruit-bearing canes now swelling off crops. If all has gone well fresh roots will now be abundant and capable of taking warm diluted liquid at every watering. Encourage laterals where space admits. Shake out and repot cutbacks when they have made 2 inches of growth. Place them over a bed of fermenting leaves in a close pit and train near the glass.

KITCHEN GARDEN.

WHERE the ground is not too wet more Peas may be sown. We like the round better than the wrinkled ones at this season. Pride of the Market is a thoroughly good Pea but as yet scarcely cheap enough for the million; we are therefore sowing Telegraph, an excellent variety. Another sowing of Broad Beans may also be made; the giant class of Beans, of late so fashionable, we are not in favour of. We sow Early Mazagan and good old Green Windsor. Few vegetables have come to the front more of late than Broad Beans eaten when about the size of Peas. Our first spring Cucumber plants will be in their places on Monday. We grow the first lot at the top of a stage where we place about a peck of soil in hill-locks under each light, and as the roots come out more soil is added. Always have some in the house warmed. We have not grown Cucumbers long in this way, but can recommend the plan. Last year they did really well, and doubtless they will do so this season. Tomatoes should be staked at once to lead them up to the roof of the house; the latter should be kept at from 60° to 65° at night, and there should be a proportionate rise with sun heat in the daytime, giving air when the temperature has risen from 70° to 75°, but screen the air through canvas if possible.

Self-help for gardeners.—"Peregrine" is in error when he states that the gardening fraternity can as yet boast of no benefit association of its own. He is not, I presume, aware of the existence of the United Horticultural Benefit and Provident Society, a society that is doing

good work among gardeners in various parts of the country, and which deserves the support of every one who is eligible for election, and who prefers to join a club specially constructed for his benefit. It is, I am glad to say, making good progress, seven new members having been elected at the last committee meeting, over 100 being now on the books. The funds invested in the Bank of England and in the hands of the treasurer amount to £2500 odd. Balance sheets, rules, and further information will be gladly afforded on application to the secretary, Mr. J. F. McElroy, Moray Lodge, Campden Hill, Kensington; or by the treasurer, Mr. James Hudson, Gunnersbury House, Acton.—J. H.

ROSE GARDEN.

ROSE LA FRANCE.

THE plate of this Rose in THE GARDEN of February last (p. 180) was really superb, and in the description of it not one word too much is said in its favour. There can be no doubt about La France being one of the most beautiful Roses that can be grown, and from experience I have proved it to be one of the most useful. When thoroughly known by those living in the suburbs of our large towns—I mean those who have a garden, but do not keep any regular gardener—it is sure to become the most popular Rose in cultivation. It is not generally known that this variety is one of the best to succeed in the smoky neighbourhoods of large towns. This locality is one of the worst that could be found for the cultivation of the Rose, yet La France luxuriates amazingly, and produces in a season ten times more blooms than any Hybrid Perpetual growing by its side. In manner of growth it resembles the Tea varieties; as soon as one flower is over it breaks into short growths and flowers again, the most puny shoot producing a fine large flower. Its perpetual habit of flowering from early in the season until cut off by frost renders it doubly valuable for massing in large beds in suitable places in the pleasure grounds.

Like Mr. D. T. Fish, I am thoroughly convinced that this is one of the many Roses that flourish best on their own roots. I have it growing on the seedling Brier and Manetti, but get more blooms of a richer colour from the plants upon their own roots. I have carefully tested them on the two stocks above mentioned against those growing on their own roots by keeping the union of the stock and Rose above ground, and the superiority has always been recorded in favour of those on their own roots. La France will live much longer on the Manetti when the union is left above ground than many other varieties, simply because it is only of moderate growth. Those growing upon their own roots are more luxuriant than upon either of the stocks just named; at least such is its character here, where the soil is naturally lighter than we should recommend for Hybrid Perpetuals, and the rainfall is very heavy. There is no coloured Rose with which I am acquainted that is so well adapted for early forcing in pots, and can with the greatest ease be had in flower early in February. It will go on flowering continuously for eight months out of the twelve, that is if the plants are provided liberally with stimulants.

For autumn flowering after Roses are over outside until Christmas this is invaluable if rooted during the month of March from plants that have been forced into flower early. It strikes readily from cuttings when the wood is scarcely half ripe if inserted in coarse sand or sandy soil and covered with a hand-light or bell-glass, and placed in a temperature of 60° to 65°. They will become rooted and ready for potting in about three weeks, and if grown on through the summer until they are in 6-inch or 7-inch pots they will be found most useful for late flowering, and will continue for a long time in a night temperature of from 50° to 55°.

MANIFESTO.

Rosa berberifolia (p. 214).—My experience of this Rose agrees with M. Jean Sisley's. I reared the seeds he sent me, and gave away some nice

little plants; but all of them, I believe, failed after the first year, as mine did. It is certainly not only tender, but difficult to cultivate, and I cannot help thinking your correspondent Mr. J. R. Droop has not got the true plant if he finds it to grow and flower freely in the open border at Stamford Hill.—HENRY N. ELLACOMBE, *Bittou Vicarage*.

PROTECTING AND PRUNING TEA ROSES.

TEA ROSES are not only the most delicately beautiful and fragrant of all Roses, but likewise the most sensitive. They shrink from contact with severe frosts, and rush forth to welcome early sunbeams with equal alacrity. Hardly has the sun shone upon Teas with any heat than they begin to grow, and welcome the warmth with peeping buds and unfolding leaves. Such is the present state and dangerous condition of many of our Teas. Their early excitability has placed them at the tender mercy of March weather; and what cultivator has not painful memories of what that means? How best to fortify the plants to bear the coming strain is now the most trying of all problems to rosarians. To leave them alone is one method, and probably once in a dozen times it may answer. Last season was one of those exceptional springs, when those who either pruned their Teas in winter, or not at all, reaped an early and beautiful harvest, for in most localities even the early buds escaped destruction. But it is dangerous to confide in the genialities of March; for once it is genial, it is harsh, stern, and destructive a dozen times. The majority of Teas have had more or less protection. Already, on this 26th day of February, not a few of the plants have grown through it, having made from 1 inch to 3 inches of growth. What is to be done under these circumstances? Probably the best course is to remove the protection and cut off most of the more forward shoots, thin out all weakly and superfluous growths, and retain a little protection. The latter can hardly be too slight and thin. Spruce or Yew boughs or Fern fronds are the best protective materials. The effect of slight screens is twofold: they keep out the heat as well as the cold, thus avoiding the two extremes that cause the destruction of Tea Roses. It must also be admitted that they shut out the light if used in excess, and that deprivation of light leads inevitably to weakness. But, on the other hand, it is possible to screen out a good deal of heat and cold from our Roses without obscuring the light very seriously; it is astonishing what flimsy screens suffice to baulk the heating power of sunbeams and check the energy of radiation.

Besides, the screen may be so skillfully disposed as to give it a maximum of protective with a minimum of obfuscative force. To this end it should crown the plants rather than closely envelop them. So placed, plants may be protected without being sensibly weakened, the lower buds being as much as possible still exposed to the light. To ensure this twofold purpose, however, no merely haphazard mode of protection will suffice. On the contrary, the material used must be nicely adapted alike in quality, quantity, and position to the objects aimed at. The difficulty and delicacy of these needful adjustments of protection have decided not a few rosarians to do without it. In mild springs like these they run heavy risks of failure. They, however, trust mostly for safety in the knife. The more and earlier the growth of these Tea Roses, the more severely they cut them back. There is a double advantage in this; the lower they cut, the more dormant the buds left, and consequently the longer they will be in breaking. Some carry this severe pruning so far as to cut Teas back almost to the growing line. This latter plan answers well for late bloom, as Teas on their own roots mostly respond to this severe surgical challenge with a vigorous output of suckers or crown stems, that grow with vigour and bloom profusely. But such slashing prunings are more like recipes for the rejuvenation of exhausted Roses than the rational treatment of plants already in existence. The waste of time and material involved is too great for general adoption.

The time for pruning Teas is hardly yet, unless in exceptional seasons, such as this promises to be. Towards the middle or end of March most Teas may be pruned and wholly uncovered without serious risk. This season the compromise here recommended of immediate pruning and partial re-covering seems the best method of treating Teas running wild in the end of February. Permit me also to state that Maréchal Niel, being altogether a special Rose, is not included in any of these suggested methods of pruning Teas.

D. T. F.

FRUIT GARDEN.

VINE FORCING.

VINES may be forced into growth and to bear fruit at any season of the year, provided—and provided always—that the wood is properly ripened. Early forced Vines of one season force more easily the following year, and established Vines always more easily than young ones; indeed, young Vines, excepting pot Vines, should not be hard forced. To secure early Grapes, say in April, the Vines should be started into growth in November. The period of time required from the commencement of growth to the ripening of the fruit is for the Black Hamburgh about five months. Thus Vines started in March should have fruit ripe in July, and those coming naturally into growth by the end of March in August and September. The Muscat of Alexandria, Alicante, Lady Downes Seedling, and other late Grapes require nearly six months to ripen and finish properly. All Vines should be started sufficiently soon to have the fruit ripe in the early part of September, for Grapes ripened later than September require a great amount of firing to finish them, and do not keep well through the winter. The Grapes ripened in September are the latest that arrive at full maturity. If, say on January 1, we take as an example a vinery from which ripe Grapes are required to be cut in the month of June, the management necessary to secure this end may be stated in general terms as follows:—

1. TEMPERATURE.—At the commencement a night temperature of about 60° will be sufficient until the Vines have started to grow. The heat should be raised gradually to 70° by the time they come into flower. When the Grapes are fairly set a lower temperature may be maintained until after the stoning period, when, if necessary, a rise of a few degrees may be allowed. When the Grapes commence to colour a lower temperature may be maintained, but fire heat is almost always required in order to maintain a bracing atmosphere. For day temperatures a rise of 5° by fire heat may be allowed in dull cold weather, and of 10° or more, if by sun heat up to 80° or 90°, as the season advances. In very cold weather, however, it is better to have a lower temperature than to maintain a high one by overheated pipes.

2. VENTILATION OR AIR-GIVING.—The object sought to be obtained by ventilation is not merely the maintenance or regulation of the temperature, but also the admission of fresh air, which is a most important factor in the well-being of plants. The night temperatures are mostly regulated by the amount of firing or heat applied, but the day temperature, or amount of sun-heat, is regulated by ventilation. In vineries a little air should be given at the top ventilators early in the morning, or as early as it may be observed that the temperature has risen or is rising above the required point, and this air should be gradually increased as the day and the temperature advances, and later on should also be reduced in a like manner, endeavouring, if possible, to shut early enough to secure a slight rise in the temperature after doing so. We prefer shutting up early at all times, and "bottling up," as it were, the sun's warm rays, to the rigid rule of keeping to a given temperature, and the consequent early application of fire-heat for its maintenance. As the Grapes begin to colour air must be given freely both by day and by night on both sides of the house, &c., so that a bracing atmosphere may be secured.

3. **MOISTURE**, in its relation to the atmosphere, is of the greatest importance to the healthy progress of the Vine, and demands special attention. A close moist atmosphere is necessary to induce the buds to break freely, and afterwards it is necessary to assist in supplying nutriment to the Vines through the leaves. A very great proportion of the vital energies of plants is absorbed through the leaves. Again, moisture is necessary to prevent the destruction of the leaves by the inroads of insects, such as red spider, &c.

From the commencement, then, a moist atmosphere must be maintained, and the higher the temperature the greater the evaporation, and the greater the amount of moisture required. It is difficult to supply too much. When the Vines are started they should be syringed regularly several times a day, especially if the weather be bright and warm, beginning as soon as it may be noted that the temperature is rising, and so on, varying as to time according to season, &c.

tables of temperature for both day and night, to be followed strictly during the season, but never having seen, or having derived any benefit from the use of such tables, we prefer to state general principles that may be understood and followed out by everyone as circumstances may admit.—A. F. BARRON, in *Florist*.

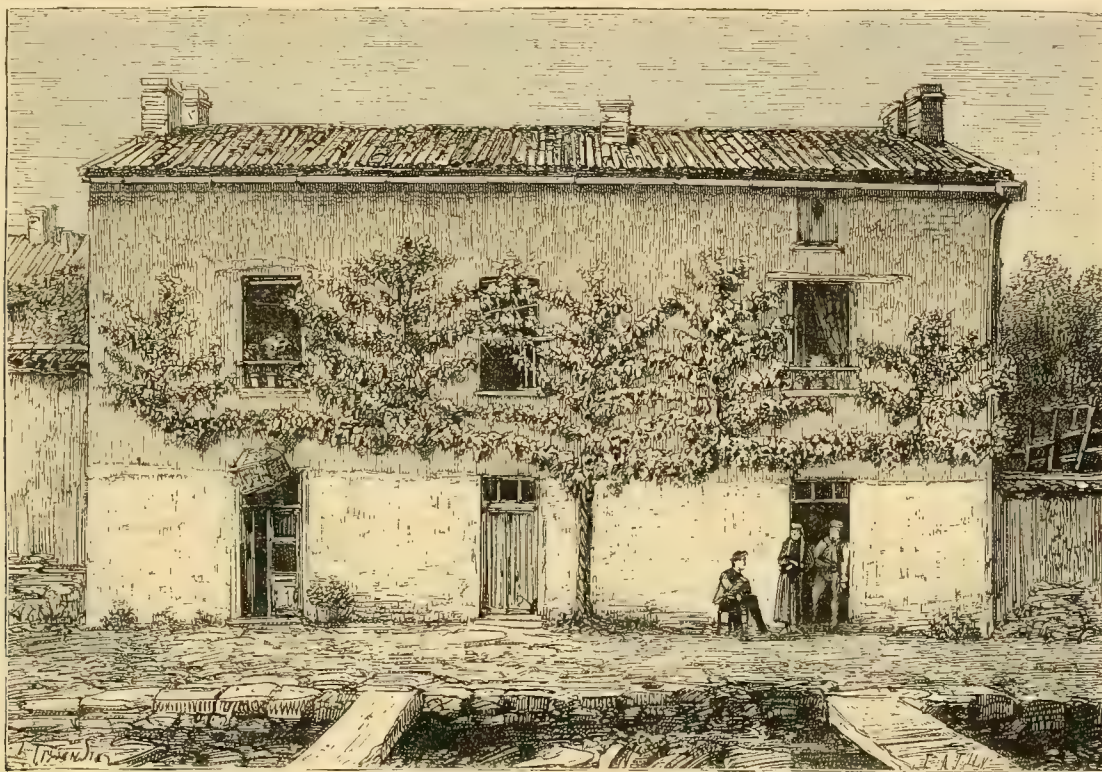
EXTRAORDINARY VINE AT ROCHE-SUR-YON.

At a time when the Phylloxera has done and is still doing so much damage in vineyards, the following account of a Chasselas de Fontainebleau (Royal Muscadine) Vine whose fertility has been a matter of surprise to many cultivators may not be without interest. It belongs to a shoemaker, who has furnished the following particulars concerning it. As will be seen from the accompanying illustration, taken from a photograph, it is planted in the pathway in front of the house; the surface

refer to his acknowledged sources of information on such subjects, viz., the *Gardeners' Chronicle* and *GARDEN*, he will discover that he has not drawn the above accurate description of this method of propagation from any communications signed by Mr. Thomson (who, on the contrary, explained at the time that it "had nothing in common" with his plan, which Mr. Barron does not allude to at all in his book), but from those signed by the writer of this letter.—JAS. SIMPSON, *Wortley*.

ARE ORCHARDS PROFITABLE?

ANY remarks of mine on this subject may seem out of place, inasmuch as my forte is rockwork; but as doubts have been expressed as to whether orchards are profitable, I hope that what I am going to say after seven years' experience may show that they are. My orchard consists of about an acre. I have five good-sized Apple trees and three Pear trees, which this year, though a bad season,



Prolific Vine at Roche-sur-Yon.

This treatment may be continued until the Grapes come into flower, at which period a somewhat drier atmosphere should be maintained until they are fairly set. Syringing the Vines overhead must from this time be discontinued, as, on account of the lime present in almost all waters, the Grapes become spotted and soiled by its use. Young Vines on which there is no fruit may, however, be syringed with advantage. Every portion of the house and border should be freely syringed at all times, and the atmosphere thus kept well charged with moisture. When the Grapes begin to colour, a somewhat drier atmosphere is required, and by the time they are ripe the atmosphere should be kept as dry and bracing as possible. After the Grapes are cut, if it be during the growing season, the syringe should be again freely employed, to thoroughly cleanse the leaves and wood, and its use continued until they ripen off thoroughly. All Vines in vineries, at whatever period they may be started into growth, will require treatment or management on principles somewhat similar to those here laid down. It has been the custom of most writers on the cultivation of the Vine to give

soil near the stem is dug up twice a year and mulched with horse manure. All the previous year's wood is spurred in as closely as possible, an operation which is performed between the 1st and the 15th of April. The new shoots are stopped at the second leaf from the base, and during the whole of the year all the shoots which grow too large are taken off, in order that they may not rob the fruit. Thus managed, in 1882 this Vine yielded 2115 fairly sized bunches of Grapes, and in order to encourage so heavy a crop to ripen early, a good deal of the leaves are taken off in July, so as to expose the bunches more directly to sun heat.

Mr. Barron's book on Vines (a correction).—At page 55 of this work Mr. Barron says: "Mr. Thomson, when at Dalkeith, adopted the plan of raising Vines from eyes struck in square pieces of turf instead of in pots; in these the Vines rooted, and were planted out into the border without disturbance, a very simple and efficient method." It is not a matter of much importance, only it is better to be right than wrong in such matters, and I feel sure that if Mr. Barron will

yielded me twenty-eight bushels, and last year over thirty bushels. Now what I want to state is that from this same acre I had a good crop of hay, which was got up earlier than that of anyone else in this neighbourhood; in a very few days afterwards Grass was cut and this was repeated day after day till the end of October. I therefore had abundance to keep a good-sized pony in grass and hay daily for about six months. About 30 fowls, too, had the run of the ground on which the Grass grew close up to the trees. It seems to me, therefore, that if a few trees are planted irregularly, leaving large spaces between them; that Grass or hay may be obtained in quantity as well as fruit, thus making the result profitable; and as to the amount of capital laid out in forming and maintaining an orchard, it need not be nearly so much as some of your correspondents have asserted. In addition to the trees named I have on the same acre several trees recently planted coming into bearing, the cost of which was 12s. 6d., and these will take the place of the old trees when worn out. Both trees and Grass receive the manure from the stable, including liquid manure, which is poured under

the fruit trees. This is but a small experiment; but what is there to prevent its being carried out on a large scale, when I feel sure it would pay? I may state that the trees are pruned and otherwise well cared for, the branches never being allowed to crowd each other, thus encouraging insects, blight, and the growth of Moss and Lichen. In ill-managed orchards all these evils occur, and Apples are necessarily small. Looking at the barrels of fruit that come annually from America, it would seem that we are unable to make orchards pay. Grass orchards, however, ought to do so, the secret being the having two crops on the ground at one time—hay and fruit. Under the present tenure of land I suppose the landlord should plant the trees, and therefore the tenant would be freed from that expense.

Double cropping of the ground is what I apprehend is wanted, so that if one crop fails there is another to fall back upon. Where orchards are not laid down in Grass, bush fruits take the place of the hay crop, and these often pay better than the produce of the taller trees.

Broxbourne.

JAMES PULHAM.

[We have seen Mr. Pulham's Apples, which were unusually large and fine, and when we saw the trees they were loaded with fruit.]

KITCHEN GARDEN.

VEGETABLES ON BOG LAND.

TRAVELLERS by railway between Preston and Liverpool pass through a wide extent of flat country, chiefly bog land. The bog, in the summer season, is cut into bricks 7 inches by 10 inches, and about 2 inches thick, for fuel, and when dried, it is put together in conical stacks, allowing as many interstices as are compatible with the safety of the pile. The centre of the cone is hollow, and in this way it remains until disposed of. Turf cutting is discontinued when the water line is reached, generally about 8 feet deep. A foot or two of the top is thrown down into the cleared space. This, in consequence of being furthest from the water, as well as being ameliorated by the action of the elements, is sweeter and more suitable for the roots of plants which will shortly occupy it than the soapy lower strata. The lumpy pieces are collected with all other refuse and burnt, and spread on the ground. Pits are dug until the marl is reached, and thrown out and distributed over the surface, and ultimately mixed with the bog by the spade or plough. Ditches are dug as deep as is consistent with the security of an outlet. Tile drains laid 2 feet deep in the ground empty their contents in the ditches. The absence of sufficient fall in the latter is the greatest obstacle with which the cultivator has to contend. During the operation of ditch-making, several stumps of trees, as well as now and then a trunk, are come in contact with. The wood, in one case that of an Oak, which we examined was as hard as ebony; it laid across the ditch, and must at one time have been 12 feet below the surface. Those who undertake to instruct us as to the cultivation of vegetables often are at some trouble to describe the particular soil most suitable for each kind, a useless kind of information, gardens being as a rule not composed of more than one sort of soil. For instance, I have seen excellent crops of Strawberries growing on land into which a walking stick might be thrust at any time up to the handle; again on bog land we find Onions growing two successive seasons, and the last crop decidedly the best. Few cultivators have any conception of the capabilities of such soil for vegetable culture. Potatoes are generally the first, second, and even third crop; Turnips, summer Cabbages, and Celery follow, some of them such crops as have not been produced on land selected by the most skilful cultivator.

Celery, it would appear, is likely to be an important crop for bog land, not being particular as to soil. Plenty of moisture and manure are what it requires, a fact demonstrated by its being sometimes grown in little else. The seed is sown the first week in March in frames, and pricked out when the plants are sufficiently large to safely

handle. The final planting is done on the surface, the trench system, for obvious reasons, being abandoned. The manure, too, is confined to the surface, and as the rows are 6 feet apart, the roots have plenty of space in which to travel. To dig trenches and plant in them would be placing the roots in a cold, wet, and otherwise unfavourable situation. Surface planting, indeed, should receive more attention than it does in most gardens, especially in the case of the latest crops. Had we not adopted this plan we would be badly off for Celery during February and March, during such seasons as the two last have been. I have seen trenches dug 18 inches deep and little more in width than that of the spade. Six inches or so of manure have been put in and covered over, or dug in with the subsoil, which is usually the worst material. Under such circumstances, unless the ground had been recently trenched, the sides of the trenches are in most soils impenetrable by the roots, even if their quality was inviting. The Celery grows well enough until its roots have filled the trench; after that its growth is slow instead of rapid. The Celery grower on bog land has no occasion to water; he can earth up at any time provided he has two or three dry days, and the Celery when dug comes out as clean as if it had been washed, and free from slug bites or other blemishes. Growers on heavy soils often experience a difficulty in earthing Celery. The soil is either wet and sticky, or hard and lumpy. In very dry weather we have even had to water the soil so as to render it workable with a fork, and enable us to add a few inches of mould to pack round the Celery heads, the banking up having to be done with soil in still worse condition, so stiff and tenacious is our clayey soil. Even when tolerably well pulverised, then there is no comparison between the appearance of our crops and those produced on bog land.

Best show Celery.—Someone asked in THE GARDEN a short time ago which was the best variety to grow for show. The following as well as many others have been amongst the prize-takers, viz., Ivery's Nonsuch, Major Clarke's, Leicester Red, Sandringham Dwarf White, Incomparable Dwarf White, and Wright's Giant White, kinds, however, scarcely known in the neighbourhood of Preston. Two or three growers save their own seed which may or may not be identical with that of recognised kinds. The greatest weight that I have heard of has been attained by Troughton's Ne Plus Ultra or White Prizetaker, as most growers call it, and the heaviest weight recorded is 10½ lbs. Celery grown in this part of the country enjoys perfect immunity from the ravages of the Celery fly (*Tephritis onopordinis*), of which I have had sad experience, notably a few miles from London. The plants have even been attacked before they were planted in the open ground. W. P. R.

EDGING TILES.

I HAVE made many kitchen garden edgings with bricks and tiles, but the best I ever made was with blue-black Staffordshire bricks made for the purpose; they are 10 inches long, 7 inches deep, and 3½ inches thick, bevelled at the top, with holes in the ends to admit small pieces of galvanised wire about 3-16ths of an inch thick to hold them together. I took out the soil to the required depth, and rammed it well down to get something like a solid bottom; then I laid the bricks down to the line, inserting the wire in each, so that when I got to the end of the walk my edging appeared like one solid piece. I well rammed in the soil against it on one side, and black engine cinders on the walk side, thus fixing the bricks firmly. I then gave their tops a coat of tar, and there they are now, neat, clean, and durable; the cost, exclusive of labour, was 6d. per yard. Another good plan is as follows: I got some Staffordshire rough, hard bricks, about 27s. to 30s. per 1000; took out a trench as before, put one brick flat at the bottom, then another on the top upon its edge. I bedded the top one in a little mortar mixed with cement. Any ordinary gardener can do this, but I had a

bricklayer. I forget the cost now, as it is some twenty years ago since I did it. I know the first cost was much less than that of the former plan, but then I was within a few miles of the brickfields. The advantage as regards the first plan is the fact of the bricks being all tied together, so that by digging or wheeling you cannot well break or displace single bricks. I may mention that if "E. L. M." resides near the Staffordshire blue brick-makers, he would be enabled to get the bricks which I speak of much cheaper than the price just given. RUSTIC.

SOME NEW POTATOES.

IT is satisfactory to find that the useful work done by the committee of the International Potato Show at Chiswick last year is, with the assent of the council of the Royal Horticultural Society, to be continued this summer. Already a considerable number of new seedling Potatoes have been sent there for growth under Mr. Barron's care. Last year some thirty or more kinds were grown for the inspection of the committee, all being of home origin, and of these only two or three were esteemed good enough to receive certificates of merit, so severe was the test to which all were subjected. This consisted of two inspections at a month's interval of lifting and judging as to cropping qualities, distinctness, freedom from disease, general value, and finally testing table quality by careful cooking. If after this samples were put on the exhibition table that were handsome or at least meritorious, then a certificate was granted, but not before. It need hardly be said that could such a test as this have been applied earlier, many indifferent kinds of Potatoes might never have got into commerce. It may be said that after all this is but work which the fruit committee has performed at Chiswick in years past, but it is obvious that the fruit committee, consisting, as it does, of persons not one of whom perhaps possesses any considerable practical knowledge of Potatoes, cannot have, in the estimation of Potato growers and traders, that prestige which is enjoyed by the executive committee of the International Potato Show, all the members of which have made the Potato a special study, and are from long experience more familiar with its kinds and their characters than perhaps any other body of men in the kingdom. There is a determined effort being made to keep back inferior kinds, and specially to give the prestige of the International Potato Show only to such new sorts as shall fully merit the honours they may secure. Of course it is not possible to govern the entrance into commerce of all new kinds, as some, and possibly meritorious ones, may not be sent to Chiswick. Still the public may some day come to ask whether such a kind has gone through the Chiswick ordeal, and if it has not, to conclude that its raiser has not that confidence in its qualities which is desirable. Of

New kinds which came before the committee last year Pride of the Market has been put into commerce, the raiser having a large stock. This, though a capital late Potato, was thought to be too much alike to Magnum Bonum (as indeed were several others) to be worthy a special honour, yet the raiser has confidence in its distinctiveness as a valuable late Potato, and certainly let it resemble Magnum Bonum ever so much in other respects it is very superior in table quality. One other kind, Alderman, a large, flat, white kidney, a seedling from the Early Rose and Early Market, also put into commerce this season, received the highest number of marks at Chiswick, but failed to secure a certificate because it was not shown at the Crystal Palace. It will probably make a reputation as a good garden variety. Several kinds will probably be tested again this year, but raisers will do well not to send kinds that bear striking resemblances to other and well-known kinds except they possess some very special and valuable improvements. Of other new sorts put into commerce this year, Standwell, a robust late white kidney, is a seedling from the Vicar of Laleham and Woodstock Kidney, and in addition to having what so many like, a rough, netted skin, certainly has flesh of the finest quality. It proved last year to be of

disease-resisting power and a great cropper. Only one American kind, Vermont Champion, seems to have been put into commerce here this season, and that is a white sort and spoken of highly. It seems evident that the popularity of

The American sorts, once so great, is now decaying, for in the trade the demand for many once famous kinds is now poor—the Potato-growing public, finding that fine new sorts of home rearing are coming in, seem to claim for them a preference. Lady Truscott, certificated at the Crystal Palace in 1881, a capital flat round white kind, is now in commerce, as is also Favourite, likewise a white round, but of which nothing further is yet known. The list of new kinds or varieties put into commerce this season is a small one so far, and it is difficult to make it complete, but if any are fearful that we are in danger of being flooded with new kinds, at least they may take heart for the present year, as the number is few. Of sorts put into commerce last year several have proved to be first-class kinds, and will make popular reputations; of these, Cosmopolitan is one of the best white kidneys in cultivation. Prizetaker, pale red in colour, is of superb table quality, and is a great acquisition to the coloured kidney class. Fifty-fold is a first-rate round kind of white skin, and excellent table quality; and of coloured rounds, one of the very best and handsomest of the section is Reading Russet. In the previous year there was put into commerce under the name of Surprise, a handsome flat white round kind, very like Porter's Excelsior, but larger and of far better table quality. This has since had its name altered to First and Best, and is, without doubt, one of the handsomest and finest show white rounds we have. Queen of the Valley proved last year to be a large, flattish, pink-skinned kind, a great cropper, and producing handsome tubers; its quality is of the true American type, as is that of Adirondack, another coloured American, handsome, and a great cropper. America has given us so many coloured kinds, that it is a relief to find that the only one of that country put into commerce this year has a white skin. Duke of Albany is a white Beauty of Hebron, very early, and a great cropper. Early Cluster, Early Border, Premier, and Victor are white kinds with dwarf tops, admirably suited for pots, frames, or early borders, and are all of capital quality. A. D.

SOWING VEGETABLE SEED UNDER GLASS.

Of late years I have adopted the plan of sowing under glass seeds of many kinds of vegetables that require to be transplanted in preference to the more general practice of sowing on sheltered borders or in the open. For this purpose any old lights or rough frames, to which I have previously alluded, are available, and I know of no better use to put them to. Raising plants in this manner may entail a little extra labour; but, admitting this, it is yet, for several reasons, much the most satisfactory and economical practice. In the first place a much less quantity of seeds than will suffice in the open may be sown, as the little warmth assures germination in the case of many old or imperfectly ripened seeds, which would perish if committed to a cold soil. Then, again, birds and slugs are very destructive among seedlings of the Brassica tribe, and though we may to a certain extent guard against the former by coating the seeds with red lead, or by soaking for a short time in paraffin, it is only partially preventive in the case of birds, and will not affect the slugs in the least. Last season small birds were not so very troublesome; but slugs were simply irresistible, and had we not anticipated them by sowing the seeds under glass, we should have fared badly for plants of various winter vegetables.

Not only did we sow seeds as usual of such kinds as Veitch's Early Forcing, Erfurt Mammoth, Eclipse, and Autumn Giant Cauliflowers; Snow's, Veitch's Autumn, Osborn's White, and Leamington Broccoli; Brussels Sprouts; Ellam's and Reading All-Heart Cabbages; Black-seeded Bath Cos, good strains of Paris White Cos, and Early Paris Market Lettuces, and Parsley under glass; but it proved

absolutely necessary to sow similarly the later kinds of Broccoli, Savoys, and Kales. Twice were these latter sown in the open, but do what we would in the shape of trapping or destroying the slugs, the weather was all in favour of these pests and they cleared all before them. This season slugs give promise of again being very abundant, and though we use quicklime unsparingly and intend keeping a number of young ducks in the garden, as has been our practice in previous years, we shall again sow both early and late varieties under glass.

For the former several shallow hotbeds are formed; these are about 2 feet high at the back and rather less in front. The heating material, being previously well prepared, is soon in a condition to receive the soil, and of this we employ about 6 inches of light sandy mould, obtained by sifting over the heap old potting soil. From this the seedlings can be drawn without much injury to their delicate roots. We have no particular date for sowing, everything depending upon circumstances. Last season the seeds were sown late in January; this year they will be a month later and still be early enough. They are sown broadcast and rather thinly, are pressed into the soil with the back of a spade, and are then lightly covered with more of the fine soil. The soil is generally moist enough, but if dry it is watered through a roset pot prior to sowing the seeds, and this is found sufficient till the seedlings are in rough leaf. Air is freely given to the young seedlings, and on warm days the lights are drawn off. They are gradually hardened off, and as soon as safe in this respect the lights are dispensed with. Early in April the required number are pricked out on a west border in rather light soil and about 4 inches apart each way. By the end of May all the first batch are transplanted to their final position with good balls of soil attached. In this manner they move without flagging greatly, and are, therefore, less liable to be preyed upon by slugs, besides being well established before hot, dry weather may reasonably be anticipated.

A successional sowing is made on a warm border early in March, and in this case the seeds are protected and the soil warmed by the aid of lights supported on bricks. This batch includes Leamington, Cooling's Matchless, Veitch's Spring White, White Cape, and Osborn's Broccoli; Autumn Giant and Erfurt Mammoth Cauliflowers; Little Pixie and Dwarf Ulm Savoys; and Kales of sorts. I have no doubt I shall be correct in also adding Gilbert's Chou de Burghley to this and the previous list, as it evidently requires several months to grow it to perfection. The plants in every instance will be pricked out, and later on transplanted when the ground is at liberty or the weather is favourable. Late varieties, such as Cattell's Eclipse, Sutton's Late Queen, Model, Miller's Dwarf Late White, Ledsham's Late White, and Carter's Champion Late White Broccoli are sown at the beginning and again at the end of May. The last sowing of Savoys, such as Dwarf Ulm and Drumhead, and Brussels Sprouts which sometimes prove very servicable when planted late, is generally made early in May. I have a decided objection to mixtures, and for this reason find it advisable to sow the above seeds myself, and I take care to properly separate the many sorts that are similar in appearance. Strips of wood are employed for this purpose, but in the case of Cauliflowers and Broccoli in frames, these can be divided by Sprouts, Lettuces, or Cabbages. It is only in comparatively large gardens where it is necessary or rather advisable to sow in frames or hotbeds. Those in charge of smaller places are advised to sow a few seeds of the earliest kinds thinly in pans, and dispose these near the glass in a warm frame, or on the shelf of a house, and otherwise treat the plants resulting as advised in the case of larger sowings. Successional sowings may be made in boxes, these being covered with strips of glass, and set under a warm wall; while the later sowings may be treated similarly or sown on an open border, and, if the season necessitates it, be covered with spare lights or hand-lights. W. J. M.

New way with Potatoes.—I have been a very successful grower of fluke Potatoes, and as my method has a feature of peculiarity in it, I am induced to ask you to give me space for making it publicly known. The peculiarity in my process consists in my using no manure, commonly so called, but placing in the bottom of the trenches in which the Potatoes are planted a mixture of dry coal ashes and recently slaked lime, two-thirds of the former and one-third of the latter, from 4 inches to 6 inches in thickness. In other respects my Potatoes are treated in the ordinary way, unless I may name, as an exception, that I allow more room for growth than most persons I believe do, for I plant not less than 3 feet distant from row to row, and from 20 inches to 2 feet apart in the row. My Potatoes thus planted have produced in each of three successive years a remarkably large crop of excellent flavour, nearly, I may say practically, free from disease. Thus grown, my flukes, too, have not had attached to them the stringy substance which often forms a part of the substance of the fluke. What renders my success the more remarkable is that the soil in which the Potatoes were planted is of a close, clayey nature, unfriendly to the growth of Potatoes when cultivated in the usual manner. The plot of ground planted by me has been the same from year to year, and comprises nearly half-an-acre. I may mention that in the same ground I have planted and treated a few Magnum Bonums in the same way, but this kind of Potato seems to be nearly disease-proof wherever grown; their flavour is poor at all times, but I think it improves when they are grown as I grow the flukes. I have planted flukes in preference to every other kind of Potato, because when they can be had of prime quality, like those I produce, my opinion is they are for the use of the table the most valuable of all the Potato tribe. —G. B. BROCK, *Bryn Syfi, Swansea.*

INDOOR GARDEN.

THE CHRYSANTHEMUM AND ITS CULTURE.

WILL you allow me, an amateur, to supplement "F. W. B.'s" account of the Chrysanthemum by a record of the way in which I grow mine? I am one who considers it to be a gardener's duty to help Nature to do that which she would not otherwise do, and, therefore, I protest against the cramping system of Chrysanthemum culture now in force. I also dislike the practice of removing all but the crown buds. I hold that Nature is capable of doing more than we are aware of, and therefore I allow some of my plants to have their own way, and large plants that will carry, say, a hundred flowers must be more than one year old. I take the best plants after blooming, cut them down, and put them in a cold frame safe from frost and cold winds. If obliged to put them out of the frame before frost has broken up, I carefully protect them. I stop all plants that are likely to grow strong while they are in the pots in which they have bloomed, and about the middle of March, if the weather is favourable, I shift them into their blooming pots, taking care not to stop them after they are thus repotted, and in this way I get strong plants. I may here state that I have a plant which I have grown on in this manner for six successive years, and during the last four it has borne no fewer than three hundred and forty blooms. I have another which I have grown these four years, and last year it had over 200 blooms on it. I find that there are several varieties which succeed well under this treatment: in fact, I believe the most of them would do so; the only drawback I experience is want of room. I feel sure that those who have at command large cold structures, with plenty of light and little heat, might have Chrysanthemums say 7 feet in circumference; such plants, when in full flower, would have a grand appearance. The Chrysanthemum, I find, does not want a large quantity of soil. In order to show this I may state that one of the

plants I have mentioned, a white flowering one, bore eighty blooms one year when repotted, whereas the following year it had 120 blooms on it when not repotted, and the individual blooms were better than in the previous year, plainly showing that Chrysanthemums, like other plants, can be over-potted.

Soil and potting.—I pot my plants in a mixture of good loam, leaf mould, rotten manure, and a little sand; but let me say there is a possibility of growing wood at the expense of flowers, and that although Chrysanthemums are gross feeders they may be fed too much. When that is the case, instead of the wood being ripe and well hardened by autumn, it is anything but that, and so I would say, if any of your readers are inclined to try plants year after year, they must avoid putting them in too large pots. After being put in their blooming pots I allow them to remain without manure water till they have become well rooted; in fact, I believe they would be as well without such help till their buds begin to show themselves, and then give it till the flowers are fully expanded. I do not agree with the plan of withholding manure water as soon as the flowers show colour, as many do; if withheld, then the flowers experience too great a check. Some recommend giving manure water as often as twice a day. I give my plants manure water if they require it every other day. I use guano; but allow me to state that although I use it as a stimulant to all kinds of plants, Peas, Celery, and Roses, as well as Chrysanthemums, I have only used in six years 15s. worth, and we have plants under glass which have been fed with it ranging from 1 foot to 14 feet in height and as much in circumference. At a glance one may see that our Chrysanthemums have not been over-fed. Now as regards the

Flower buds. I take off those which I know will never come to anything, but I never remove a bud that will make a flower. Last year we had blooms over 15 inches in circumference, although the buds were never thinned at all. It is bad practice to take off the buds so much as is done. The secret of having good blooms is well ripened wood and never stopping the plants after they are in their flowering pots. I do not mean to say that those who take nearly all the buds off their plants do not get the finest blooms for the purposes of exhibition; but which is best—about four good blooms on a plant, or a hundred or more? If a fine display is the object in view, a large plant is best; and if economy is studied, it is also best, as it takes up less time and labour than cramping and disbudbing. My mode of growth may, however, not please everybody; but I would like to see the day when those who have the management of our Chrysanthemum exhibitions would discourage the cramping system and favour, as much as possible, natural modes of growth.

JOHN HARDING.

Bedford.

BULBS AFTER HAVING BEEN FORCED.

ALL experienced cultivators know that it is not possible to force such bulbs as Hyacinths and Narcissi in a satisfactory manner after the first year, but that is no reason why they should not receive some attention after they have done flowering, in order to assist them to retain their strength for other uses. Very much of their future value depends upon how they are managed after they have done flowering. Too often they are roughly treated by being brought into the open air from conservatories and other warm houses, and set about in cold, draughty corners during cutting March winds, with very little care as to the state of the soil in which they are growing. I do not assert that even the most painstaking treatment after they have flowered will make them the second year equal to what they were the first, but if well cared for now they will flower the second year fairly well.

The proper treatment after they have done flowering is to give them the shelter of a cold pit or frame or corner in a cool Peach house, where

they can come under the eye sometimes, in order to make sure that they do not suffer from want of water. The right treatment may be described in a few words, viz., keep the roots well supplied with water, and take care that the leaves are not injured in any way, as flowering next year depends mainly on the condition of the leaves while maturing the bulbs. If the leaves are seriously injured or thoughtlessly cut off, the future condition of the bulb will be impaired. In the case of Hyacinths and Narcissi, directly the blossoms have faded the flower-spike should be cut off. If I had my choice in selecting a suitable place in which to ripen off the bulbs, I should select a cold pit or frame in which there was a bed of rich soil about 15 inches from the glass. As the bulbs go out of flower I should cut off the flower-spike, turn the plants out of their pots, and remove the principal part of the drainage. I would then plant them carefully with the ball of earth intact in the bed of soil in the frame; then by careful watering and shading from very bright sunshine, they would soon root into the bed, and in due time ripen a well matured bulb. I have tried various expedients in dealing with Hyacinths after flowering, but I have found none to answer so well as frame treatment. When planted in beds or borders such roots flower the next year in a very satisfactory manner.

J. C. C.

BLINDS FOR PLANT HOUSES.

As this is the time of year when people will (like your correspondent, p. 213) be seeking for information respecting blinds for plant houses, a few words on the subject generally may not be out of place. The chief mistake lies in selecting materials so close in texture that they half shut out the light, which together with heat, moisture, and air, combined with a root-run of suitable soil, is essential to the well-being of plants of most kinds. Everyone who begins to garden seems to have an intuitive knowledge that all of these, except light, must not be stinted if success is to be attained. But amongst many even of those who might be expected to know better the need of all the light we can give to ninety-nine out of a hundred of the plants in cultivation seems not to be fully understood. No further evidence of this is needed than the fact of so many using fixed shading, put on in the spring and let to remain until autumn through the untold number of days when we never see the face of the sun at all, and the many hours, morning and evening, even in bright weather, when every ray of unobstructed light is little enough. Smearing the glass with whitening, lime, or similar substances all tend in the same direction, and though largely employed, are makeshifts to effect that which with so much more advantage to the plants can be done by the use of movable shading. The thickness of the material that is required to a very great extent depends on the position the house stands in; the plants in a house either span-roofed or lean-to that stands full side to the south will bear blinds of a little closer material than if the ends stood north and south, for the obvious reason that in the former position the sun at noon, when most powerful, strikes the glass when the sash-bars or rafters offer the least obstruction to it.

For most things the thin material is best that goes under the name of gauze canvas or scrim, composed of hard-twisted threads like fine wire, not woven close. There is much difference in the quality; the right stuff is all flax, but there is a deal made of half jute or more than half; these last will not wear near so long as the former. A thick inferior canvas composed of uneven, lumpy threads, too closely woven, is often sold as scrim, but although lower in price is much dearer in the end, independent of its shutting out too much light. The blinds should by all means be on the outside of the roof. The way to work such blinds is now pretty well known, but for the information of those who may be unacquainted with it I may mention the best method of arranging them. One side of the blinds must be tacked to a 3-inch wide lath temporarily screwed on up to the ridge of the house, with a

deal roller 2½ inches in diameter, to which the opposite side of the blind must be in like manner tacked; this roller requires to be furnished at one end with a reel, 7 inches or 8 inches in diameter, so as to take a cord that will work it up and down, something like the drop scenes on the stage of a theatre. The roller must be a little longer than the house to admit of the reel running clear of the roof.

In making all blinds of this description it should be borne in mind that the threads of which they are composed that run lengthways, that is, the warp, are much stronger and more durable than the crossway threads, that is, the weft; for this reason, in cutting them out the material should run up from eave to ridge, not lengthways from end to end of the house. This will make a year's difference in the length of time they will last. To fully carry out the intention of movable shading it is needless to say that the blinds should always be rolled up when the sun is not so powerful or directly shining on the glass as to endanger the plants.

T. BAINES.

ROOF HEATING.

I HAVE waited to see if Mr. Cannell himself would reply to "W. C. T.'s" questions (p. 77), and though I doubt not that "Peregrine" is quite able to answer "A. D." if he chooses, I venture for one to refer thereto, as the latter's remarks (p. 198) tend to make confusion worse confounded. "Peregrine" said the principle was that of placing the fire, not the boiler, at the top instead of bottom of a chimney. This is what would be being done if all the pipes were above the body to be heated, and practical experience alike with scientific teaching would quickly show the folly of it, while "A. D." would be one of the first to denounce its practical application at home if his sitting-room fire was above his head. There is no clashing whatever between science and experience at Mr. Cannell's, nor are all preconceived notions (if scientific) set at defiance, but, on the contrary, confirmed. It is more a question of the amount of ventilation or movement of air that may be required in these houses than anything else. Science, like practice, teaches that if an opening is made in the upper part of a room and the air inside is hotter than the outside, the hot air will rush out, while cool air will come tumbling in unless there is an opening below at which the cold air can be drawn in sufficient quantity to let the upper opening be an outlet only. The coldest air lies ordinarily along the floor, and we build walls there to keep out the cold. In winter the cold penetrates the thin glass, causing condensation of the moisture within, and the cold air also falls in at the laps by its own weight to the ground, and so the whole atmosphere becomes about equal. Warm the pipes near the roof only, and no perceptible difference takes place, but warm the lower pipes alone and an upward current is created and must ascend, whether precisely columnar or as a shapeless body is immaterial. That motion is infinitesimal or rapid according to the degree of heat in the pipes and the facility with which cold air is drawn in, whether from laps above or openings below.

If the cold air comes in mostly from above, it will find its way down the sloping roof to the sides and on to the plants, the heated air below the stages, if made close, being drawn out next the path, and rising to the ridge or highest point without benefit to the plants on the stages. If the stages are of open laths, the warm air rises through the openings and among the foliage. Mr. Cannell's stages are, I believe, all close, and if so, and he has no bottom ventilators (the houses joining together without any spaces between), this simple thing alone will show why a 2-inch pipe part way up the roof is of great advantage. The lower 4-inch pipes are, I suppose, near the side walls, and there will be a small space between the edge of the stages and the outer walls. The bottom pipes heat all the air below, setting it in motion, while the hotter roof pipe draws this air up along the walls and across the plants in its endeavours to escape above, which it does, there being sufficient current created to force it out at the ventilators provided

for that purpose. This is all scientific, and what practical experience also proves to be correct. But there are no top ventilators at Mr. Cannell's, I shall be told; this I deny, for what is every lap of the glass but a ventilator, and the most effective ones, as a rule, all the year round in every house. Let Mr. Cannell or anyone else glaze his roofs with one long pane of very thick glass, or putty up all the laps for three months and then report on the Pelargoniums; or let "A. D." place two 4-inch pipes in the roof and none below the stage, "creating motion" with a vengeance by drawing all the cold lower air across the plants, and then watch the results in the case of Primulas. On the other hand, increase the heat in the lower pipes, use open lath stages, and as good results will be obtained as now, especially if there are some openings lower than in the roof.

In "A. D.'s" previous remarks (p. 146) he says it is in "the drying of the air more than in the heating" that success is to be found. This may be so (I am not a cultivator); but is the air really drier? for I believe the amount of moisture in the house will be the same with the same heat, whether from top or bottom pipes. In the steeper pitch, certainly, the moisture will be drawn off more rapidly with the surplus warmth near the ridge. One of the reasons why moist houses for Orchids, &c., are made with a low pitch of roof is, that moisture cannot escape so readily, and it will also help to account for much injury from damp and want of ventilation in vineries with flat roofs. There is less drip where there is top heat, because the glass itself becomes warmed, and so the moisture is not condensed thereon, as it would be with greater heat below and a cold surface above. No erroneous speculations, therefore, are necessary to account for Mr. Cannell's success; but whether he has, or has not, arrived at his practice by scientific calculation, he will succeed only so far as his practice is scientific, for the laws of nature cannot be entirely changed, though often adapted or forced for a time out of their usual mode of application. One word as to the roof pipe being a return pipe; it may seem so, but in practice its water must be hotter than the lower pipes, and therefore it is a flow pipe until it begins to fall from its highest point; if it was a cool return pipe it would have no effect one way or the other on the movement of air in the house.

33, Highgate Road. B. W. WARHURST.

SHELVING, OR STAGES FOR PLANT STOVES.

I SHOULD by no means advise "Eucharis" (p. 213) to use wood for this purpose, for although its first cost is much less than flags or slates, it is immeasurably more costly in the end. I have seen deal of fair quality completely rotten in four or five years in a moist stove. If your correspondent is in a neighbourhood where flags are cheap these will be the best to use, stood on brick piers, allowing an inch cavity between the outer wall and the stage. Slate slabs are neater, but are no more lasting. A strip of iron should be fixed lengthways back and front of the stage, standing up about 2 inches above the surface of the flags to hold the material with which they should be covered, such as sand, fine ashes, or something of a like description that will hold moisture for the plants to stand on. This is of the greatest use to the plants, as it counteracts the dry, ungenial heat that is ever rising from the pipes. Where these side stages are not too wide, say not more than 2 feet, I have used strong roofing slates which may be had in some places above double the thickness of the ordinary kind employed for roofs. These supported on iron strips resting lengthways on the brick piers, and laid so as to over-lap each other, will hold the ashes or sand equally well as the flags or slate-slabs and cost less. Where appearance is an object these side stages can be supported with iron Γ -shaped, one end let in to the outer wall, the other acting as the leg standing on the floor. If there are 9 inches or 1 foot between the top of the hot-water pipes and the under side of such a stage as is here named, it will do; the material

mentioned to go on the top will prevent any ill effects from the heat that rises off the pipes. The less wood used in plant stoves, or other description of houses where heat is employed, the better; and for all kinds of glasshouses, cold or hot, the all but general use of ordinary deal is as great a mistake as could well be committed. Pitch Pine, which costs no more per foot, will last three times as long.

As to the plants for growing in such a house, a fair portion of which will give flowers in the winter, they may consist of *Sericographis Ghiesbreghtii*, *Stephanotis floribunda*, trained on the roof; *Toxicophlæa Thunbergii*, *Tabernaemontana coronaria* fl.-pl., *Dipladenia boliviensis*, trained on the roof; *Begonia insignis*, *B. fuchsoides*, *B. Ingrami*, *Æschynanthus grandiflorus*, *Æ. splendens*, *Allamanda Chelonii*, trained on the roof; *Anthurium Scherzerianum*, *A. Andreanum*, *Aphelandra aurantiaca* Roezli, *Hoya bella*, *Bougainvillea glabra*, *Euphorbia jacquiniæflora*, *Gardenia intermedia*, *G. citriodora*, *Eranthemum pulchellum*, *Gesneras*, *Gloxinias*, *Achimenes*, *Jasminum gracillimum*, *Plumbago rosea*, *Poinsettia pulcherrima*, *Scutellaria Mocciniana*, *Clerodendron fragrans*, *Eucharis amazonica*, and *E. candida*. Many others there are that will succeed in an ordinary stove, but for the quantity of flowers they will yield, and their suitability for cutting, the above selection may be relied on. T. BAINES.

STEVENSONIA GRANDIFOLIA.

IN THE GARDEN of the 24th instant an interesting account is given of the Herrenhausen Botanic Garden and Palm house, and special notice is taken of some of its inmates, one of which is *Stevensonia grandifolia*. As the account of this Palm is not quite correct, I submit the following extract from my "History of the Palms grown at Kew from the origin of the garden in 1760 to the year of my retirement, 1864": "*Stevensonia grandifolia* was discovered on Round Island, one of the Seychelles group, by Mr. J. Duncan, director of the Mauritius Botanic Gardens. It was growing in wet, marshy places. In 1855 he sent three seedling plants of it to Kew under the name of *Stevensonia grandifolia*, in compliment to the then Governor of the Mauritius, who favoured his botanical excursions to the different islands. In 1857 Mr. Wendland, director of the Royal Gardens, Herrenhausen, visited Kew, and was anxious to obtain a plant of this rare Palm. I had marked one of the plants for him, and on taking him to the nursery pit to show it to him, the plant was not to be found. This led to a strict inquiry, and it was discovered that it had been stolen by a German gardener then employed in the Garden, and sent by him to a nurseryman in Belgium. It afterwards appeared in a private garden at Berlin, and some years ago I heard that it had grown to be a fine plant. Mr. Wendland, being a writer on Palms, set aside the name *Stevensonia* and substituted for it *Pheniceophorium*, which means the stolen Palm, and which, I consider, he was not justified in doing; moreover, it was a very undignified name to give such a noble Palm, founded on such an ignoble circumstance. In 1864 the leaves of the other two plants had attained a height of 8 feet and a breadth of 4 feet, nearly entire, strong and rigid, having every appearance of, in a few years, becoming conspicuous plants." In the autumn of 1864 I, however, learned that through some untoward event they had both died. J. SMITH (ex-Curator).

Royal Gardens, Kew.

Saundersonia aurantiaca.—"B.'s" method of culture (p. 180) is certainly rational, but, judging from my own experience, I should think that anyone could grow the plant if they had but a frame to give it a little protection. The bulbs should be potted in March—six in a comparatively small pot, provided with a bit of drainage consisting of small pieces of charcoal. After well watering, the pots should be placed in the frame and kept airy and moderately moist. The bulbs will push, according to the weather, in the course

of from 14 days to 3 weeks and will have made nice growth towards the end of April, when they should be carefully taken out of the pot, leaving the ball of earth unbroken, and plunged in somewhat loose soil at the foot of a south wall. They will soon grow into fine plants and flower well. In autumn, when the leaves begin to turn yellow they ought to be protected from excess of moisture; the ripe roots should be taken up by October and stored in dry earth in some cool, airy, frost-free place. —MAX LEICHTLIN, *Baden-Baden*.

Rare Begonias.—"M. P. F." (p. 191) will most likely find the *Begonias* desired procurable either at Messrs. Veitch's or Mr. Bull's nurseries. The demand for such kinds as he names is so small as to make mention of them in catalogues uncalled for. The species alluded to are useful winter-flowering plants with noble foliage. At Kew there are many fine species of *Begonia* with which one rarely meets elsewhere, but which are well worthy of cultivation generally. I have made a few notes on some of the more desirable of these, and intend to say a word or two on the subject shortly.—B.

Dipladenias.—In answer to your correspondent allow me to say that *Dipladenias* when done flowering should be put into a cool house for about two months to rest in a temperature of about 45°. Give them a very little water; after they have had a good rest bring them into the stove to make wood. Syringe them well to induce them to break. After the shoots are about 3 inches or 4 inches long, train them on strings up to the roof. Thus treated, they should show flower at every fourth joint. When in flower, as much light and sunshine as possible should be admitted; no shading whatever should be given.—THOS. WM. BIRKENSHAW, *Christ Church, Doncaster*.

Blue Paris Daisy.—Many have bought this thinking they had got something new, but when unpacked it has proved to be their old friend *Agathæa cœlestis*, a pretty plant enough, but no Paris Daisy. I have no wish to decry the merits of this or any other good old plant, and am doing my best to popularise and bring back some of the nearly forgotten plants of my boyhood; but let us have things under their generally accepted names. If people have bought the blue Paris Daisy as something new, and have found on arrival that they have only been adding to their stock a plant of which they already had plenty, is it to be wondered at if they feel disappointed?—J. G., *Hants*.

A new Bomarea.—At the meeting of the National and Central Horticultural Society of France on the 25th of January last M. Edouard André showed for the first time in flower a new variety of this handsome family of trailing *Amaryllids* discovered by him in 1876 in New Grenada, and to which he had given the name of *Bomarea Kalbreyeri*. From the description of this plant given in the last number of the *Paris Revue Horticole*, in which periodical a coloured portrait of it will shortly be given, it most closely resembles the beautiful *B. conferta* recently figured in one of the coloured plates of THE GARDEN. When the coloured plate of *B. Kalbreyeri* appears we shall be able to compare them and see in what points they differ, as the flowers of the new-comer are thus far only described as of a very fine red colour.—W. E. G.

Juncus zebrinus.—I wonder how many of the readers of THE GARDEN who possess this plant have made the same mistake as I did with regard to its culture. To me most plants have a something in their appearance which suggests either cool or warm or intermediate treatment and plenty of water, or not much. Gardening instinct, perhaps some would call it, and therefore irrational, or, at most, a rather unsafe rule to be guided by. I looked upon this handsome Rush as a delicate plant that would like warmth and not too much water, but found that treated as such it was by no means happy, but began to dwindle away. A friend suggested that as it was a Rush it

might like plenty of water, and being also a Japanese plant, out-of-door treatment in summer might prove most agreeable to it. I acted on this suggestion, and found my plants soon showed signs of improvement under the altered conditions, so that the treatment I would now recommend for this plant is an open, rich soil, and placed with its pot half submerged in water either in an outdoor tank or a pan, with plenty of sunshine. During winter it should be protected from frost, but never dried off, not even taken out of the water. Under this treatment my plant is thriving, and I hope to have a fine specimen this year.—B.

Trichinium Manglesi.—Last year our plants of this were a great success, flowering freely and bearing along with the flowers fine healthy leaves. I attribute this to the effects of cow manure, of which in a fresh dried state I used one part to one of loam, with a good sprinkling of sand—a strong mixture, some will say, for a plant which Nature planted in the dry, sandy, sun-scorched deserts of Australia. "The proof of the pudding, &c.," applies in this case, and I would recommend growers of the *Trichinium* to use cow manure if they wish to make success certain. I have just repotted my plants, and found on shaking them out an abundance of healthy thick roots, some of which were taken off and cut up into lengths of 1 inch for cuttings. These will give us a large stock.—B.

TREES AND SHRUBS.

TRANSPLANTING TREES AND SHRUBS.

IN order to do this work well one requires an intimate knowledge of the special and distinctive characters of trees and shrubs as regards habit, size, colour, height, &c., and it is necessary, moreover, that soil and situation also be taken into consideration. My purpose now, however, is not so much to describe what should be planted in this or that position as to direct attention to the best methods of doing the work and the proper season at which it should be done. In all kinds of ordinary soils generally the best time for planting is considered to be, for deciduous trees and shrubs, the autumn and early spring months, and for evergreen trees and shrubs autumn, winter, and spring. Summer planting is not carried out to any great extent, neither is it considered judicious. No doubt there are many potent reasons why this should be so. One has an objection to see the pleasure grounds in a state of confusion consequent upon planting operations at that time of the year; there is also the liability of the roots becoming dried in transit, as, for instance, from a nursery, and the risk attendant upon delay, the scarcity of water, &c.; with care, however, these are preventable causes. Let us first consider the question of

Season. I am of opinion that in some soils transplanting may be done successfully throughout the whole year; in others autumn, winter, and spring are the best periods; whilst in the summer months and in certain soils the operation is more successful than at any other season of the year. The soils in which transplanting may be successfully carried on at all times of the year are those which are black, rich, and friable and rich deep mellow loams. Those which are preferable for autumn, winter, and spring planting are those which are warm, light, gravelly, sandy, and well drained, whilst in heavy wet clay the maximum of success will be attained in summer. This will, on reflection, I think, appear to be perfectly reasonable and natural, the desideratum being to maintain the roots in a healthy condition, heal up the mutilated parts and induce new growth as soon as possible. The conditions of soils and seasons mentioned above will materially tend to produce such results. The following are the results of experience of planting in various soils and at different periods of the year. Conifers, including *Abies canadensis*, *Douglasi*, *Cedrus Deodara*, *Liliani*, *atlantica*, *Cupressus Lawsoniana*, *Picea nobilis*, *Nordmanniana*, *Pinus austriaca*, *sylvestris*,

and *Thuja*, in rich black soils and deep mellow loams.—Summer, 2 per cent. died; autumn, winter, and spring, 1 per cent. died. In sandy, gravelly, and light warm soils.—Summer, 28 per cent. died; autumn, winter, and spring, 6 per cent. died. In heavy and wet clays.—Summer, none died; autumn, winter, and spring, 30 per cent. died. It will thus be seen that in heavy and wet clays summer planting was highly successful. The trees transplanted were from 8 feet to 20 feet high, and many had made growth from 4 inches to 12 inches in length; every one was moved with balls of earth varying from a quarter to one ton in weight; an average of a cartload of good soil was put round the roots of each, all were mulched with well rotted manure, and an occasional soaking of water given. These trees showed no signs of suffering in either colour or quantity of foliage; indeed, many benefited by the change, and all are in a most promising condition. The reason of success is perhaps not far to seek, the earth being in a warm and moist state, and therefore in a condition most conducive to root formation and nourishment; dull, warm weather is best suited to the operation.

Planting in winter, it will be remarked, was a partial failure, and should in all cases be avoided wherever it is desired to move valuable trees; in this instance the soil being cold and wet was therefore not suited to produce new roots. The feeding points rotted, the roots decayed, and no new roots were formed; the whole became attacked as by a contagious disease, and total inaction took place. This was followed by the stems becoming affected, rendering the sap putrid, in which state trees are soon preyed upon by insects, causing certain death. The cause of all this is coldness, excessive moisture, the imperviousness of the soil to air and the dormant state of the sap, which soon becomes incapable of performing its functions. Well drained, sandy, gravelly, and light soils are best suited for planting in autumn, winter, and spring, for the very good reason that they are warmer, better aerated, and not liable to become excessively dry as in summer. These soils contain but a small percentage of vegetable constituents and without the aid of moisture in moderate quantities are incapable of producing the necessary nourishment for the formation of rootlets, and consequently are unable to maintain the trees in a growing condition. In summer these soils are too hot and dry for the purpose of transplanting; the roots wither and perish, the foliage becomes deteriorated, a general disorganisation takes place, and even should the trees live, they take some years before they regain their normal condition and become thoroughly re-established. Soils of this description are unsuitable to transplant from, the roots being generally less fibrous, and by reason of their want of adhesiveness it is almost impossible to maintain a ball of earth intact, which is so necessary for success in transplanting trees. I am acquainted with no soils where mulching is so absolutely essential as with these; indeed, periodical mulching is necessary in order to maintain healthy trees and the foliage of good colour; mulching will likewise maintain the necessary degree of moisture.

In rich black soils and mellow loams the operation of transplanting may be carried on with success at all times of the year, assuming that ordinary care is taken in respect of drainage in winter and watering in summer; at other times the work may be done with an impunity almost amounting to carelessness. These soils contain the necessary constituents in the largest quantity and best possible condition for the food of trees; they are never excessively hot or dry, cold or wet, and are therefore practically in exactly the right condition—that which is most favourable for the formation of healthy roots and the supply of the best food necessary for their maintenance. Trees move well from such soils; the roots are usually more fibrous, and the earth clings tightly to them. Mulching is not absolutely necessary; nevertheless trees are benefited thereby, especially the first year after transplanting.

Shrubs.—With regard to shrubs, whether evergreen or deciduous, the difficulty is by no means so great as the transplanting of trees, except when they are very large, in which case the above remarks apply equally to them. The majority of shrubs are very fibrous rooted, and, therefore, in the best possible condition for transplantation, being much more tenacious of life than trees. Many of them, too, have a tendency to make new roots from the stem in the manner of cuttings. The necessity for large quantities of sap is not so great as with trees; there is no specially leading shoot to maintain, without which trees often lose their conformation, and are sometimes useless for the purpose for which they are intended, as, for instance, let us suppose an *Araucaria* without a leader. There are, however, several considerations which are necessary to be taken into account in transplanting shrubs. Thus, it would not be wise to transplant such shrubs as *Rhododendrons* and others of that class, which form their flower-buds at the point of a young shoot until they are perfectly ripened. Such a course would, in all probability, result in sacrificing the bloom for the ensuing season. Neither would it be judicious to move during the summer such shrubs as have tender and attenuated foliage, nor those with long, flexible, herbaceous shoots of very weak texture. We have instances of these in the sometimes tender shoots of the *Portugal Laurel* and the long ones of the *Tamarix*. The ordinary result of moving these in summer is that their shoots become blackened by heat, and, as a consequence, are unsightly. Most of those shrubs with strong ligneous shoots and coriaceous foliage move well at this season. Instances of these are some of the *Privets*, *Berberis*, and *Holly*. Shrubs of this class which generally ripen their foliage quickly and well and become, for the time being, deciduous are sure to succeed, throwing out strong shoots in the autumn. This is especially the case with the *Holly*, which often loses the whole of its foliage—a sure sign that new roots are being formed and that the new growth will be strong and healthy. Another important consideration is the time of flowering. Many shrubs which flower in early spring may be safely moved in summer, whilst it is better to move those which flower late in spring, summer, or autumn in winter and spring, that is, move as soon as reasonable after flowering and as long before the next blooming period as practical; by so doing the plants become thoroughly established before the strain of the flowering season comes upon them, and, be it remembered, this will very much enhance the blooms. Amongst the first may be mentioned *Daphnes*, *Ledums*, *Forsythias*, *Ribes*, and *Berberis*. The latter class are so numerous as not to need mentioning. Shrubs are sometimes "shy" of flowering; these should be moved at once without considering the season in order to induce them to make totally new growth. Under these circumstances they seldom fail to produce flowers. The causes which operate in preventing shrubs from flowering are that they may be soil-bound, or even in generally well drained soils they may have water at the roots, arising from an under-current; their roots may have decayed without, whilst those within may be struggling for moisture and nourishment, in which case they should be root pruned and thoroughly shaken out before transplanting. A cold clay under good soil will sometimes have the same effect, the remedy for which is deep trenching, lifting the shrubs, and cutting away the lower roots.

Soils for shrubs.—With respect to soils, shrubs generally speak in not particular; they will thrive in all kinds provided they are open, free from stagnant water, and have a moderate amount of nourishment in them. True, it is that some varieties grow luxuriantly in light and sandy soils, whilst others thrive best in peat and black vegetable deposits, and so forth. This, however, does not in a general sense apply to the general collection. Types of the first are the smaller *Conifers*, *Heaths*, and *Hollies*, whilst of the second the types are *Rhododendrons*, *Kalmias*, and nearly all American plants, many of these will also do well in rich loams. Hot, dry soils are

the most injurious, by reason of the surface roots which many vigorous shrubs make becoming exposed to heat and drought. This is especially the cause with Laurels, Lilacs, Privets, and Spiræas, as anyone who has used the fork or spade amongst shrubberies cannot have failed to have noticed—a most reprehensible practice, by the way, except in the vicinity of populous towns, where the surface of the ground becomes coated with a substance of an oily, sooty nature impervious to air. Liberal mulchings and an occasional soaking of water are the best remedies for such soils; dressing with road drift and vegetable soil is also extremely useful. Cold, wet, and heavy clays are most benefited by deep draining and trenching. Of all soils these are perhaps the most unpropitious and troublesome. For complete success constant dressings of light and gritty materials are absolutely necessary. No opportunity should be lost, which in country places is frequent enough, of gathering up all the scrapings and cuttings from the public roads, first giving a dressing round the plants, and ultimately covering the whole ground. In such soils deep planting should be specially avoided, air being essential for the roots to perform their functions properly. Occasional mulching is also beneficial, and should invariably be put on in summer, when the surface of the ground is liable to become hard. Winter is not so suitable for the purpose, as the drier and more airy the surface is the better for the plants.

Rich black soils and mellow loams are best for all ordinary purposes, and with the addition of peat and sand may be made suitable for every known tree or shrub. Planting in such soils is most simple, as the most careless planter will generally meet with success. Should soils of this description become impoverished from any cause, as, for instance, the rapid and luxuriant growth of shrubs, or, in consequence of their vicinity to large trees and hedgerows, the most desirable kinds of surface dressing are well-rotted manure and leaf-mould. In these soils the least disturbance at the roots the better it will be for the shrubs. If the ground is properly trenched before planting, no further care will be necessary in the majority of instances for very many years, except the keeping down of weeds for the first two or three years. Although the practice of pruning shrubs indiscriminately is most injudicious and destroys their distinctive characters and individuality, in rich soils the pruning knife may in some cases be used freely; this would be the case with shrubs which are desired to produce the maximum quantity of flowers, and which would produce an abundance of foliage only unless they were pruned and thinned out. Overcrowding in rich soils should be especially avoided, being both injurious and unnecessary. Planting of nursery stuff should be done as expeditiously as possible after being received, and the same rule applies when transplanting. The practice of laying in by the heels, as it is termed, and allowing trees and shrubs to remain so for any length of time, is not advisable, the effect being that they are compelled to make new roots a second time when once would be more advantageous to them. It is not desirable to plant two or three shrubs together in order to make a mass at once, one well developed shrub being in every way better than two or more startlings.

E. D.

Mistletoe Oaks.—I note in THE GARDEN (p. 157) allusion made to a Mistletoe Oak two miles from Cheltenham, but in what direction from that town we are not informed. There used, however, to be a Mistletoe Oak on the Charlton Park estate, which is only a mile from Cheltenham on the Bath Road. In and around Cheltenham Mistletoe is abundant in Apple orchards, and it is also frequently found on the Black Italian Poplar. One instance I know in which two fine bunches are located on a handsome Sycamore, a tree, so far as my own experience goes, on which it is seldom found. I also know an instance where a solitary bunch is to be found on the Medlar. On the Whitethorn it is frequently found, and I once enjoyed the sight of a charming bunch of it

associated with the scarlet berries of that Thorn. Mistletoe is readily increased by rubbing the berries to and fro on the places which they are intended to occupy. First break the skin, and after that, owing to the glutinous matter encompassing the seeds, they may readily be fixed. Be careful, however, that they be not too much exposed, as they are liable to be washed from their positions by heavy rains.—E. JENKINS.

The Chili Pine.—I have sent specimens of seed cones that have this winter appeared for the first time upon a very large and beautiful *Araucaria imbricata* growing in the gardens at Ballynetray, Co. Waterford, the residence of the Hon. Charles and Mrs. More Smyth. This tree was planted where it now stands about fifty years ago, and the following are its dimensions just taken, viz., height, 65 feet 6 inches; circumference, 75 feet 8 inches; length of branches from trunk, 17 feet; girth of trunk at 2 feet from the ground, 6 feet. This *Araucaria* is most regular in shape and richly furnished with long and graceful branches sweeping down to the ground. The singular looking seed cones which appeared last November grow in clusters of two or three on the ends of the branches and shoots. There are, therefore, some hundreds of them on the tree and they add much to its unique appearance. For many years this *Araucaria* has been the admiration of all beholders from its noble size and beautiful form.—PUZZLE MONKEY.

A new hybrid Thorn (*Cratægus Carrièrei*).—The first number of the *Revue Horticole* for March gives a beautifully and delicately executed plate of the above named charming addition to our hardy shrubberies, which is now being sent out by the well-known French nurseryman, M. Baltet, of Troyes. It was raised by M. E. A. Carrière, when head of the propagating department of the Paris Museum of Natural History, from a seed of *Cratægus mexicana*, and is said to be extremely hardy, the severe winter of 1879-80 having left it entirely uninjured. It is valuable for its handsome bunches of large white flowers with conspicuous red-tipped anthers, produced freely about the middle of May, for the bronzy copper red tints assumed by its foliage in autumn, and for its handsome and brilliantly coloured berries resembling in colour those of the common *Arbutus*, but of a somewhat brighter hue. All these points are clearly set forth in the plate, half of which was painted in spring and half in autumn.—W. E. G.

QUESTIONS.

Cost of plant carriage.—Can anyone give me any idea of the cost of carriage from Baden-Baden for plants too large to come by post? Has anyone had plants from there by the Continental Parcels Express? Any information will greatly oblige.—MARCH.

Apples shrivelling.—Will some of your readers kindly give me their opinion on the following point? All my Blenheim Orange Apples of last year began to shrivel about Christmas. It could not have been that they were gathered too early, for nearly a third of the crop had fallen before I gathered the rest. These were hand gathered and placed at once in an airy cellar. Can anyone suggest a reason for their shrivelling? and could it have been that they were left too long on the trees?—E.

Unpruned Pear trees.—Early in January last I planted several pyramid Pear trees. As they were late put in, I thought it better not to prune them. They consequently have strong shoots of last year's growth, some of them several feet in length. These are in some cases (especially in that of Duchesse d'Angoulême) furnished with flower-buds at the extremities. What, let me ask of your readers, is the right way in which to treat these trees?—EWELEME.

* * * Our readers will greatly oblige by replying, so far as their knowledge and observation permit, to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

PLANTS IN FLOWER.

THE FRAGRANT HONEYSUCKLES now in bloom are *Lonicera fragrantissima* and *Standishi*, distinct species, though in aspect somewhat similar. Both flower before the new leaves unfold, and both have small clusters of deliciously fragrant white blossoms produced in pairs on slender stalks. Neither are very showy, but for the sake of their sweet scent they are worth growing in the garden, especially if a small space against the walls of the house can be afforded them, though perfectly hardy enough to do without protection. Both are now in full bloom with Mr. Joseph Stevens at Byfleet, where we saw them a few days since.

RHODODENDRON PRÆCOX SUPERBUM is an extremely handsome hardy shrub, the more valuable on account of its flowering so profusely and so early. It has flowers 2 inches across, and the colour, a soft mauve, is very telling *en masse*. In each of Mr. Wilson's gardens at Weybridge it has for some weeks past been a beautiful object, so attractive when other flowers are scarce. Those who desire a pretty early shrub should make a note of this. Among other shrubs in flower in this garden are *Erica codonodes*, alluded to in THE GARDEN last week. Here it reaches 4 feet in height, and the long slender branches are covered with myriads of tiny blossoms. It evidently likes a little shelter. *Erica carnea*, now pretty common, is also attractive here.

SPIRÆA THUNBERGI.—The most elegant shrub now in flower in Mr. Stevens' shrub garden at Byfleet is this neat little Japanese species. It grows about a yard high, is very twiggy and spreads widely. Each twig is now furnished with numerous tiny flowers as white as snow, and they are accompanied by tender green leaves, which unfold about the same time as the flower-buds. Such an attractive shrub as this is, flowering so long before its congeners, is worth knowing. It is a free grower in good soil, but hates being stuck in a thick mixture of shrubs. If given a good open place it will be a pleasing object in early spring. Some grow it well in pots under glass, where it blooms twice as freely as out-of-doors, and comes much earlier.

THE PRIMROSES in the Oakwood Garden, Wisley, are now, a sight worth a long journey to see. For some years Mr. G. F. Wilson has turned his attention to raising and improving the Primrose, but it was not till he began gardening on his new ground at Wisley that he carried it out so extensively. His plan is to raise seedlings on a large scale and then select from them the finest, and so by these successive selections he has obtained an extremely fine strain. The seeds from the finest sorts are sown broadcast in beds of two or three square yards, and invariably the seedlings come up thick enough to cover the whole space. When in flower the best are singled out and planted in special beds. The seed saved from this selection is again sown as before, assortment made, and so on year after year, the result being the present richly coloured and large flowered varieties. The greatest break as regards colour is the blue variety named Scott Wilson, which was shown and certificated a few years ago. This is the nearest approach to a true blue yet obtained, and probably the slightly purple shade of the blue will eventually be removed. It is a beautiful flower, different from all the Primroses we know. As in the case of other fine varieties, it does not come true from seed, though some singularly fine seedlings have been obtained from it, but none exactly like it. Hence it has to be propagated by division, and Mr. Paul, of Waltham Cross, who possesses the stock, is, we observed the other day, making good progress in its propagation. Another fine variety is Hermann Wilson. It is quite different from the preceding, and is remarkable for large symmetrical flowers of a peculiarly rich velvety crimson, shaded with a paler tint. The bright golden centre is a fine contrast to the dark colour. The unnamed seedlings also include some striking kinds, which probably will be considered good enough to perpetuate. The strain of yellow

flowered sorts is an equally fine one, the shades varying from an intense yellow to pure white. Large size in the pip, clearness of colour, and a symmetrical, even-edged flower are the points aimed at in selection, and perfection seems to be well-nigh attained. A fine sight is a long belt of yellow sorts planted in a border skirting a hedge of the Myrobalan Cherry, which by the way is a capital hedge shrub. Mr. Wilson distinguished the Primroses of the Polyanthus type by the name of Bunch Primroses—a very good name. No less remarkable than the coloured Primroses is the collection of *Primula denticulata* and its endless varieties. This may be seen by the thousand here, and all being of seedling origin there is a remarkable diversity of colour in the flowers, there being every intermediate shade from a deep purple to white. Those who see such an assemblage of seedlings as here would hesitate giving specific rank to such forms of *P. denticulata* as *cashmeriana*, *pulcherrima*, and the like, for their counterparts may be singled out of a bed of seedlings of *P. denticulata*.

HARDY CYCLAMENS.—There could scarcely be anything more charming in the way of hardy plants than these sturdy little gems, of which some are now in full beauty of flower. The finest display we have ever seen of *C. Atkinsi*, *vernum*, and *Coum* is in Messrs. Barr & Son's grounds at Tooting. Here these kinds may be seen by the hundred, each plant being furnished with numerous tiny flowers. In *Atkinsi* they are white with a purple mouth, in the variety *roseum* a clear rose, and in *rubrum* a rich reddish crimson. The varieties of *C. Coum* are of similar colours. The difference between these two kinds may be seen at a glance in the foliage. In *C. Coum* the leaves are a deep green, while those of *Atkinsi* are marked with a silvery zone. This collection is grown in pots and protected in a cold frame, for which the plants seem grateful. They are, however, perfectly hardy, and during the week we have seen some fine tufts of them flowering beautifully in the open, notably in Mr. Wilson's garden at Heatherbank, Weybridge, where some are in an ordinary peaty border, others nestling in sheltered nooks at the base of a rookery, where they have been planted for years. No doubt such a position is best for the plants, which incur no trouble, save protecting them from the attacks of vermin.

NEW ZEALAND CLEMATIS.—Next to Camellias this beautiful climbing plant is the chief attraction in Mr. W. Paul's nursery at Waltham Cross. It is certainly lovely, and only needs to be seen to be appreciated. Its handsome shining green foliage contrasts effectively with the large, starry white blossoms, borne in abundance in clusters all along the young shoots. The flowers measure nearly 3 inches across, and so plentiful, that the plant is literally a sheet of white. There are two forms of this plant, and both may be seen here in flower. The typical *C. indivisa* is at once recognised by the leaflets having their edges quite entire, while the leaflets of the variety *lobata* have their edges deeply incised, a marked and invariable distinction. The name *lobata* is often attached to the type, as the variety is much the rarest. There seems to be not much difference in the size or number of the blooms. No one need hesitate to plant such a beautiful plant as this in a cool conservatory, and the fact that it habitually flowers in the early part of the year renders it all the more valuable. It seems to be somewhat partial to a shady position; on the other hand, we have seen fine specimens of it grown in full light. In Mr. Paul's nursery it is grown admirably in pots in a cool, shady greenhouse trained to upright stakes. It looks best when adorning a rafter of a house or hiding an upright pillar.

THE GLORY OF THE SNOW, as *Chionodoxa Lucilæ* is called, may now be seen in perfection in Mr. Ware's nursery at Tottenham. Here it fills spacious beds containing thousands of plants all in bloom, and their effect, as may be imagined, is extremely beautiful. No hardy flower of spring possesses such a glowing blue colour, and the white centres of the flowers add greatly to their beauty. Now that this charming bulbous plant can be pro-

cured at a cheap rate, there is no reason why it should not adorn every garden. It was figured in colour in *THE GARDEN*, Vol. XVIII., p. 12, and also the white variety of it, which is extremely scarce.]

CHRYSANTHEMUM CRY KANG.—Some excellent blooms of this Japanese variety are sent us by Mr. Wilson, from Longford Hall, Newark, who considers it a valuable late Chrysanthemum. The flowers are large, the florets long and narrow, collected in shaggy heads, and the colour is deep rose-purple, paler towards the tips. The specimens sent have four and five flowers on a stem.

FORTUNE'S YELLOW ROSE.—Some excellent blooms of this beautiful Rose have been sent to us by Mr. McClure, gardener at Hartley Grange, Winchfield, who says, "Those who do not grow Fortune's Rose deprive themselves of a great treat at this time of the year," and assuredly he is right; it is a charming Rose, different from any other with which we are acquainted. The flowers sent are three parts expanded and good in shape. The outer petals are a sort of tawny yellow, while the inner are flesh-coloured. It is, in short, a flower much to be desired, and, as Mr. McClure says, not half enough known, though an old introduction. Perhaps Mr. McClure will kindly tell us how he treats this Rose in order to get it into flower so early.

SCILLA TAURICA is indisputably the finest of all the vernal Squills, not even excepting the popular *S. sibirica*. It is no doubt a variety of *S. bifolia*, but it is larger and more robust than the finest variety of that Squill. The bulb is as large as a pigeon's egg, and the whole plant when well grown is just about a foot high. Like *S. bifolia*, the flowers are produced in pairs, but are longer and wider. The flower-spike carries on the average about fifteen flowers, each of which is three-quarters of an inch across and of a rich cœrulean blue. The reddish stalk is also a well marked character of this variety. There are two or three forms of it, but all are beautiful. Some remarkably fine specimens of it are now in full beauty in the Hale Farm Nursery, Tottenham, but the finest form as regards richness of colour we have yet seen was in Mr. Wilson's garden at Oakwood, Wisley. The tint of the blooms of these plants was intensely deep, but probably it could be accounted for by the clear, pure atmosphere there. One great point in the Taurian Squill is that it can be easily grown, while *S. bifolia* often fails.

PLANTS IN FLOWER AT BELGROVE.—We learn from Mr. Gumbleton that he has now blooming for the second time in his greenhouse, the handsome *Hæmanthus insignis* var. *superbus* from the Cape, differing from *H. insignis*, as figured in the *Botanical Magazine*, 1879, tab. 4745, in having dull red instead of green involucre, which are also much shorter and less developed, and in the brighter orange of its stamens with yellow anthers, in which the beauty of the flower consists. It is a very handsome variety. He states that he shall also bloom soon for the first time satisfactorily the blue-flowered *Lachenalia*, *L. atropurpurea*, which did not grow at all last year, though potted as usual, the bulb remaining quite dormant, apparently taking a rest. It is now, however, sending up a fine stout bloom spike. Mr. Gumbleton states that he had this very rare variety from Messrs. Henderson, of Pine-apple Nursery. The pretty little miniature *Narcissus juncifolius* is also now nicely in flower at Belgrove in a pot in the greenhouse, fifteen of sixteen spikes (three or four of which bear two flowers each) being borne by a dozen bulbs, which apparently like being taken out of earth and kept quite dry in a box during the summer and autumn months, and being reported about November, like *N. Bulbocodium*.

Prizes for early Peas.—I take much interest in Pea culture, and have tried myself both frame and outdoor culture on a warm border, and found the difference in the time of arriving at maturity so little as to make the growing of Peas in sods in frames not worth the trouble and

time involved. I want to ask (*vide* p. 192) what is the best test constituting an early Pea. Can competitors grow them how they like? or must they be grown in the open ground? I am trying an experiment this season with small quantities of Earliest of All and Earlier than the Earliest, grown both ways as above stated, and shall tell you the result later on.—W. J. M., *Clonmel*.

Soil for Anemones.—So far as my observation goes garden Anemones succeed best in comparatively light well drained soils. They are left in such soils all the year round, and seldom receive any attention beyond giving them a mulching of some kind. I have seen them flourishing in this neighbourhood by the sides of walls and houses in all aspects except north ones, and in open situations as well, all being alike thriving and flowering remarkably well. In some cases here the Anemone ground is covered during summer with ordinary bedding plants, such as *Pelargoniums*, which before autumn meet and cover the ground. Yet these do not injure the Anemones. The soil in this neighbourhood is generally black and comparatively open in texture, with a good admixture of stones in it, and it rests on gravel or sand. With us the case is different; we have made several attempts at establishing them, but hitherto without any good results, although, as we suppose, we have given them the best situation in the garden, viz., a comparatively high terrace on the south-west side of the mansion. Our soil, a strong rich loam resting on clay, seldom suffers from drought.—C. W., *Clarendon*.

CATALOGUES RECEIVED.

J. Hunter's (Chester) Agricultural Seeds.
Little & Ballantyne's (Carlisle) Farm Seeds, &c.
S. Shepperson's (Belper) Florist's Flowers, Seeds, &c.
J. R. & A. Murdoch's (Pittsburgh) Plants, Trees, and Seeds.
F. J. Hubert's (Guernsey) Flower and Agricultural Seeds.
J. Dickson & Sons' (Chester) Agricultural Seeds.
Vilmorin-Andrieux & Co. (Paris) Tree and Shrub Seeds.
J. Dickson & Sons' (Edinburgh) Agricultural Seeds.
S. Yates' (Manchester) Vegetable and Flower Seeds.
Pringle & Horsford's (Vermont) North American Plants and Seeds.
Harrison & Sons' (Leicester) Garden Seeds.
Little & Ballantyne's (Carlisle) Spring Seed List.
W. Paul & Son's (Paisley) Pansies, Pinks, and Dahlias.
Stevens & Co.'s (Torbay) Paint Company's Catalogue.
B. Pounsett (Wallingford) Vegetable, Flower, and Agricultural Seeds.
Cranston Company's (King's Acre, Hereford) Trade List of New Roses.
Lawson Seed and Nursery Company's (Edinburgh) Agricultural Seed List.
S. W. Seagrove (Sheffield) Vegetable and Flower Seeds.
Webb's (Wordsley, Stourbridge) Annual Catalogue of Farm Seeds.
J. Linden's (Ghent) Special Catalogue of Orchids.
Wrinch & Sons' (Ipswich) Illustrated Catalogue of Horticultural Buildings.
Backhouse & Son's (York) Hardy Perennial and Alpine Plants.
Names of plants.—*J. Hunter*.—1, Croton variety, cannot name from a scrap of leaf; 2, *Hebeclinium ianthinum*.—*C. M. O.*—*Andromeda floribunda*.—*F. Caute*.—1, *Acacia longifolia*; 2, species of *Acacia*; 3, *A. Farnesiana*.—*J. G. K.*—1, *Dendrobium Wardianum*; 2, *D. formosum*; 3, *D. Freemani*; 4, species of *Cheilanthes*.—*F. P.*—*Anemone fulgens* fl. pl.—*Mrs. J. S.*—*Limnathes Douglasi*.—*D. P.*—*Anemone fulgens* fl. pl., not uncommon in this country. A. coronaria may be at once recognised by the much divided bracts on the flower stalk.—*W. H. T.*—Heath is *Erica herbacea carnea*, other shrub is *Polygala Chamæbuxus*.—*G. G.*—Please send again; the specimens have been overlooked.—*T. A.*—1, *Celsia Arcturus*; 2, *Santolina viridis*.—*Bray*.—*Erica herbacea carnea*.

COMMUNICATIONS RECEIVED.

Brookhurst.—S. D.—J. W. S.—A. B.—A. K.—J. D.—J. V.—W. I. M.—J. A.—T. W. C.—R. T.—C. M. O.—C. (next week).—T. B.—F. W. B.—F. S. W.—W. M. (next week).—J. H. E.—H. H. C.—A. R.—C. W. D.—F. W. B.—J. G.—Vitia.—G. D.—A. D.—J. B. (next week).—A. B.—B.—T. A. B. C.—E. H.—R. I. L.—A. F. B.—T. H.—O. L.—H. P.—Alpha.—B.—W. E. G.—W. B. & Son.

No. 591 SATURDAY, MARCH 17, 1883. Vol. XXIII.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

ROSE GARDEN.

THE STORM AMONG THE ROSES.

WHATEVER may follow afterwards, the 6th and 7th of March will long be remembered among rosarians for their harshness and severity. The cold came with but little warning. Monday, the 5th, was almost summerlike in its sunny warmth, though in the shade there seemed a dash of iciness in the air. Next morning dawned with 7° of frost and a nor-easter of tremendous force that threatened to blast every green leaflet on Roses or other plants, and in fact it has done so in exposed situations. We had just finished pruning our Perpetuals, and had begun to uncover and prune our Teas, because the young shoots were boldly peering through the protections. The wind made short work with most of the protection left. It blew with such force against some of our Tea Roses on walls as to sweep off large Spruce boughs as if they had been straws, and for some hours yesterday it was hard work to stand for half an hour against the wind and snow and hailstorms that the Roses have had to endure for the last forty-eight hours. It is too early to write of results. Had I written on the 5th, I would have said that never had I seen Hybrid Perpetual and Tea Roses look better. They were rather forward for the season, but had a strength of bud and a regularity and number of good breaks seldom or never seen in March. Possibly even now the base buds may endure all this terrible harshness and hardness of weather and yet yield fine blooms. But this is somewhat doubtful, for I have observed where Rose buds are not absolutely killed by frost, the effects of it may often be met with in ill-formed and inferior blooms. Buds bitten through their hearts in embryo are mostly injured for life. Much, of course, depends on the stage at which they are injured. The more advanced are not only the more liable to damage, but it is also the more pronounced. Hence it is to be feared there will be a redundancy of inferior Rose blooms during the year. Fortunately, the present severities may not greatly affect the autumnal harvests of beauty; and yet, on the other hand, they may. If these exceptionally harsh winds and deep stinging frosts have seriously crippled the strength and impaired the health of our Roses, as is all too probable, they will hardly sufficiently recover to yield a good autumnal bloom, nor to recoup their vigour before winter.

Not a few of the sudden deaths among Roses, nor a little of that shortness of life that startles and bewilders our rosarians, arise from these sudden and severe frost-bites in the spring. The Roses often seem to break and bloom as if little were the matter with them. But these are but the last spasmodic efforts of enfeebled life, resembling the hectic flush and nervous and muscular energy of consumptive patients before the end of life. But we will try and hope better things for our Roses, and trust that the majority of them may even prove a match for this abnormally cruel weather, and come off conquerors on not a few

fields of contest and of glory next June, July, August, and September.—D. T. FISH.

—The rainfall between October and February was unparalleled; we then had what might be called spring weather; so bright were some of the days in February, that it seemed more like May than the sleety month, but the wind on the 5th inst. veered round to the north, bringing one of the most destructive storms on record. On the 9th we registered here 18° of frost, and the following morning, the 10th, 24°, and some of my neighbours say 28°. The result on vegetation, which was unusually forward, owing to the mildness of the winter months, is something appalling. To-day (14th) we have a partial thaw, with a little rain, interspersed with short gleams of sunshine; this, then, is the opportunity to note the results of such a severe frost. Roses, as is well known, were remarkably forward and full of vigour, many of the old plants being full of new growth, and the maiden buds pushing up with a rapidity that made one think we were in the month of May. Alas, for all our hopes of having a forward season; the cold north-easters have slaughtered all our innocents, and once more the rosarian looks upon his Roses for the coming season in despondency. All our Teas are killed, and many of the tenderer varieties of the Hybrid Perpetual class—that is down to the snow level; thanks for the ever welcome snow for covering our dormant eyes and for sheltering at the most important part our "cut-backs." So far as our observations have led to-day, the results of Saturday morning's frost have been as fatal to Roses as it was in 1880-81; indeed, where not protected by snow or other covering, such sorts as Annie Wood, A. K. Williams, Reynolds Hole, Prince Camille de Rohan, Sultan of Zanzibar, and other popular sorts are as black as one's hat. How Pear and Plum bloom will fare we cannot now say, not having examined other than Roses. Primroses, Hepaticas, and some other spring flowers were out in lovely form, but are drooping as if scalded.—W. H. FRETtingham, *Beeston, Notts.*

PRUNING MARECHAL NIEL.

THOUGH this peerless Rose has almost attained its majority, having been introduced in 1864, its pruning and general culture can hardly be said to be generally understood. The practice of pruning covers the entire distance from the most severe to none. Only the other day, when stating my views on this matter to several gentlemen, a clergyman asserted I was quite wrong about pruning, as he had beaten all his neighbours by pruning the Maréchal back to two buds. Two buds! and how long were his shoots? a yard or more? Well, what about the waste? He had not thought of that; he pruned for big blooms and got them, and that made him advocate a close regimen for Maréchal Niel; the few flowers were enough for him. But most rosarians are bound to have some regard to quantity as well as quality. And it is one of the most valuable characteristics of the Maréchal that both may be had abreast provided the plants are skilfully treated and liberally fed. Individual blooms of the most superb form and full size may be grown on plants that are weighted with enormous crops. And even were it otherwise the majority of cultivators would prefer a dozen, a score, fifty, or a hundred blooms to one were that one to be swollen to the size of a soup plate. Of course there will always be found specialists who will endeavour to concentrate as much golden beauty or riches as possible with as few buds or hoards as may be. But it holds good in Rose growing, as in political economy, that a wider distribution of wealth leads to the greater

happiness of larger numbers. Provided the Maréchal Niel Rose, tree or bush, is strong enough to bear its scores or hundreds of blooms, it seems something akin to sacrilege to slash them off in embryo with the pruning-knife with the hope of having the one or half-dozen blooms develop into enormous size. Unless

For show purposes, the largest flowers of the Maréchal are by no means the best or the most useful. The general run of the blooms or half-opened buds are too large for button-holes, and somewhat heavy for hand bouquets. The more in reason left on each plant the more useful the flowers for such purposes as well as for vases. Hence it is obvious that there is nothing gained, but a good deal of material and usefulness lost by pruning the Maréchal Niel severely merely to develop size of individual blooms. But others cut back buds to prevent exhaustion. As the Maréchal often proves short-lived, it has been too readily taken for granted that the plants have perished from exhaustion, or flowered themselves to death. Nor is this opinion to be wondered at by any who have seen the enormous heads of bloom carried by this Rose. The chief cause of the sudden deaths of Maréchal Niel seems to have nothing in common with exhaustion. The joint swellings or huge warts on the stems either at the point of union with the stock or of divergence of any of the main branches are the chief causes of the sudden destruction of this glorious Rose. These symptoms rather point to an excess than a paucity of strength or food. The Maréchal, if well fed, is capable of carrying an enormous crop of bloom and making good, strong growth simultaneously. While it does the latter it is not likely to succumb to exhaustion through any excess of blooming. Besides, the most reasonable mode of

Pruning Maréchal Niel possesses powerful recuperative powers. It consists in cutting out the blooming shoots so soon as they have finished flowering, and laying in young maiden shoots of equal or greater length to supply their place. As the roots in a good medium and abundantly stimulated with manure are pretty sure to keep pace or even run ahead of the tops, this method virtually provides a fresh blooming Rose every year, though springing from the same stem or root-stock. The time of pruning will vary according to the position and general treatment of the plants; as soon after blooming as possible is a safe rule for the Maréchal either indoors or out. Of course out-of-doors the weather seriously interferes with such matters, and also in seasons such as this violently disturbs the effects of this or any other method of pruning. The first week in March this year some Maréchal Nels on walls were examined. The entire shoots were breaking strongly from base to summit. Most of the latter, notwithstanding slight protection, are now quite blackened. But under glass each would be, as indeed they all are, hastening into bloom. When shoots are left very long, say several yards, it may be desirable to stop them back a little to secure a better and more uniform break right back to their base. But the Maréchal's power of breaking regularly along the whole line of the last season's shoots is unique. Even when left unstopped it is but very seldom that any of the buds refuse to break so as to form fine plants. It would, however, be most interesting to have the opinions and practice of other rosarians on their different modes of pruning this fine Rose, as well as the result of their experience in stopping the young wood and leaving it unstopped. Notwithstanding a few eccentricities, the Maréchal Niel is so profusely proliferous, as to bloom well under various methods of culture. Nevertheless, as its commercial and decorative value probably exceeds that of any other Rose, it would be a matter of great importance to discover the best mode of pruning it so as to produce the most bloom and extend its longevity. D. T. FISH.

Rosa berberifolia.—Mr. Ellacombe is right. My Rose is *R. berberifolia* Hardii, not *berberifolia*, but is yellow with a dark spot. It is probable that "K" referred to this one in his query (p. 151).—J. R. DROOP, *Stamford Hill.*

PLANTS IN FLOWER.

IRIS RETICULATA.—Alluding to this hardy bulbous plant, Sir William Marriott writes: "What a lovely thing this Iris is! Coming into flower at this time of year in the open air, it is worth its weight in gold. It really seems to be one of the few things that like the chalk, and I shall grow quantities of it."

FINELY GROWN LACHENALIA TRICOLOR.—The finest spikes of this bulbous plant we have seen come to us from Mr. Smith's nursery at Guernsey. They are all about a foot in height, and for two-thirds of their length are covered with yellowish green drooping blossoms; on one spike we have counted thirty-four flowers and buds. When grown thus this plant is an uncommonly pretty one, and the red tips to each of the spikes give them a bright appearance. Details of Mr. Smith's mode of cultivating *Lachenalias* appeared in *THE GARDEN* a short time ago.

NOTES FROM CORNWALL.—Our woods are now gay with Primroses, Daffodils, and *Anemone apennina*, and fragrant with Violets. Of Violets we have three distinct colours, blue, white, and a dull purple, the latter more curious than beautiful, but remarkably sweet scented. Among the Primroses there is a wonderful variety of colour, and some with several flowers on a stalk; unfortunately a hail shower has slightly damaged the blooms. The *Anemone* is coming up in patches here, there, and everywhere quite strongly, while the original clump seems to be losing its vigour. Is this usual?—**JOHN C. TALLACK, Prides Place, Padstow.**

HIMALAYAN PRIMROSES.—An attractive and interesting exhibit was made at South Kensington the other day by Mr. Llewellyn, Penllengare. It consisted of a group of varieties of *Primula denticulata*, together with what is considered to be the type, which has pale purple flowers gathered in a large and not very close head. *Cashmeriana* is distinguished by a dense head of deep purple blossoms, and *erosa* by the toothed edged leaves and pale mauve flowers. Some of the varieties have the foliage covered with a yellowish powder, but we are inclined to think that it is not a reliable character at all whereby to distinguish varieties.

RANUNCULUS GRANDIFOLIUS OF LOWE.—Mr. Kingsmill brings us from his garden, at Eastcott a handsome Madeiran Crowfoot, similar to *R. cortusæfolius*. The flower-stem is about 15 inches high, branched and furnished sparsely with hairy sessile leaves. Each branchlet is terminated by about three blossoms, each about 2 inches across, of a bright golden yellow, and shining as if the petals were varnished. Such a handsome plant as this is well worth the protection of a frame during its flowering season, which is always early in spring. Mr. Kingsmill grows it admirably in a cold frame. This species is synonymous with *R. megaphyllus*, now the accepted name.

IMANTOPHYLLUM MINIATUM.—Of this well-known Amaryllidaceous plant there is now in the Royal Exotic Nursery, Chelsea, a grand display of flowering specimens, representing nearly all the varieties in commerce. Between the flowers of the typical form and those of the finest varieties there is indeed a wide difference. In one they are comparatively small, the segments narrow and of a washy orange-red colour; in the fine new varieties the flowers are nearly twice the size, with broad almost overlapping divisions, and the colour is a brilliant orange-red, almost a scarlet. Messrs. Veitch's collection includes about half a dozen named kinds and about as many unnamed varieties and seedlings. One of the finest is *giganteum*, which is remarkable for the enormous trusses of flowers it bears—as many as thirty on one head. The flower is not remarkable for size, but the colour is rich and brilliant. As regards richness of colour, Madame Van Houtte is the finest; it has huge heads of well shaped blossoms; Perfection bears close heads of flowers of a brilliant colour; and maximum has very large

flowers, but the heads are somewhat loose and the colour washy. Some of the seedlings are uncommonly fine, and well worthy of distinctive names. It would be difficult to name brighter or more effective plants than these varieties of *Imantophyllum*, or any so easily cultivated. Moreover, when not in flower they are handsome, for they have huge tufts of elegantly recurved dark evergreen foliage. On the Continent, this *Imantophyllum* receives a deal of attention, and the finest varieties have been produced there. The great desideratum as regards the improvement of this plant is a wider range of colour. If some hybridist could infuse say a crimson, yellow, or scarlet hue in such a useful plant, his work would be much appreciated.

RHODODENDRON JAVANICUM.—We lately saw a fine bush of this now somewhat scarce species in flower in Mr. Rucker's garden at Wandsworth, and were much struck with its beauty. The flowers, which are produced in dense terminal trusses, are each about 2 inches across and of a warm orange, inclining to bluish tint. This plant, we presume, represents the typical form of the species, and if so we think it quite as beautiful as some of the numerous hybrids that have been obtained from it, though perhaps as regards the shape and substance of the flower the hybrids have the best of it. It is satisfactory to find type species of any popular class of plants, for in the eagerness for improved forms they are often annihilated.

PINGICULA CAUDATA.—The more one sees of this plant—undoubtedly the queen of all the Butterworts—the more is one charmed with its beauty, which rivals even that of any Orchid, not even excepting *Masdevallia Lindenii* and *Haryana*, which it much resembles in colour. It is only in a few gardens about London it can be seen. We saw a fine specimen of it a few days ago in Mr. Peacock's garden at Sudbury House, Hammer-smith, where it is grown admirably in company with the cool Orchids. From a dense rosette of thick, fleshy leaves, somewhat resembling an *Echeveria*, it produces from one to three flower-spikes, each about 6 inches high, terminated by a large, broad blossom of the brightest magenta hue, shaded with a deeper or carmine tint. Being a native of Mexico it is almost hardy, but it is best to treat it similarly to cool Orchids.

GUERNSEY DAFFODILS.—From Mr. C. Smith, Caledonia Nursery, Guernsey, come flowers of two extremely handsome varieties of *Narcissus*. One is called *N. cernuus*, but it is different from the variety known about London under that name. It differs in the rim of the crown being much reflexed and deeply and evenly lobed. It is a handsome flower of a uniform creamy white colour, or, in fact, nearly pure white. The petals and sepals are twisted, as in *tortuosus*. The other is a variety of *N. bicolor*, and may be best described as identical with that superb variety *Empress*, except that it is somewhat smaller. The golden yellow crown has a slightly recurved rim, and is much cut and crimped. The sepals are over an inch broad, and, with the slightly narrower petals, are of pale sulphur yellow. So far as we are able to determine, it is identical with *N. bicolor* anceps of Haworth. Its earliness is a great recommendation, for though the Guernsey climate has forwarded it, all the bicolor race flower so much later than others of the *Ajax* section of *Narcissus*.

A NEW EUCHARIS (E. Sanderi).—This new bulbous plant, lately introduced from South America, is entirely distinct from either of the other two species in cultivation, *E. candida* and *E. grandiflora* (*amazonica*), though it much resembles the latter in foliage and habit of growth. The flower-stem, which is stout and erect, carries from five to a dozen flowers each, arranged in an umbel as in the other species. The flowers have a curved tube some 2 inches in length, and the diameter across the perianth is about 2½ inches. The inner segments are ovate, an inch across, while the outer divisions are a third narrower and more pointed. The corona formed by the dilated filaments of the stamens is in this species almost entirely suppressed or rather united to the funnel

shaped tube; hence its great distinguishing character. The stamens are about half as long as the perianth segments, and the style protrudes half an inch beyond the anthers. The whole flower, save the yellowish lines in the tube, is of snowy whiteness and of firm wax-like texture. It is therefore a beautiful flower, and one that will doubtless become as popular as its congeners; it has a pleasant odour, and is said to be very floriferous. It was named by Mr. Baker, of Kew, in compliment to Mr. F. Sander, of St. Albans, who first introduced it. It first flowered at Kew at the close of last year, and is the subject of a coloured illustration in the current number of the *Botanical Magazine*. Some flowers have been sent to us by the Hextable Plant Company, Swanley, who are growing a large importation of it, received, we understand, through Mr. J. O'Brien, collected for him by the late Mr. Chesterton in South America.

TILLANDSIA LINDENI.—Those who wish to grow a few only of Bromeliaceous plants ought certainly to possess this species, one of the best of the whole tribe; indeed, there are few tropical flowers so beautiful in colour. We here speak of what is called the variety *Regeliana* of Linden's *Tillandsia*, the one with blue flowers and green bracts, not the true variety (*vera*) with purple flowers and large pink bracts. Regel's variety has, like the type, a dense tuft of elegantly reflexed leaves, from the middle of which is produced a tall flower-spike clothed with green bracts. On the upper part of the spike the triangular-shaped flowers (2 inches across) are produced, and these are of the richest gentian blue with a large and conspicuous white centre, the two colours blending beautifully together. We saw this plant in great beauty a few days ago in Mr. Rucker's garden at Wandsworth, where Mr. Pilcher grows it admirably in a close, warm stove.

ABUTILON VENOSUM.—Flowers of this extremely handsome species were among the most interesting exhibits at South Kensington on Tuesday last. They were brought by Mr. Green from Sir George Macleay's garden, at Pendell Court, Bletchingley. They are unusually large, being some 3 inches across when fully expanded, bell-shaped, with a long bundle of stamens and styles protruding nearly an inch beyond the corolla. The petals are a reddish yellow, strongly netted and veined with crimson; therefore the blossoms are highly attractive. The pedicels or flower-stalks are nearly 12 inches long, and being slender droop gracefully from the plant, which is a tall, vigorous grower. The leaves are very distinct from most other species, being large and deeply palmate. It is a handsome plant for greenhouse culture. Mr. George, the noted raiser of hybrid *Abutilons*, exhibited on Tuesday last an extensive series of seedling varieties, some of which were similar in colour to *A. venosum*, though it is doubtful if this species has been used in hybridising.

New hybrid Pink.—M. J. Sisley, of Lyons, sends us the following description of a new hardy mule Pink that has been raised by his friend, M. A. Aléatière, at Monplaisir: "To this new hybrid variety I have given the name '1881,' being the year in which I obtained the first plant of this new type. It was obtained from seed taken from a *Mignardise* (a variety of small Pink), crossed by a variety of new Stock Pinks known under the name of *Espoir*. The flower has a strong, yet delicate odour, and is of medium size; the petals are fringed, and of a pinkish lilac colour, darker in summer than in winter. If its form be not quite all that could be desired, the plant at least has the merit of flowering abundantly at all seasons. The flower-stalks become woody, so that they do not rot in houses the same as those of the Stock Pinks. Its culture is the same as that given to all Pinks, but if desirous of obtaining large plants in a short time, it is necessary to cut back each stalk at the base after flowering, that is to say above one, two, or three branches, which will not be long in their turn of giving many buds. This new Pink 1881 will be put in commerce this spring.

COUNTRY SEATS AND GARDENS.

DUPPLIN CASTLE, PERTHSHIRE.

THIS, the seat of the Earl of Kinnoul, has long been famous for the beauty of its site, the extent of its gardens, the length of its approaches, the number of its avenues, the largeness of its woods and plantations, and the richness and variety of its arboreal clothing and furnishing. The castle stands on a sort of plateau in the vale or strath of the Earn, amid some of the richest scenery in Scotland. To the north both castle and grounds are admirably sheltered by dense woods and plantations, while the extensive

Assuredly for many generations the Earl of Kinnoul must have acted on the advice given by the Duke of Argyle to his son John, "Aye be sticking in a tree, mon." And the planting is not yet completed, though Dupplin is without doubt one of the most charming sylvan retreats to be found in Scotland—that land so richly furnished with "brown heath and shaggy wood," as well as so grandly adorned with mountains and enlivened by floods. It is in this enlivenment of floods in which most of the fresh and absorbing interest of Scotch landscape consists. Even the Earn, which seems so soundly asleep in its rich and luxurious bed, made by itself in the lowest depths of Strath Earn, is every now and again thoroughly waked up by

nated with scarlet Thorns on the one side, and on the other with double-flowering Cherries, alternated with Thorns. The Araucarias are dispensed with on the left side, as when they got up their dark and dense masses would shut out or partially hide the charming view of the valley of the Earn. Bold masses of Rhododendrons in clumps are placed between the trees and the road on either side. In spring-tide and early summer, when the trees and Rhododendrons are in bloom, the effect must be peculiarly light and brilliant.

This blaze of colour, somewhat toned down by the dark shadows of the Araucaria, forms a charming interlude to the dense avenue of noble Beeches into which the carriage road plunges. As



Beech avenue at Dupplin Castle.

pleasure grounds sweep away down to the Earn, which occupies the centre of the valley on the southern side. Few demesnes are more favoured with an almost infinite variety of near and distant prospects of the most rich and varied character. The castle itself is surrounded, almost enclosed at some points, with noble trees and choice shrubs and flowers, and the middle distance is filled with still, peaceful sylvan and pastoral scenery, while in the distance the bold ranges of the Grampians may be seen closing in a valley of unique beauty, through which the links of the Earn coil and unwind themselves lazily, like a huge silver serpent travelling with uncertain progress from its lake or loch of superlative beauty, to begin a new and more stirring course among the more impetuous waters of the Tay some miles below Perth. But rich, varied, and satisfying as is the near and distant scenery around Dupplin Castle, the horticultural visitor is more deeply impressed by the number and size of the trees with which it is so richly adorned.

a spate, and the noise of its angry waters fills the valley as they roar down in tumultuous and foaming torrents towards the Tay. It is the same in degree with every burn and brook; as the poet laureate has it, they "chatter, chatter, as they flow, and not seldom scream and roar," on their course to join the brimming river.

But on visiting such domains as Dupplin, assuredly it is not the shagginess, but rather the stateliness and finished grandeur of the woods and the magnificence of individual specimens that fix attention and command admiration. Dupplin Castle is about five miles from Perth, and may be reached by two or more approaches, each distinguished by much variety of interest of outline and prospect, and adorned with a wealth of sylvan beauty. Entering by the east lodge, we pass along a carriage road, combining some of the most recent planting with that of the most famous of the old avenues for which Dupplin has so long been famous. The first part consists of an avenue, 60 feet wide, formed of *Araucaria imbricata*, alter-

it advances towards the castle the contrast is complete between the lightness of the vestibule and the semi-darkness and density of this noble avenue. As we advance we see and pass through a labyrinth of avenues of about equal age. On one point of the road an octagon of avenues converges. The effect is magnificent, and as one looks along first this one and then that in succession with a sort of bewildering admiration the Beech grows in importance and value as an avenue tree, and one wonders that it has been so seldom used for such purposes. And yet it has a massive dignity and a prodigality of grandeur of its own. Its wide-spreading tops afford ample shade at once dense and soothing, while its bold and sturdy stems are as straight as arrows, and well nigh as smooth as alabaster. The time, however, is rather inauspicious for advocating a revival of

Beech tree avenues just when the *Journal of Forestry* has virtually raised the cry of "No more Beeches" in its telling article in one of its latest issues on "Without the Beech." Without the

Beech, indeed! Take that tree out of the demesne of Dupplin and you would rob it of its sylvan beauty. The above authority, however, does justice to the ornamental qualities of the Beech while lamenting the inevitable decline and fall in the area of its cultivation. It remarks, notwithstanding its good qualities, the Beech is apparently doomed if not to gradual extinction, at least to a restriction of its sphere of usefulness. Though it stands alone in its unrivalled sylvicultural qualities, *there is no longer a market for its timber*. Fortunately, the words we have italicised do not furnish potent reasons for or against the planting of avenues. Few of these come to the hammer even in these degenerate times, when neither unique libraries, family paintings, historical papers, or personal articles of *virtu* are spared. Very few of those who have seen the Beeches at Dupplin or at Burnham but would venture to plant a good many for ornamental purposes. A giant Beech, 18 feet in girth a yard from the ground is worth going a good many miles to see; and this is the gigantic size of the biggest Beech at Dupplin, while many more in the various avenues approach a girth of from 14 feet to 16 feet 3 feet from their base. Soon after passing the octagon of Beeches the carriage drive takes a bold curve to the south and the castle is soon reached. This stands on a level plateau of lawn and gravel, that form a sort of secondary base to the house. The castle is a modern building replete with every convenience, and fitted and furnished with great beauty and refined taste. The old castle was burnt down in 1827, but was rebuilt in what the chroniclers justly describe a style of great magnificence. The view from the front door is open, extensive, bold, and rich in the extreme. Fine breadths of turf sweep back in all directions until lost sight of among noble trees. Other carriage roads and avenues are also seen from this commanding point. One ascends the rising ground in a straight line with the front door until lost sight of in a knoll a mile or more distant, which it is proposed to level down to show the line of road and form an avenue all the way till the carriage road joins the road leading over the Tippermuir to Perth.

Another grand avenue of Beeches proceeds from the castle westwards towards the parsonage. About the middle of this is a roundal or huge circle, in which are some very fine trees with a girth of from 12 feet to 16 feet, and near to this is the Beech alley 1000 yards long, consisting of four rows of very fine trees 25 feet between the central rows with a roundal also of Beeches. In the alley or roundal some of the trees are from 14 feet to 16 feet in circumference at 3 feet from their base. Highly distinguished, however, as Dupplin is for its Beeches, it must not be supposed that these exhaust its arboreal wealth; on the contrary, there are few trees that are not well represented either in its avenues, pleasure grounds, or woods and plantations. For example, on the north side of the castle there is a fine

Avenue of Oaks, terminating in a roundal or bold sweep of wide area. This is 25 feet wide, and contains many noble trees averaging from 11 feet to 14 feet in girth a yard from the ground. Yet another noble avenue is furnished with ancient Limes. This prodigality of avenues converging on the castle or on given points, some terminating in lodges, others in roundals, and several also interrupted by the latter, is only the most unique and striking features of the rich and beautiful grounds of Dupplin. It would, however, be a huge mistake to suppose that all the big trees at Dupplin were marshalled into avenues, or swept round in huge circles. No; fine timber abounds in all directions, and in close proximity to the castle giant trees may be stumbled against at almost every step. One of the noblest is a venerable Scotch Fir on the lawn 12 feet in circumference a yard from its base. Silver Firs also abound, ranging from 16 feet to nearly 18 feet in girth, the largest measuring 17 feet 10 inches; and of a group of Spanish Chestnuts near to the flower garden the largest girths 20 feet a yard from the ground, and several others from 16 feet to 18 feet. Several fine specimens of the Atlantic

Cedar girthed from 12 feet to 15 feet. Possibly, however, the greatest arboreal curiosity in these richly furnished grounds is that of a common Spruce just across the dell from the castle on the opposite side of the flower garden. This has a noble central stem with seven subordinate stems, all proceeding from and supported by the central bole, but looking from a distance like one large tree planted round with seven smaller. These subordinate shoots are evidently manifesting the same tendency to travel horizontally and rise again with yet other trunks, as the larger branches of the original bole. So with space and time there is no limit to the possible size that this Spruce may ultimately attain, especially as the original stem and all the subordinate ones are in robust health and full growth. I have seen the black Spruce develop this tendency to multiply stems, but not to the same extent as in this tree at Dupplin, which seems to differ in no way from the common Spruce, except in this singular multiplication of stems or boles. Close to the gardener's cottage, on the banks of the Earn, near to the ruins of the old church, where some of the family are buried, there stands a very fine Walnut tree of great age, and with a circumference of 14 feet a yard from its base.

Such are but a few samples of the ancient arboreal wealth of Dupplin Castle grounds. Fine trees in scores and hundreds abound in all directions. Nor is there any fear of its becoming less rich in noble trees in the future, than in the present. On the contrary, it is likely to be more so. The present Earl of Kinnoul and his late gardener, Mr. Oswald, are and were mighty planters, and the results are seen in groups and single trees of the rarer Coniferae growing up in all directions. Planting is still being prosecuted with such vigour that noble conifers have even, as it were, been helped over the walls of the kitchen garden. The finest *Araucaria imbricata*, over 50 feet high and a model of symmetry, is found in the kitchen garden, and near to this stands a noble specimen of *Cryptomeria japonica*, 40 feet in height; while close by, just outside the garden wall, a noble line of *Cupressus Lawsoniana* forms at once a living screen to shelter and a line of matchless beauty to the kitchen garden. Coniferous and other trees also abound in various directions, while the former have a pinetum all to themselves near to the castle, on the left of the long, straight carriage road already referred to.

The castle stands on the bank of a dell of considerable depth, which adds greatly to the charm and variety of the gardens. The flower garden sweeps up to the base of the building, and at the time of my visit, in the middle of September, was well furnished and still gay with the usual description of plants. From this upper plateau of beauty a balustrade stair leads down to the lower garden, which is occupied by beds of *Rhododendrons* and *Ghent Azaleas*. Most of the beds are filled with varieties of one colour, and the effect of the bold contrast of such masses of scarlet, pink, purple, yellow, and white when in bloom must be rich in the extreme. But I must confess that deep narrow dells profusely furnished with something like a tangled thicket of *Rhododendrons*, *Sweet Bays*, white and yellow *Ghent Azaleas*, &c., as a groundwork, with *Laburnums*, scarlet and other *Thorns*, *Cupressus Lawsoniana*, and other conifers, towering up as starers from the mass of undergrowth, and other trees of a drooping character being added as the bottom of the dell is neared, and above all the quaint bridge and the tiny waterfall that leaps from the brow of the bank with such a dash and sound of freshness, singing a merry tune full of life and motion as it breaks into spray on its way to the brook or burn that carries it down the dell to the Earn—these form a perfect picture and a finished landscape of themselves. Doubtless this dell owes much of its charm to its close proximity to the castle and the more formal flower garden around it. Seldom or never, perhaps, has the unavoidable stiffness of art as seen in architectural lines of massive breadth and great length been more violently contrasted and so subdued and softened

by the flowing grassy slopes, natural foliage and flowers, while the sight and sound of falling water impart a freshness and a life all their own to the landscape. The peculiar Spruce already described is also a prominent feature from this point, while in the background masses of foliage of avenue or other trees are visible. But space would fail to do justice to this charming spot or to the

Flower gardens at Dupplin; suffice it to say that the flowers are by no means confined to this, on the whole, small flower garden; around are enormous quantities of flowers for cutting; old-fashioned herbaceous plants and *Roses* are grown in the kitchen garden. The demand for cut flowers for table, room, and chapel decoration is enormous, and without extraneous sources to draw upon, the flower garden would, indeed, soon be wholly flowerless. Wide flower borders skirt the central walk in the kitchen garden, and *Rose* and flower beds and borders are also found in other parts. In these enormous quantities of *Phloxes*, *Pentstemons*, *Cloves*, *Carnations*, *Pansies*, *Violas*, *Mignonette*, *Zinnias*, *Asters*, *Marguerites*, &c., are grown, while as for *Stocks*, especially the scarlet and white *East Lothian*, they are grown in blocks, *brakes*, or masses in a similar way, and almost to as large an extent as *Carrots*, *Cauliflowers*, or *Cabbages*. These are invaluable for decorative purposes, and the plants are lifted in the autumn and planted in the front borders of newly pruned orchard houses, where they flower throughout the winter and far into the succeeding spring.

The kitchen garden covers an area of about 8 acres, and faces the south in close proximity to the river Earn. It is thoroughly sheltered on the northern and western sides by the woods and plantations and pleasure grounds between it and the castle. It, however, lies fully exposed to the south and to the east, a less welcome aspect. A gentle inclination to the south is the *beau idéal* of a site for a fruit or kitchen garden. At Dupplin, however, the fall is so steep that in cases of sudden and severe storms and heavy thunder showers there must be considerable risk of finding soil, gravel, and seeds or growing crops mixed in a very inconvenient manner. The labour of manuring and of the general cultivation and gathering of the crops must also be considerably increased by the steepness of the site. Still, the soil and situation are evidently favourable for the culture of fruit and the growing of vegetables, and seldom have more promising fruit trees or finer crops been seen than in the kitchen garden at Dupplin. Where all the crops were exceptionally good it may seem invidious to specify any one in particular, though it is only a bare act of justice to Mr. Browning, the able and intelligent gardener, to say here that I had never seen Veitch's Autumn Giant *Cauliflower* so true nor so fine as in these gardens. There was also a full supply of all other vegetables in season. Fruit in the open air was scarce, as in other places, in September, for the failure was general north and south last year. In average fruit seasons, no doubt these fine gardens are equally distinguished for their fine fruit crops as for vegetables, and in any case the supplies from the glass houses are ample and unfailing. Before, however, entering these it may be well to linger a moment to note that here, as in most of the larger kitchen gardens in Scotland, the good old and safe plan prevails of growing large quantities of flowers within the kitchen garden. Here they are safe from the pest of rabbits and other game or vermin, and they form a useful as well as ornamental hedge or screen of beauty to less ornamental, though equally useful, crops. Their presence is not only salutary, but sanitary, where, as in the north, the daily constitutional of the family frequently extend through the kitchen garden. Few things are more distasteful to many than the strong odours of some vegetables, while the slightest approach to decomposition is unwholesome in a very high degree. There is no surer antidote to both nor safer security against the insidious germs of disease that too often follow close on the heels of decomposing vegetable matter than the sweet odour of *Violets*, *Mignonette*, and *Roses*. And hence a cordon of beauty carried

round or through a kitchen garden may often become a panoply of safety as well.

The chief range of fruit houses in Dupplin gardens runs a long way across them near their upper or higher side. The houses are large and numerous, and remarkably well furnished. A good deal of the stone fruit was gathered in September, but it was easy to judge of its probable quantity by the condition of the trees. The crops in the vineries and other houses where the fruit was still hanging were plentiful in quantity and of excellent quality, affording proof at once of the ability and success of Mr. Browning as a fruit grower. There are two Peach houses, one 100 feet long, and the other 60 feet long, each 10 feet wide. Nectarines have a house 50 feet by 10 feet; Plums another a trifle shorter and the same width. There are two fine vineries in this range, one of them 60 feet, and the other 40 feet by 10 feet; these are furnished with a mixed collection of Vines, all in robust health and carrying good crops. In another part of the garden, near to the block of plant houses, are two more vineries, each 48 feet long by 16 feet wide. One of these is devoted to Muscats, and the other to late Grapes, such as Lady Downes and Alicantes. Near these are the Cucumber and Melon houses, each 40 feet by 9 feet, and also several brick pits about the same length and 6 feet wide. From these facts it will be seen that pretty ample provision has been made at Dupplin for a good supply of fruits throughout the year. As showing that Grapes must be well grown and finished and give satisfaction, it may be noted that they are presented at table in a peculiar manner. The bunch is suspended before the Earl on a stand made on purpose. It can be raised or let down, so as to bring it within more easy reach of the scissors. It must be obvious, however, that each bunch and berry had need be pretty perfect for this prominent method of serving. It may be added that a handsome bunch thus suspended at the top of the table formed one of the most telling features in the dinner table decorations at Dupplin at the time of my visit, and that there this art may be said to have reached to the dignity of a science under the fostering influence of the Countess of Kinnoul.

The plant houses are even more numerous than those devoted to fruit culture, the demands made on them for plants and flowers for furnishing the castle and chapel being very heavy. Near to the west end entrance to the kitchen gardens stands a Camellia house 100 feet long by 17 feet wide, admirably furnished with healthy plants. This must prove a rare mine of wealth for cut flowers throughout the winter and early spring months. In front of this or another house near was a border of Gloire de Dijon Roses trained over a quadrant formed trellis, a charming picture of health and floriferousness that must yield a supply of flowers from May to November. Next to the Camellia house there is one or more roseries with Tea Roses planted out, yielding and promising to yield in succession abundant harvests of sweetness and beauty; then follows a nice greenhouse about 30 feet by 15 feet, chiefly devoted to the culture of semi-bulbous plants, and an intermediate house of the same length, but furnished chiefly with Lady's Slippers, and some fine plants of the useful and fragrant, but all too seldom seen, *Hedychium* fragrans. The flowers are white as a *Gardenia* or *Stephanotis*, totally unlike either or any other flowers in form, and fragrant as either or both of these favourites combined. Near here is a well-stocked Fern pit about 50 feet long and 6 feet wide, full of most useful and clean stuff for decoration or growing into specimens.

But the chief range of houses stands in a sort of block three deep, near the centre of the kitchen garden. Being on such a steep incline, of course the houses are built on different levels, like the steps of a stair, and a central corridor cuts them through the middle and connects them all together by a charming passage richly furnished with climbers. This was 200 feet long and 12 feet wide, and was being further extended at the time of my visit to run out on to the flower garden at its

lower or southern end. The effect is very striking going down this verandah, but still more ascending it, as the *Jasmines*, *Fuchsias*, and other climbers and the noble specimen of *Dacrydium Franklini* that forms such prominent features in its furnishing are better seen. Entering the verandah at the upper end, the first house on the right is the *Gardenia* house. At the time of my visit in the middle of September this house was worth a journey of 500 miles to see. The plants were without spot, pictures of health and cleanliness, and studded more thickly with bloom than such plants mostly are in February and March. With such a profusion of buds the plants must have continued flowering freely through the winter. The variety looked like *florida* or *intermedia*, only the flowers seemed more elongated at their base—a decided improvement of structure for mounting. Possibly this peculiarity might arise from the liberal treatment and skilful culture given to the plants. It is impossible to write too highly of the latter, as assuredly a finer house of *Gardenias* could nowhere nor at no time be found than that seen at Dupplin in September.

Next to the *Gardenia* house on the right was the *Orchid* house; on the left the plant stove, each 36 feet by 15 feet. In the former was a useful collection of *Orchids*, including some nice pieces of *Lælia anceps*, *Dendrobium densiflorum*, *D. d. album*, *D. thyrsiflorum* and others, *Cypripedium caudatum*, *Celoglyne cristata*, *Dendrobium glumaceum*, &c. The plant stove was well furnished with a useful collection of the more popular foliage and flowering plants. Other houses diverge to the right and left of the verandah, while yet others diverge from those main ones into a semi-labyrinth of useful structures and pits, including Fern and forcing pits, intermediate houses, Palm houses. They were well filled with Palms, flowering and foliage plants for table and room decorations and other purposes. Here, too, the Muscat house and late vinery already named are also placed. Not far from the upper end of the verandah is the Melon ground with the Cucumber and Melon houses, pits, &c., and close by are found the most useful plant houses in the gardens. These are light, span-roofed houses, admirably adapted for the purposes to which they are applied. The first is 33 feet long and 21 feet wide, chiefly filled a good collection of *Azaleas*. The other three were each about 20 feet long and 10 feet wide. One was chiefly filled with a richly coloured collection of colour for table decoration; a second was chiefly occupied with *Heaths* and *Tuberoses*; and the third with sweet-scented *Rhododendrons* and soft-wooded plants. The roof of the house was clothed with the red and white *Lapagerias*, among the most useful plants in cultivation for decorative purposes, as with care the flowers will last fresh and untarnished for a fortnight or three weeks in water or damp moss after cutting.

Gardenias and *Hedychiums* are probably the most prized for cutting at Dupplin, and the castle at the time of my visit, was redolent with the fragrance of both. But enormous quantities of other cut flowers are needed for the drawing-rooms, boudoirs, and bedrooms, as well as for the chapel. Many Palms, Ferns, and other large plants are also used to furnish the lofty hall and staircase, while some large plants suspended in baskets heighten the effect of the architectural grandeur by their verdure of colour and gracefulness of form. The Earl of Kinnoul spends much of his leisure time in the garden, and takes a lively interest in all horticultural matters, as shown by the fact that his private or business room is connected with the gardens by the telegraph and telephone. He has also invented

A method of dry glazing, which seems at once cheap, simple, and efficient. Several houses are already built and glazed on the new plan, and it is intended to dry glaze the whole as the old roofs get out of repair. The weak point in most systems of dry glazing is found at that particular spot where the glass impinges against the wood or metal. The hardness of two such unyielding substances, and their unequal expansion at equal

temperatures, causes breakage. Hence the introduction of elastic buffers, such as felt, india-rubber, gutta-percha, &c., between the two. These have been found to answer fairly well in Beard's patent and other systems. But they are perishable, and when once saturated with water, the frost freezes them and so breaks the glass. Besides, one of the chief merits of dry glazing ought to be its greater durability, and so generally has this been recognised that not a few of the plans patented have claimed the name and the merit of indestructibility. Lord Kinnoul's plan is perhaps the nearest to this that has yet been invented—that is, were iron rafters used instead of wood, and there is no practical difficulty in substituting the former for the latter. Thus only iron, glass, and lead would be employed, and practically all these are well-nigh indestructible. Singularly enough, lead, probably the first metal used in glazing, may possibly also be the last. Its softness and flexibility render it a safe base for glass to rest upon, and enable it to fasten and hold it firmly in position with little risk of breakage. The framework of the roof is formed of wooden or iron rafters in the usual way, a yard or 3 feet 6 inches apart. Cross or glazing bars or purlines are then run across these at intervals of 2 feet or more. In the Dupplin houses they are 2 feet asunder and about 1½ inches square. On these thin strips of lead weighing 4 lbs. to the foot are fixed with copper nails. The lower edge of the lead is left in projecting scollops, which are bent up over the glass and holds it firmly in position. The square 2 feet long is then led up to the next cross-bar and rested on it, and so on with several squares until the space between the main rafters, or as long as the slips of lead are filled. Then another sheet of lead is nailed on the next glazing bar and brought down over the top of the first square of glass, thus fixing it immovably in its place, the projecting corners of the lead being bent back over the second, as over the first square, and so on till the top of the roof is finished. The glass used is 28 ounces to the foot; the squares are 24 inches long and 18 inches wide, the sides of the squares being butted against each other. By changing the line of the butted edges of the glass the houses are made more certainly waterproof, but with glass cut square it is found that butted edges keep out water even when the butting runs across the line of the water, and, as a rule, they are quite so when they run parallel with the fall of the roof. The houses at Dupplin are free from drip, and so strongly put together, that they have withstood some of the most severe storms that have ever visited this country. They are also extremely light and elegant, and might easily be made more so by the use of fewer and stronger rafters and glazing bars, heavier glass, and larger squares; but as they are, the new houses at Dupplin are at once strong, light, elegant, and sufficiently water and air-tight to be admirably adapted for horticultural purposes. They are, or might readily be made, as indestructible as any houses that claim that proud distinction, inasmuch as the purlines and rafters are protected at all points with glass and lead, and the whole outer surface is a continuous sheet of glass held in position by its own weight and a series of nails, which might be reduced in number without lessening the efficiency of the bent lead holdfasts.

D. T. FISH.

The weather in East Anglia.—In this part of the country we have had a week of severe weather. On Sunday and Monday, the 4th and 5th of the present month, the weather, although cold, was remarkably fine, but snow fell slightly during the night of the latter, and during each of the remaining days of the week snow has fallen more or less, and upwards of 6 inches of it now remains on the ground, while the minimum temperature has ranged between 14° and 17° below the freezing point, and while I write no indication of a change is apparent. The snow which covers the soil will, it is to be hoped, act as a protection to the young Wheat crop; and fruit trees in general are hardly in so forward a condition as to be seriously injured, unless it be in the case of Apricots, which, on some of the light soils in this neigh-

bourhood, influenced by the mild character of the preceding winter, were to some extent in bloom as early as the beginning of the month. This continuous and unusual depression of temperature occurring at so late a period will afford to cultivators of this fruit an opportunity of testing the merits of the various methods employed for protecting the blossoms and embryo fruit of these trees, and it is to be hoped that the results will be faithfully recorded. The snow which has fallen during the week amounts to, when melted, upwards of three-quarters of an inch, viz., '79 of an inch. —P. GRIEVE, *Bury St. Edmunds*.

TREES AND SHRUBS.

PICEA NOBILIS FROM GRAFTS AND SEED.

THIS fine Californian conifer in its native habitats is said to attain a height of from 150 feet to 200 feet, and a diameter of stem above the swell of the roots of from 3 feet to 4 feet. As it has proved to be quite hardy in this country, it is well worth planting extensively, not only as an ornamental tree, but also for the production of timber. Upwards of twenty years ago my practice was to fertilise the cones by means of a small brush loaded with pollen—cones at that time being worth a guinea each; but I found that as the trees advanced in age and size they generally produced abundance of beautiful crimson catkins loaded with pollen, which on being agitated by the wind shed it like a cloud of dust, fertilisation being thus effected without artificial aid. The cones are ready for collecting in harvest time, and care should be taken not to allow them to remain too long on the tree, or the seeds will be shed and lost. In spring the seeds should be sown broadcast on well-prepared light soil, in nursery beds about 4 feet wide, and as they are of large size, I have found it beneficial to pass a light roller over the bed after sowing, which has the effect of settling all down in a uniform manner. A little fine soil should then be evenly spread over the whole and the work is finished. When the young plants have attained a height of from 4 inches to 6 inches they should be planted out into nursery lines in the following manner: Stretch a garden line along the surface of the ground, and with a spade cut a notch on both sides of the line from one end to the other, thus leaving a small ridge below the line; then remove the line and set the plants along the ridge about a foot asunder, spreading the roots out both ways, and drawing the soil over them as the work proceeds. Under this mode of treatment they become furnished with fine roots round the whole base of the stem, and can collect food and support from all quarters, a matter of the utmost importance as regard their future well-being. When about a foot high they should be planted out where they are to remain, care being taken to spread the roots properly out at the time of planting. In this way I have raised and planted out with great success large numbers of this fine conifer, and although some of them are growing in exposed situations, I have never seen a single tree so treated upset by the wind. As regards

Soil, it makes rapid progress in all soils of ordinary texture, provided they are thoroughly drained. It, however, makes little progress in stiff argillaceous clay or rank peat bog, but in places where the latter is well decomposed, and a little soil mixed with it at the time of planting, it thrives admirably, often making growths fully 24 inches in length in one year. On the whole, I anticipate a great future for this tree, the only doubt being whether the leader will stand good when the tree reaches a medium size in exposed situations. A tree planted in 1845 lost its leader twice within a few years' time after it had attained a height of some 65 feet. I should add, however, that this tree was the produce of a graft placed on the common Silver Fir. Grafted trees of this conifer do not grow so freely in early life as trees upon their own roots. For example, the tree just referred to made no progress whatever in the way of growing, for some

years after it was planted being apparently quite dormant. At length some quadruped nibbled off the points of the side branches, but happily left the leader untouched, and this appeared to rouse the tree into fresh life, for it commenced to grow vigorously. Some thirty or forty years ago pruning conifers was greatly deprecated, and he would have been a bold man who dared to advocate such a practice. We, however, quietly took the hint clearly given by the tree in question, and have pruned in many cases with advantage. I have known other instances in which grafted trees of this species have lost their leaders after having attained a medium size, notably one fine tree on the Duke of Manchester's property at Tandragee Castle, Armagh. This tree lost its leader many years ago under similar circumstances. Trees which refuse to start into growth after grafting generally produce an unnatural swelling at the place where the stock and scion are united, and it is only by pinching and pruning the side branches that such trees are induced to make a start. I have never had an opportunity of testing the

Quality of the timber of this tree when cut up into boarding or scantling; young trees, however, which we have used as piling posts in the round state are very durable, although scarcely equal to Larch. As far as my experience goes, *Picea nobilis* has proved to be a grand conifer, and whether planted out as a specimen tree on well-chosen points of the lawn, or mixed up with others for the sake of contrast and variety, it has few equals, and certainly cannot be surpassed by any other species of conifer with which we are acquainted.

J. N. WEBSTER.

OSIERS AND OSIER BEDS.

It has been remarked that, "The many important uses of the different species of Willow and Osier serve to rank them among the first in our list of economical plants. The larger kinds which are, too, of the most rapid growth, yield timber, and exceed 60 feet in height; whilst the least of them (*Salix herbacea*), which grows on the summits of our Highland mountains, can scarcely be said to rise above the surface of the soil in which it vegetates. Many are in great request for baskets, hoops, and crates; their bark is used by the tanner, and that of one species (*S. fragilis* var. *Russelliana*) as a substitute for the true Peruvian bark. A correct knowledge of them, then, is of primary importance; yet there is not in the whole range of the vegetable creation a genus liable to more variation in properties, as well as in foliage and general appearance, at different periods of growth in different soils and situations, and under different circumstances; so that the accurate determination of its species, or even what constitutes a species, has baffled the researches of the ablest botanists." The following species are given as being cultivated in Osier beds: 1, *S. Forbyana* (fine basket Osier); 2, *S. rubra* (green-leaved Osier); 3, *S. triandra* (blunt-stipuled triandrous Willow); 4, *S. undulata* (sharp-stipuled triandrous Willow); 5, *S. fragilis* var. *Russelliana* (crack Willow); 6, *S. alba* (common white Willow); 7, *S. vitellina* (yellow Willow or golden Osier); 8, *S. viminalis* (common Osier); 9, *S. stipularis* (auriculed Osier); 10, *S. Smithiana* (silky-leaved Osier); 11, *S. nigricans* (dark-leaved Willow). This list gives eleven species that may be cultivated in Osier beds for commercial purposes, but the basketmakers have their own names for them, names which are almost unknown to other persons.

Forming an Osier bed.—The first operation will be to trench the ground to a depth of at least 18 inches, of course paying due attention to the quality of the subsoil. The ditches for drainage must be laid out with care and judgment. The sets should not be less than 2 feet long, and selected from strong shoots of the former year. The sorts should include as many of the different species as possible, but in this it must be observed not to mix them, or if mixed let it be alternating, so that if one sort fails the other may be safe, so as to cover the ground. But too much care cannot

be exercised in the selection of the sorts, as on this, more than on any other thing, will depend the success of the plantation. I know of a bed of some three acres which was formed with great care six years ago. It produced fine crops the first and second years; the third year it began to fail, as also the fourth year; the fifth year it was not considered worth cuttings and has not recovered itself this, the sixth year, a great many of the plants having died clean out. I have diligently inquired into the causes of this, and the owner, who is a practical basketmaker, is entirely at a loss for the cause, sometimes blaming one thing and sometimes another. The only feasible explanation seems to me to be that the sorts selected, of which there were two, were not suitable for the soil and situation, as one of the two sorts has suffered more than the other. Keeping this example in view, therefore, great attention will be required to select the sort most suitable for the soil and situation, although the sort selected may not be the most valuable in the market. After considering the whole matter, the only practical advice to be followed is to note accurately the description of soil, subsoil, and the situation of the ground to be planted, and then to find out an Osier bed flourishing under like circumstances, from which select your cuttings.

The sets are to be inserted into the ground, leaving 1 foot above it, in rows 3 feet apart, and 18 inches asunder in the rows; this to be done in the month of February. They must be thoroughly weeded, and the ground scuffled with Dutch hoes every year in dry weather (deep hoeing or cultivating is injurious), as the weeds make their appearance; otherwise they will destroy the plants. Shoots of one year's growth are the best for the basketmaker's use if they grow vigorously and produce clean, straight, and strong shoots; otherwise they should be cut but once in two years, or in three if not vigorous the second year. By intermitting a year or sometimes two, the roots will grow more strong, for the shoots will grow in strength proportionable to their roots, and cutting them every year should be done only when they have good roots, and the shoots grow long, clean, and healthy. Miller says in his "Dictionary of Planting:" "The willows are commonly planted in cuttings about 3 feet long, made from strong shoots of the former year; these are thrust down 2 feet into the ground. The cuttings should be placed about 3 feet apart row from row, and 18 inches apart in the rows. The best season for planting these cuttings in the Osier grounds is in February, for if they are planted sooner they are apt to peel if it proves hard frost, which greatly injures them." If the bed is kept clean there is no necessity to dig or break it up for twenty years, and the stools must not be cut over later February. The cost of digging or trenching the ground and planting an Osier bed, under ordinary circumstances, may be put at £12 per acre, and two hoeings at 10s. per acre.

The produce the second year should be eighty bolts or bundles, which should be 18 inches round at 14 inches from the butt. This, at 5s. per bolt, is £20; but whether this be too high an estimate of produce or not, of one thing there is little doubt—that a well-managed Osier bed is a profitable affair; and therefore no trouble should be spared to begin right, especially in the selection of the sorts. One other observation may be made, and it is that the ground need not necessarily be wet, for they will succeed well in a moderately damp soil. Indeed, the Willows are not all aquatic plants, some of the species being found naturally on dry banks, gravel, and even sand.—J. SMITH, in *Journal of Forestry*.

Magnolia conspicua.—I recollect that a specimen of this at Gunton about thirty years ago was always covered with bloom every year, except when there happened to be a smart frost in the latter part of February or beginning of March, which caused the flower-buds to drop off without expanding. It had a grand appearance on a sunny day in the latter part of March or the beginning of April. It may not be generally known that

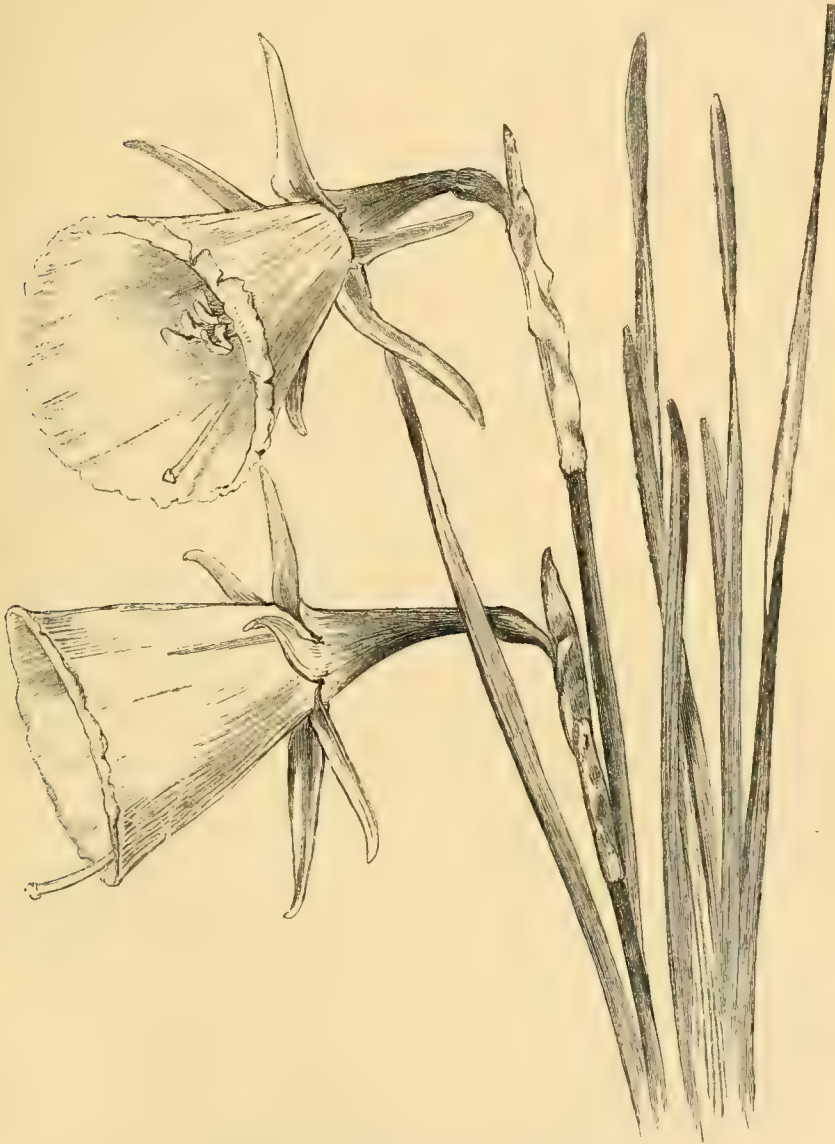
the blossoms of this *Magnolia* are very useful in a cut state, as the buds expand beautifully in a warm room, and they travel well. It certainly is one of the best of spring-flowering trees. It requires, however, a sheltered situation if planted away from a wall. The plant at Gunton was planted against a south terrace wall. We pruned it always after it had done blooming, spurring it in like a Pear tree. It bore spurs from about 8 inches to 10 inches long.—E. SENDALL, *Thorpe Hamlet, Norwich*.

Hardiness of *Dracæna indivisa*.—Mr. Ramshaw (p. 170) should have given some

FLOWER GARDEN.

LARGE SULPHUR CORBULARIA.

NARCISSUS BULBOCODIUM CITRINUS is a great beauty from the shore at Biarritz, where it grows in copartnery with *Lithospermum fruticosum* and other of our garden flowers. Mr. J. D. Llewellyn found it there years ago, then Mr. Barr one day showed me very fine flowers, remarking that he believed it to be the *Corbularia gigas* of old Haworth. Bulbs of it came also, and Daffodil lovers were proud to add it to their collections. Then a woodcut sketch of a flower was given



Narcissus Bulbocodium var. citrinus (natural size).

clue to the locality in which he resides. I am now situated in the mildest part of Hampshire, in sight of the Isle of Wight, and here many greenhouse plants live out-of-doors all the winter. A fine variegated American *Aloe* which has stood out-of-doors in front of a villa here looks quite as healthy as those under glass, yet it would not be safe to say that this plant is hardy even in the same county, for some years ago when I resided in the central part of Hampshire I remember the thermometer falling below zero, and Laurels and similar evergreens being killed to the ground. It is, therefore, only by knowing the locality in which any plant proves hardy that we can tell whether it will prove suitable in our own case or not.—J. GROOM, *Stapfold Nursery, Gosport*.

by me in the *Florist and Pomologist*, 1880, p. 67, where also will be found the original description of this variety by Mr. J. G. Baker, of Kew. The woodcut in the *Florist* is faithful, although evidently the sketch was made from a wind-tossed blossom growing in the open air. Now, Miss Jekyll has been so fortunate as to bloom it at Munstead in a greenhouse, and this figure is prepared from a tracing from a coloured sketch she made of it. It is a bold and shapely flower of a soft sulphur tint, "the colour having a luminous quality, the flower being like a little lamp of pale yellow light." A much smaller variety with pale yellow flowers was found in Spain by the Rev. H. H. Crewe. The larger kind is, however, most beautiful, and very, very rare. F. W. S.

FLORISTS' FLOWERS FIFTY YEARS AGO.

I HAVE recently become possessed of two beautifully illustrated volumes of great interest, and I believe of rarity also, as I cannot find that they are widely known—"The Florist's Guide and Cultivator's Directory," containing coloured figures of the choicest flowers cultivated by florists, including *Ranunculus*, *Carnations*, *Picotees*, *Pinks*, *Georginas*, *Polyanthus*, *Auriculas*, *Hyacinths*, and *Tulips*, with their descriptions and an account of the most approved methods of culture, by Robert Sweet, F.L.S., vol. i., 1827-1829; vol. ii., 1829-1832. The four volumes of Sweet's "British Flower Garden" are well known and frequently referred to. These are uniform in size, and are illustrated with coloured plates, evidently drawn and coloured with the greatest care by a true artist. The first impression which strikes one in looking over these volumes is a feeling of regret at the decadence of the florist's hobby. There are few, indeed, who would support the publication of such a superb book as this of Sweet's, devoted entirely to simple flowers. I suppose the development has reached forward, and that we must consider the Orchid grower, and the magnificent publications devoted to his plants, as the outcome of these smaller beginnings. However, the old florist's flowers and their cultivators still continue amongst us, and long may they do so. Commencing in alphabetical order with

The Auricula, here we have figured Booth's Freedom, one of the best green edges ever raised, and which there dates back to about 1827. It was then priced at 25s. in Hogg's catalogue. There are sixteen Auriculas figured in vol. i., of which Grimes's Privateer and Taylor's Glory are still amongst us. Vol. ii. contains ten portraits, amongst which are some great favourites, which thus date from about 1830. Lee's Colonel Taylor, one of our very best green edges, is beautifully figured, and the editor says: "It is considered by florists as the finest variety grown, and in Mr. Hogg's catalogue we see it priced at £3 each plant." Oliver's Lovely Ann is also there, and is still one of our very best green edges. The editor states that "It was raised by a person of the name of Oliver, who is now selling them at 20s. each. He grows them in a mixture of loam and decayed horse manure, in which they succeed very well." Another favourite—Wood's Delight, a good white edge; and the following interesting remark occurs in the editor's note: "It is a curious fact that those sorts which are naturally possessed of a fine green on the edge or margin of the flower are often known to lose that property when the stem proceeds from the very heart or centre of the plant; whereas those stems which proceed from the side produce larger pips, possessing their true natural colours in much greater perfection."

Of Polyanthuses there are but two figured in vol. i., and one in vol. ii., and of these the best is Burnard's Formosa, which is stated to have been raised by J. P. Burnard, Esq., of Formosa Cottage, Holloway. It is described as a bright velvety purple, but in the picture it is nearly black. Its flowers are very circular, the lacing good, and in all respects it is a first-rate Polyanthus. This variety is frequently exhibited, but I never saw it nearly so fine as is here shown. I have, however, been told that it frequently comes very good in the neighbourhood of Birmingham. The other two Polyanthuses are lost.

The Carnations and Picotees form a very numerous group, and show that the sorts grown fifty years ago included all the choicest now to be seen at our exhibitions, not excepting the yellow varieties, which Mr. Turner loves. Pinks also occupy a large space and appear to me to be finer than any we now see. It is to be hoped that Pink growers will be encouraged at our exhibitions. There are seventeen show varieties in these volumes; of *Ranunculuses* there are thirty-eight plates, and these are a most beautiful class, of which I fear scarcely any survive. Mr. Barlow was awarded a special prize at one of our Manchester shows last year for a collection of *Ranunculus* blooms, but I think they were from imported roots, and did not represent our old English

sorts. Perhaps he will give us some information on this subject. The Roses figured are very inferior to our present sorts, and contain no names now in commerce.

The Georginas, or Dahlias, are a very interesting lot. It appears the Georgina was then the general name for this plant. The editor says: "We have adopted Willdenow's name of Georgina in preference to Cavanille's Dahlia, there being a Cape genus named Dahlia before by Thunberg. All the Continental botanists have also adopted Georgina for the present genus." Georgina was a name given by Willdenow in compliment to J. G. Georgi, a Russian botanist, and Dahlia was named in compliment to Andrew Dahl, a Swedish botanist. It would be interesting to know how the name was subsequently changed again to Dahlia. One of the Georginas is a great beauty—the Painted Lady, or Anemone-flowered Georgina. It is described as belonging to a new type, the centre being composed of narrow radiated florets, like the small petals in the centre of a double Anemone. There is also a single scarlet and others like the sorts now in fashion. By far the largest space is occupied by

Tulips, sixty-one plates being devoted to this interesting class. It is to be feared that Tulip growing is a decaying art. There are two large collections which were left by enthusiastic growers (one of them poor Tom Mellor) which have failed to find purchasers, and which will probably follow the fate of the Ranunculuses and be lost, and yet there is no more delightful hobby than the Tulip fancier's, and none more easy to manage if leisure be at command. The old weaver who could leave his loom for an hour now and then was the best florist, as he had his hobby and his relaxation together, and he was able to watch the varying requirements of his pets and meet them as they arose. In these days of mills and workshops, the home hobbies get left aside, and are slowly passing from our midst. There are a few plates of Hyacinths, and this completes the recital. It is, however, worth adding, with reference to recent remarks upon shaded alpine Auriculas, that there is one figured—Howe's Venus—a fine shaded purple with yellow centre, reminding one of Gorton's Mauve Queen of fifty years ago. This carries the introduction of shaded alpine much further back than Mr. Douglas was aware of, as in 1829 the editor wrote, "The present variety belongs to the tribe called shaded alpine by the florists."

Brockhurst, Didsbury. WM. BROCKBANK.

FLORISTS' FLOWERS IN SPRING.

The Dahlia.—This showy autumn-blooming plant was greatly prized for exhibition purposes about twenty years ago, and it was certainly better adapted for this than for the flower garden; but the time is sure to come when the interest in any particular class of exhibitions cannot be maintained, and if flowers are grown more for the sake of winning prizes than for their intrinsic worth, or for the pleasure to be derived from seeing them in the flower garden, they are sure to decline in popular favour. About the time of which I speak what has been styled carpet bedding had begun to take hold of the gardening public, and this style became fashionable. The Dahlia could not be worked into beds planted and trimmed in that way. It was tried, I know, for I visited a garden in which Dahlias used to be well grown for exhibition. Instead of finding sturdy plants furnished with leaves to the base, I found them with lanky stems, from 3 feet to 4 feet in height, and on expressing astonishment at the change, the gardener vaguely hinted that they were grown so "for a purpose." Their long stems were to be pegged down in the expectation that they would break forth at the joints and form a dense bed a foot or so high in the flower garden; but the Dahlia could not be trained to make a satisfactory bed in that way. Its place was as a back row plant in the mixed border, where it made a goodly display. It will be a pleasure to many to know that the Dahlia is again to have a run of popular favour. "The

lumpish Dahlia," as it was styled by one of the leaders in horticulture, has to give place to the prim little bouquet or Pomponé; and the single forms which used to be unmercifully chopped up to swell the vegetable refuse heap have become a marketable commodity of great value, equally esteemed in the flower garden and in the boudoir. The spring treatment of them all is the same. They should now be put into a glass house where there is a little heat so that they may start into growth, and as soon as the growths are about 2 inches long they should be taken off and propagated in a hotbed or a forcing house where there is a little bottom heat. Each cutting should be carefully planted in a 2½-inch pot; the sort which the potters call long Tom is best. Very few of the cuttings will fail, and they do not take long to form roots. Some of them take longer than others, and those that are seen to have formed roots should be taken from amongst those that are not rooted. The young plants soon require repotting, and should be grown where they can get plenty of air and light. When danger from severe frosts is over the plants may be placed in cold frames, from which in fine weather the lights may be entirely removed.

The Phlox.—In spring, as early as we can obtain the cuttings, arrangements are made to propagate as many Phloxes as are required. Numerous shoots are thrown up by each established plant, and as soon as they are 1½ inches long they should be taken off and inserted singly in 2½-inch pots. If the pots can be plunged in a hotbed the cuttings very speedily form roots, and by repotting them into 4-inch or 5-inch pots strong flowering plants are produced the first year, which may either be grown and flowered in pots or be planted out in the beds or borders. The Phlox is an easily grown hardy plant, and will flower, even if neglected, year after year. The plants make a mass of roots, and soon exhaust the soil round them. One way of propagating them is to dig up an old stool and chop it into three or four pieces with a spade, replanting the divisions, but no really good spikes can be obtained in that way. Spring-struck cuttings always produce the best plants. Seedlings raised from seed sown now will also flower strongly and well, producing about 50 per cent. of the whole as good as the parents, but they vary very much. We saved a lot of seeds from some of the best dwarf pure white forms, but did not get a single white variety amongst them; and the rich dark coloured varieties did not give much better results. From amongst two or three hundreds of seedlings we did not get one that could be said to surpass the best of the named varieties. What we did obtain was plenty of spikes to cut long after all the named varieties were over. They flowered finely the second year, and after that they were destroyed. Those who have only seen this plant grown in the ordinary way in the herbaceous border have no idea of the great results that can be obtained from one-year-old plants put out 2 feet apart on deeply trenched and heavily manured soil. Three stems would be a sufficient number to each plant the second year.

Pentstemons.—These do not obtain so many admirers as the Phlox; nevertheless, they bloom very freely in the mixed border, and continue to do so well into the autumn, and they are not easily injured by wind or wet. The best way to obtain a stock of strong flowering Pentstemons is to take off cuttings in autumn about the same time that Calceolarias cuttings are put in, and they require much the same treatment in winter. They ought to be potted off from the cutting-boxes early in the year, and when well established, which will be by the end of March or early in April, they may be planted out. Like the Phlox, they prefer rich soil, and if in beds, should be planted 2 feet from each other. Old plants have passed through the winter in the borders this year without injury, and if cuttings were not put in in autumn, they may be inserted now, only instead of planting them under hand-glasses or frames it will be better to push them in a hotbed or propagating house, potting

them off or planting them in boxes, about 4 inches apart, until large enough to plant out.

Ranunculuses.—We have been anxious to plant out our stock of these, but have not been able to do so owing to the wet. They ought to be planted out about the first week in February, but they do not suffer much if the planting is delayed for a month. We like to get them out as early as we can, so that the bloom may be over early and the beds at liberty to be planted with Stocks, Asters, or some other autumn flowering plants. The ground is, however, so wet that it will be necessary to cover the entire surface of the beds with dry soil. If dry peat and loam in equal parts can be obtained, it is the best compost in which to plant them; the small tubers should be carefully placed in the ground, crowns up, and be covered to the depth of about 2 inches with fine soil. I place some fine sand over the roots before covering them with the mould. If Anemones have not been planted, they should be treated the same as the Ranunculi and be planted out at once. J. DOUGLAS.

THE TENBY DAFFODIL.

I AM afraid the name Tenby Daffodil is being applied to the wrong variety, viz. *Narcissus obvallaris*, "the short tubed spread crowned" variety of a deep yellow, almost self, and one of the earliest and most beautiful of all the Daffodils. I first became acquainted with this variety through Mr. Wolley Dod, who sent it to me as the Tenby Daffodil, and I have spoken and written of it as such until this day. To my surprise, however, I find that we have got the wrong Daffodil under this name, and that it has become current in the very best collections. On looking over Haworth's monograph of the *Narcissi* in Sweet's "British Flower Garden," 2nd series, vol. i., I find, under the Ajax II. section, No. 16, *Lobularis*: "Tenby six-lobed Daffodil." *Corollæ laciniis luteis tubo obconica exacte duplo longioribus: corona perulea patula sexlobata (lobis integris), laciniis tres lineas superante.*—Nob. in *Phil. Mag.*, May, 1830, p. 131. "This grows wild near Tenby, in Pembrokeshire, which, by mistake, was written Truby, in Derbyshire, in the place above cited. It is also interesting to note, in the discussions of the origin of single and double forms, the following record in Haworth under the same heading. Obs.: In Chelsea Garden a wild bulb from Devonshire, with double flowers, produced offsets bearing for the last three years permanently single ones."

Since writing the above, I notice that "Veronica" (p. 220) makes the very mistake I am now correcting. He says: "And the pretty Tenby Daffodil (*N. obvallaris*) is opening to-day, 26th ult." It will be a week or two before it blooms at Brockhurst. WM. BROCKBANK.

Brockhurst, Didsbury.

Helleborus maximus (p. 222).—Mr. Archer-Hind may be quite sure that this plant was in cultivation long before 1863, and neither originated in Miss Hope's garden nor in Aberdeenshire. I had it here many years before I had the pleasure of Miss Hope's acquaintance, but I have no record whence it came.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

Double white Hepatica (p. 223).—Every spring there comes with the Hepaticas an inquiry for the old double white. I believe there is not and never has been a variety permanently bearing double white flowers. I do not say this because I have never seen it myself, but I say it on the authority of that good old gardener, Mr. Wheeler, of Warminster. He often told me that there was no such plant, but that the double pink or red sometimes produced autumnal flowers, and that these autumnal flowers were sometimes white. I always found his information thoroughly trustworthy, and I have no doubt this is the true account of the flower.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

Iris reticulata.—As is recently stated in THE GARDEN, *I. reticulata* Krelagei is distinct from the

typical form. Its colour is a dull purple, but it is not generally known that the type *I. reticulata* also varies from bluish violet to a velvety blackish, but very bright, purple. I have for many years sowed this kind with the view of improving the strain, and I have already some success. I have seedlings in every shade of colour, whether produced from seed taken from a reddish or from a blue-flowered plant. *Iris Histrio* is a distinct and desirable kind, flowering fully four weeks earlier than *I. reticulata*. Its flowers are of a pale blue colour, blotched and margined with bright blue.—MAX LEICHTLIN, *Baden-Baden*.

Lilies.—In answer to "H. H." (p. 213), allow me to state that *L. Parthenion* is much like *L. Coridion*, and both may be but varieties of the same species. *L. Coridion* is a bright canary-yellow with numerous red tips on the lower part of the sepals. *L. Parthenion* is bright red splashed and streaked with yellow. I think that since Siebold brought it home it has not been reintroduced into Europe. *L. concolor* is a very different Chinese plant, akin to *L. sinicum*; the flower of the former is of a somewhat glaucous crimson-scarlet, rather thick in substance, and the latter is bright dazzling scarlet. A good sandy peat with a little loam added, and some half rotten manure laid around the stem, will suit the plant's requirements.—MAX LEICHTLIN, *Baden-Baden*.

***Oenothera eximia* (alias *O. marginata*?).**—The plant described by Mr. E. H. Egles I saw in the herbaceous garden at Kew four years ago labelled *O. marginata*. On making inquiries from those who knew the genus, I was told that Mr. W. Thompson, of Ipswich, could supply me with seed of the true *O. marginata*, but that which I had seen was *O. eximia*. Mr. Thompson told me that after consulting various authorities he believed that the Kew plant was the true *O. marginata*. I obtained a plant the same year from Ireland by the name of *O. marginata*, and have grown it ever since. It is a troublesome plant. The flowers are larger than those of any other of the genus, and very sweet, but the straggling underground shoots must be collected every spring and put into fresh soil, or the plant dies out. It seems incapable of growing in the same spot for two years.—C. WOLLEY DOD.

ANEMONE FULGENS.

IN one of those bright flower notes signed "Veronica" (p. 220), after praising the Pau Anemone, the writer inquires what has become of Mr. Poë's fine fulgens from Mentone, and where is the giant form raised by the late Mr. Nelson. Both these treasures are safe and in great vigour in our garden. The former, kindly given by the collector, was till lately the finest I had seen, some of last year's blooms being 4½ inches in diameter, but everything is thrown in the shade by the great Aldborough variety—a flower simply astounding in all its qualities of size, substance, colour, and strong leathery foliage. The petals are a full inch across. "Six-foot run" of this grand flower is a possession not lightly to be esteemed, to say nothing of a bed of seedlings of the same, with the great interest in store of seeing how they turn out. The main stock of this fine plant is quite safe and in the best hands. Some have also the buff ring, but the most striking are the deep strong scarlet with black centres; the rich velvety texture seems to intensify the colour, till, as George Herbert says, its "hue, angry and brave, bids the rash gazer wipe his eye!" Those from the Mentone district are a splendid clear scarlet, but not so deep and intense as the Aldborough kind; some collected by another friend are mostly double, and the Mentone doubles are apt to be spoilt by being too full—unpleasantly congested-looking and mixed with green. These go to the rubbish-heap in company with the green-flowered double Daffodils that err in like manner from excess of zeal. I should like to know how long dry roots of *Anemone fulgens* will retain vitality. Some years ago some were collected for me near Cannes; they came home

packed with some old majolica, and were inadvertently put away in a piece of the pottery, and only found fifteen months later. They were at once planted, though with little hope of their recovery, but they started at once, and are now a fine strong lot.

The Pyrenean variety is a most useful flower, having been in bloom since the middle of February. It may be that its early blooming is in consequence of the roots being newly imported, and therefore well ripened; it was planted as soon as received in the middle of last May. The colour is not the vivid scarlet of the Riviera kind. It has a quieter pinkish quality, like vermilion in powder; also, the petals are narrower and weaker, and the leaves have not the same bold, self-asserting character. Among my 200 roots from Pau are some very good doubles, the flowers well filled, but not over-crowded; the soft vermilion colour is very pleasing in the mass of petals. I have an old garden kind of double fulgens, or perhaps one ought to say double stellata, whose colour is yet softer and duller, though still of the pure vermilion character, very much like the one I have as the old single scarlet stellata. In comparing the varieties of this charming flower I suppose one would put this flower at the bottom of the scale, the great Aldborough fulgens being at the top. The intermediate variations seem endless. I hear there is a white fulgens, but have not yet been fortunate enough to see it. G. J.

Surrey.

NOTES AND READINGS.

VINES AND VINE CULTURE.—Mr. Barron's book on this subject will have the proverbial "wet sheet" effect on all previous works of the kind, but it is a pity such a good book, written "primarily for amateurs and young gardeners," should be so dear. The price is too high—disproportionally so—and will prevent numbers of those for whom it is written buying it. I see it stated in one of your contemporaries that the work is published "with the sanction and concurrence of the council" of the Royal Horticultural Society—although Mr. Barron does not say so—and that the public have a right in consequence to assume "that the book is a good one." We doubt very much if the public will attribute its excellence to this source, but, admitting some share of credit to the society for Mr. Barron's labours, the book is one of the best works it has ever promoted. The work is very appropriately dedicated to the President and Council of the Royal Horticultural Society, but the author's acknowledgments of assistance are tendered to outsiders.

THE BOOK is dry, but not discursive or exclusive, pithy, and practical, and the illustrations are all good and truthful, save one that is supposed to represent a properly thinned bunch which we are sure no good grower will copy. On the subject of borders the author is evidently familiar with the discussions that have taken place in reference to inside v. outside borders, and thinks outside borders are preferable for general culture; he points out how the roots prefer to go outside if they have the chance, and that inside borders favour Phylloxera. I think it is Mr. Baines who has attributed the departure of roots from inside borders to mismanagement on the part of the cultivator. Most cultivators will agree with Mr. Barron. Bottom heat, by means of pipes, &c., is dismissed in a few lines as being of little advantage as compared with its cost and other drawbacks.

PRUNING.—In such a correct work one regrets to see an old and palpable fallacy perpetuated. The author says we prune our Vines for various reasons, one of which is for the "purpose of attaining greater vigour in the plant." It will be readily admitted, as Mr. Barron states, that by cutting off a portion of a shoot or branch and concentrating the vigour to a lesser area ("the part that is left") we get a stronger growth,

but this does not prove in any way, as it is stated to prove, that we attain greater vigour in the plant thereby (pp. 76 and 77). Physiologists dare not now countenance this fallacy. Far more correct, if contradictory, is our author when he states that the extension system, which is inimical to pruning, induces increased vigour and fresh life and energy in the plant, and that it is assuredly favourable to longevity. Two directly opposite practices cannot surely produce the same effect; in fact, Mr. Barron says the "opposite treatment (restriction) more rapidly uses up the vital energies of the plant." Lindley said, and his words have never been controverted, that it was only "a supposition, or seemed to be, that when the branches of a transplanted tree are headed back the remaining buds will break with more force than if the pruning had not been performed." The great point to attain, he says, "is the renovation of the roots, and if the branches of the plant are removed by the pruning knife a great obstacle is opposed to this renovation." We know it is difficult to persuade gardeners that they cannot increase the vigour of a Vine, for example, by cutting it down, but if they reckon vigour by the production of leaves and wood they may easily discover by experiment that they cannot add one tittle to the strength of their plants by so doing. The cut-down plant makes a rebound merely and nothing more—not one extra leaf or a joint is added by the process of cutting back, but are, on the contrary, reduced.

Notwithstanding Mr. Barron's theory on the subject of pruning, however, it is gratifying to find him advocating in practice a great advance on the past plan of cutting young Vines down to or below the bottom wire at the end of the year. "A healthy plant may be allowed 4 feet or 5 feet of new stem, or even more," he states, which is almost as much as extensionists have contended for in general practice, and quite opposed to instructions in previous works on the Vine. As to

THE TEMPERATURE necessary for the setting of Grapes, we do not quite comprehend Mr. Barron. Discussing this subject specially under its own heading, at page 58, we are told that "the (night) heat should be raised gradually to 70° by the time Vines come into flower, and when the Grapes are fairly set a lower temperature may be maintained until after the stoning period;" and at page 86 occurs the following quite opposite advice: "Some cultivators consider it absolutely necessary to maintain continuously a very high temperature—from 65° to 70° by night—for the setting of their Grapes, but it is really not required for the mere 'setting' of the fruit. For example, in late houses and on open walls the Grapes set their fruit quite freely at a much lower temperature; we have frequently seen it below 45° at night, and yet the Grapes have set well. It is therefore fair to assume that a temperature ranging from 55° to 60° by night is quite high enough for the mere purpose of setting the fruit, provided there is the desired rise in the day temperature." Which system does the author of "Vines and Vine Culture" mean? There are several discrepancies of this kind between the beginning and end of the book, notwithstanding revision, that appear to indicate altered convictions on the part of the author.

THE GREAT VINERY at Chiswick is truly a noble structure and has placed valuable materials at Mr. Barron's hands. It surprises one to hear that it was predicted it would be found too large and light to grow Vines successfully, for large structures have long been favoured for Vine culture by cultivators, and the Chiswick vinery has apparently solved the problem that big houses require less ventilation proportionately than small houses. They are neither so soon heated nor so soon cooled as the latter.

THE FIGURED GRAPES.—These are probably the most valuable feature of Mr. Barron's book. With one exception, the varieties are truthfully rendered, and will enable anyone to understand

what they are like. The selection, too, is good. The exception alluded to is the Black Prince, which certainly does not pourtray the variety gardeners are familiar with under that name, nor the Grape Mr. Hill, of Keele Hall, used to show so frequently at Regent's Park. It has the most symmetrically tapering bunch known, and the berries are not so round as shown in the figure, which is more like a Black Hamburg than the variety it is intended for. It never shoulders, as shown, and it is so limp and supple in the stem that it always hangs as straight as a plummet, which Mr. Barron's bunch does not. There is something wrong here.

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SCIENCE AND PRACTICE.—“A. D.” seems to represent science and practice as coming in conflict on the subject of “top-heating,” whereas the one is the father of the other. Science is practice. I admit that Mr. Cannell's flowers are fine, but do not acknowledge it is his top-heating that accounts for it, for equally good results have been and are obtained under less favourable circumstances than Mr. Cannell has to contend with in Kent. Besides, it is reported that Mr. Cannell is not extending the system. Placing hot-water pipes close to the glass roof is something like putting a warming-pan outside the sheets or trying to boil the kettle from the top. “A. D.” knows, too, that the “shapeless body” of air in a house corresponds exactly to “a column” of air, as mentioned by me, if the pipes are rightly placed. “A. D.” says “it was held to be a profound scientific fact that given top ventilation and the heated air would escape through the apertures,” but that practical experience has set our “preconceived notions” on this subject at defiance. Well, we plead guilty to having held the scientific notion that smoke did go up the chimney and out at the “aperture” at the top, and out at the top ventilators of a hothouse as well, but it is admitted that a good deal depends upon the balance of the currents. Too much top air is given as a rule and too little at the front.

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SUBSTITUTES FOR PEAT.—From peat to Cocoa fibre for Orchid culture is certainly a curious transition, and one would imagine that peat, as regards supply, would hold its own the longer of the two. We have a conviction that there are thousands of acres of Orchid peat in existence yet. The objection to Cocoa-nut refuse of any kind is its liability to generate fungi, like most decaying vegetable substances. It does not matter so much about peat, however, because the roots of Orchids always appear to work least amongst it. Take *Odontoglossums*, for example. They produce just a skin of roots among the surfacing of living and dead Sphagnum, and penetrate the drainage below the peat, which they shun. The grosser-growing and feeding *Dendrobiums* and the like grasp the peat as they do any other light fibry substance of wholesome texture, but the more delicate subjects avoid it. Sphagnum is the only material that keeps clean and grows in the pot, and it would be a misfortune if it was to fail, for, although other hardy Mosses grow in our hothouses, they are not so suitable for the purpose as Sphagnum, which is becoming more popular every year for Orchid composts.

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LONGEVITY OF ODONTOGLOSSUMS.—Can any of your readers tell us the age of some of the oldest *bonâ-fide* cultivated single plants of *Odontoglossum Alexandræ* or *O. vexillarium*? There are thousands of small recently established plants in collections, but few old ones, and I have a suspicion, from what we have seen and heard of the history of some stocks of plants, that the mortality among this section is rather serious, the stock being kept up by fresh importations. *O. vexillarium* appears to be the more certain grower and the more vigorous of the two. Bulbs the size of those large and plump fellows one sees in imported masses are not common in cultivated specimens of *Alexandræ*.
P. EREGINE.

GARDEN FLORA.

PLATE CCLXXX.

SHRUBBY SPIRÆAS.

(With a coloured figure of *S. Douglasi*.)

IF we except the herbaceous section, most of the Spiræas are free flowering shrubs, ranging in height from the diminutive *S. bullata* to 8-feet, 10-feet, or 12-feet bushes of *S. ariaefolia* and *opulifolia*. Some of them, too, are amongst the earliest of flowering shrubs, while others come in in succession till the end of the summer; some species continue indeed in flower during the greater part of that time. They are all of easy culture, preferring a good free soil in a somewhat moist position rather than where it is hot and sandy; in the latter case the growth is generally stunted, and though the plants will live, their blossoms are not nearly so effective as those produced on vigorous shoots, on which they are more abundant. As regards pruning, all that is necessary is at times to cut out the old exhausted shoots for the purpose of encouraging new growth of more vigorous ones, as if this is not occasionally done, the plants become masses of small twiggy branches, their floriferousness being thereby much impaired. The position which they occupy will, of course, depend upon their habit, for while a few of the smaller kinds are well adapted for rockwork, most of the others show themselves off to the greatest advantage when planted in the form of large clumps or masses. Thus treated, the graceful form of *S. hypericifolia*, known as *flagelliformis*, and lately figured in THE GARDEN; the erect-growing *S. Douglasi* here represented; or the pinnate-leaved *S. Lindleyana* are each in their way very beautiful. Owing to the quantities of suckers produced, all the Spiræas are easily propagated in that way, except the singular *S. lævigata*, which it is necessary to increase by layers. Seed is also freely produced, and from the readiness with which seedlings may be raised doubtless arises the confusion which now unfortunately exists concerning the correct nomenclature of these plants. Another reason probably being that some of the species are of very wide geographical distribution, and vary more or less in different localities. Be that as it may, it is often scarcely possible to assign some of the varieties to any particular species. Spiræas are generally divided into groups according to the way in which their flowers are arranged, *i.e.*, whether in loose panicles, in corymbs, or in dense upright racemes or spikes.

Flowers in upright spikes.

S. Douglasi.—A free-growing, erect-habited shrub, attaining a height of 5 feet or 6 feet, both young shoots and leaves being entirely pubescent, but mature leaves only on the underside. The inflorescence of this fine species is well shown in the annexed illustration; a large clump of it, composed of densely packed shoots, each terminated by such flower-spikes as that here represented, is, as may be imagined, very effective. This species is a native of North-west America, and is often met with under the names of *tomentosa*, *Nobleana*, and *Menziesi*, in addition to

Drawn from a plant in Mr. Joseph Stevens' garden, Grosvenor, Byfleet, in July last.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our “Garden Flora,” the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.

that of *Douglasi*. Professor Maximowicz, in his monograph of the genus, gives *Nobleana* and *Menziesi* as synonyms of *S. Douglasi*. All of them are natives of the north-western coast of America. *S. tomentosa* from Eastern North America he considers to be a distinct species. Plants of it which have come under my observation differ but little from *Douglasi*, except in their larger amount of tomentum, and that character varies greatly in individuals, so that little trust can be placed in it. The kind generally recognised as

S. Nobleana is a stout, erect-growing shrub, the branches of which are downy when young, but smooth when in a matured state. The leaves are large, quite smooth on the upper surface, but greyish beneath. The flowers are disposed in an opener and more branching panicle than those of *S. Douglasi*, and the leaves are also somewhat larger. There exists a good deal of confusion regarding the origin of *S. Nobleana*. It was first brought into notice about 1854, and was at that time said to be a hybrid raised between *S. Douglasi* and *S. callosa*, but wild specimens sent home by Lobb agreed with it in all respects, and it seems probable, judging by the many slight variations amongst them, that the whole of the Spiræas just named may be reduced to one species. Planters should look out for the sturdy-growing, deep-coloured form, under whatever name it may be found. The undersides of the leaves of this are generally white.

S. salicifolia.—This and its varieties are widely distributed throughout Europe, Asia, and North America. Like the preceding, it is a dense, erect growing shrub, but with both the leaves and young shoots glabrous instead of pubescent. It reaches a height of from 4 feet to 5 feet, and blooms during July and August. The flowers are arranged in blunt, dense, erect racemes, and are pale red or deep rose in colour, but in the varieties all shades occur, from pale red to white. One of the North American forms (*S. salicifolia paniculata*) has flowers arranged in large branching panicles, pure white in colour, and very showy. This variety is of vigorous growth, and, besides the flowers, differs from the ordinary form of *S. salicifolia* in the young bark being red. It is also known as *Spiræa alba* and *S. canadensis*. Other varieties are *alpestris* and *latifolia*, the first small in stature, and the second, as its name implies, broad-leaved. Numbers of other forms may also be met with.

Flowers in loose, open panicles.

S. ariaefolia.—This is one of the largest of the genus, reaching a height of 8 feet or 10 feet and forming an erect, but branching shrub. The flowers are white and are borne in open plume-like panicles, which from their abundance render this species one of the showiest of summer flowering shrubs. Well known though be it, when in a somewhat moist and holding soil it grows so rapidly and forms so striking an object when in flower, as to commend itself to everyone. It is a native of North America, and is occasionally met with in nurseries under the name of *Spiræa discolor*.

S. lævigata.—This is very distinct from any of the others; indeed at first sight it would not be taken for a Spiræa at all, unless the flowers were present. It forms a stout, somewhat spreading shrub, from which but few suckers are produced. The leaves are oblong in shape, smooth, somewhat glaucous, and of much firmer texture than in the other kinds. The flowers, which are



white, tinted with pink, are not so showy as those of many of the other species. Although not so effective as some, this *Spiræa* is well worth a place in gardens on account of its distinct appearance. It is a native of Siberia, and flowers about May.

Flowers in umbels, corymbs, or cymes.

This class includes the greater part of the *Spiræas*, most of them being of a medium or low habit of growth.

S. alpina.—This is a slender, erect growing shrub, 3 feet to 4 feet high, with narrow lanceolate leaves and white flowers produced in terminal corymbs. It is a native of Siberia and Mongolia.

S. bella.—A loose growing shrub much in the way of the now better-known *S. callosa*, but slighter in habit than that kind and earlier flowering, its season being May or June, while *callosa* does not flower till July or August. The flowers, which are deep rose in colour, are disposed in large open terminal corymbs. It is a native of Nepaul.

S. bullata.—For rockwork this miniature species is quite a gem; it only reaches a height of 3 inches or 4 inches, and forms a little dense mass, which towards the end of the summer becomes thickly studded with tiny heads of bright

doubtedly one of the prettiest miniature shrubs that we possess, and one at present but little known.

S. callosa.—This is a free-growing kind, bearing large corymbs of deep rose-coloured flowers. The young shoots and leaves are of a bright red hue and very effective, owing to their brilliancy. It does not usually come into flower till the bulk of the early ones is past, but when once the blossoms open a succession is kept up for some time. It is a native of Japan, and is sometimes called *S. Fortunei*, while *S. japonica* is but a deep tinted form of it. The remarks made in reference to *S. Douglasi* are equally applicable here; that is, to choose the brightest coloured forms when planting, as some individual plants are much superior to others in that respect.

S. callosa alba.—This is a dense bush about 2 feet high at the most, and bearing white flowers.

S. cana.—A small partially decumbent shrub, from 1 foot to 2 feet high, with white flowers borne in sparsely-flowered corymbs, and produced in June and July. From its decumbent habit it is well adapted for planting on rockwork. It is a native of the mountainous parts of Croatia.

S. chamædrifolia.—A very variable kind, and one concerning which a good deal of confu-

from 2 feet to 3 feet in height, bearing flowers in hemispherical corymbs during June and July. In colour they are white, and borne on long, slender stalks; the leaves are rather small, sharp pointed, and pale green in colour. It is said to be distributed through Eastern Europe, the northern and central parts of Asia, and even to North America. The most distinct varieties of it are *ulmifolia* and



Spiræa lanceolata.

flexuosa, the latter being taller and opener in growth than the species.

S. cuneata.—This is a free-growing kind, reaching a height of 5 feet or 6 feet; the tips of the principal branches arch over gracefully, and the minor ones do so in a still greater degree. The leaves are wedge-shaped at the base, and the flowers are arranged in close, corymbose panicles on the ends of the principal shoots and on the short lateral branches towards the upper part of the plant. Their colour is generally white, but occasionally they are slightly tinted. It is a native of Nepaul, and is also known under the names of *S. cuneifolia*, *S. canescens*, and *S. nutans*.

S. lanceolata.—A neat little shrub, not more than 3 feet high, with small lanceolate leaves and white flowers. *S. decumbens*, a trailing kind, is well adapted for rockwork or sloping banks—positions in which it flowers freely. It is a native of the Tyrol, and is also known as *S. nana*.

S. flexuosa.—A slender-growing shrub, about 6 feet high, with long flexuose shoots. The leaves are small and lanceolate, and the large, open corymbs of flowers, produced in June and July, are pure white. Sometimes the leaves are toothed, and at others deeply cut. This latter form is often known under the names of *S. incisa* and *S. laciniata*. It is a native of Japan.

S. hypericifolia.—This is a slender, twiggy shrub, the flowers of which are produced on shoots of the preceding year. They are white in colour, and arranged in small corymbs disposed thickly on short laterals throughout a great part of the branch. So thickly are the flowers arranged, and along such a length of shoot, that they form beautiful floral wreaths. It flowers in May and June. As regards native country, different opinions exist. Maximowicz gives it as a native of Asia Minor and Persia to Eastern Siberia. This *Spiræa* is found under an almost endless list of names, and its varieties are in a state of great confusion. *S. crenata*, *Plunkenstiana*, *acutifolia*, *oblongifolia*, and *flabellata* all belong to this species. The



Spiræa callosa paniculata (a hybrid variety.)

rose-coloured flowers. It is stated by M. Maximowicz to be found in Japanese gardens, therefore presumably not wild in that country. It is un-

sion exists, some classing many varieties under this head, while others regard them as distinct species. The ordinary form is a twiggy shrub

variety figured in *THE GARDEN* as *S. flagelliformis* is a magnificent kind, and regarding the whole class no better advice can be given to the buyer than that which accompanied the figure just alluded to, viz., see the plants in flower, and select them then, as individuals vary so much. A variety of *S. hypericifolia*, known as *thalictroides*, is very distinct from the rest as far as the shape of the leaves is concerned. They are small in size and slightly three-lobed. This is altogether a dwarfier growing plant than the others, reaching only a height of 2 feet to 3 feet.

S. prunifolia fl.-pl.—This is a slender twiggy shrub 5 feet or 6 feet high, the shoots of which are long, and clothed for the greater part of their length with flowers. The blossoms are pure white, very double, and thickly produced in small lateral corymbs. It is a native of China and Japan, and is one of the first to open in spring, being often in flower early in April.

S. Reevesiana.—A twiggy sub-evergreen shrub 3 feet or 4 feet high, with lanceolate leaves and terminal corymbs of pure white flowers. It blossoms about July, and seems to be the same as *S. cantonensis*. There is also a double-flowered variety of it.

S. Thunbergi.—In general appearance this is like a small single-flowered form of *S. prunifolia*, the plant being dwarf in stature, open and twiggy in growth, and the flowers disposed in little clusters along the shoots. The leaves are very small and lanceolate, and make their appearance early in the season. It flowers in April and May, and is one of the easiest of plants to force into bloom early in the year, a few days in the forcing house being sufficient to induce its blossoms to expand.

Flowers in corymbs with inflated carpels.

S. opulifolia.—This is one of the largest belonging to this class, reaching a height of 10 feet or 12 feet; the branches, too, are much stouter than those of any of the others. The leaves bear a great resemblance to those of the Guelder Rose (*Viburnum Opulus*), and the flowers are arranged much after the same manner as those of the sterile form of that shrub, although in not quite such globular clusters. In colour they are white, produced in June and July, and succeeded by inflated seed-pods of a reddish tint. This *Spiraea* is widely distributed in North America. There is a variety smaller in all its parts in which the young leaves are of a bright golden colour, and very showy in spring when they first unfold, but as the season advances the foliage becomes quite green.

With pinnate leaves.

S. sorbifolia.—This is a stiff branched spreading shrub from 5 feet to 6 feet high, with large pinnate bright green leaves, and small white flowers borne in large terminal panicles. It is a very distinct and handsome kind, both in foliage and flowers, which latter expand in July, August, or even later. It is a native of Siberia, and prefers a cool, moist holding soil, in which it throws suckers freely and forms a large mass. There is a variety less in stature, but with larger flowers, known as *alpina*, Pallas, or *grandiflora* which by Maximowicz is regarded as a species and named *grandiflora*.

S. Lindleyana.—A stout, vigorous bush, reaching a height of 7 feet or 8 feet, and bearing very large pinnate leaves, much larger than those of *S. sorbifolia*, and without the twisted, irregular appearance often seen in the foliage of that kind.

S. Lindleyana is a free growing species, and in congenial soil soon forms a large, imposing clump, extremely handsome towards the end of summer, when the mass of foliage is crowned by feathery panicles of white flowers. It is a native of the western Himalayas, and is quite hardy in the neighbourhood of London, except in the case of exceptionally severe winters.

Besides the above a great number of names occur in catalogues in many cases mere synonyms, but several other presumably distinct kinds are given by Maximowicz in his monograph,

them as a separate genus under the name of *Sobraria*, and *S. opulifolia* is styled *Physocarpus opulifolius*. ALPHA.

SEASONABLE WORK.

FLOWER GARDEN.

Transplanting shrubs.—That flower beds may be afforded the necessary cultivation preparatory to the summer planting, it is now time that the shrubs and other hardy plants with which they have been filled in winter should be



Spiraea Lindleyana.

chief among which are — *S. caespitosa*, from North-west America; *S. parvifolia*, Mexico; *S. crenifolia*, one of the *hypericifolia* section; *S. prostrata*, Western China; *S. media* or *confusa*, Eastern Europe and Asia; *S. dasyacantha* or *nervosa*, China and Japan; *S. Blumei*, Japan; *S. arenata*, Sikkim Himalayas; *S. gracilis*, Himalayas; *S. micrantha*, Temperate Eastern Himalayas; *S. longigemma*, North-west China. Nearly allied to the *Spiraeas*, and by some botanists included with them, are the species of *Neillia*, Himalayan shrubs, *Chamebatia foliolosa*, a curious pinnate-leaved little bush, and that beautiful white spring-flowering shrub, *Exochorda grandiflora*. Maximowicz still adds to the list, as he divides the pinnate-leaved species from the rest and regards

transferred to their summer quarters. If planted later than this the probability is they might suffer from drought ere the plants had got established in the soil, but to guard against the possibility of such a check, it is our invariable practice to mulch with Bracken as soon as they are in their places, and for neatness sake the mulching is removed after there has been a long spell of showery weather to start the roots into active growth. Small plants of some few kinds of shrubs we use in summer as "dot" plants in foliage beds, and these, as a matter of course, when they can be made to fit in with the summer arrangements, are not transplanted at all. In order to better illustrate what we mean, we may say that we have here a border consisting of oblong panels and circles alternately. In winter the oblong panels have had as a centre small bushy plants of *Retinospora pisifera aurea*, and

the circles, small plants of *Cupressus Lawsoniana erecta viridis*. The winter groundwork of the oblongs was Heather, and that of the circles *Sedum glaucum*. All these shrubs will remain for the summer; the groundwork for the *Retinosporas* will either be *Alternantheras* or *Ajuga reptans* purpurea, and that for circles, *Mesembryanthemum cordifolium variegatum*. By thus endeavouring to retain all the plants possible that have done duty during winter, not only is the work lessened both as to labour of planting and propagation, but an effective and uncommon summer bedding arrangement is ensured. Beds that are vacant should be deeply dug, and manured or not according to the requirements of the plants to be used; all fine-foliaged plants require abundance of manure, but the ordinary kinds of bedding plants need but little. When the beds are on Grass, the best arrangement, the soil should stand well above the turf and be edged with some kind of dwarf, close-growing, hardy plant. The best for this purpose that has yet come under my notice is *Herniaria glabra*; all our beds are edged with it, and they always look neat, and give but little trouble to keep them in order. About thrice during the summer they need trimming with sheep-shears. Box does not look half so neat, and certainly needs more keeping in order.

Herbaceous plants.—Borders of these are already beginning to look gay with *Crocuses*, *Hepaticas*, *Scillas*, and *Primroses*. All the kinds are now above ground, and gaps can therefore be perceived and be filled up either by dividing some of the old stools or by fresh importations, or indeed by sowing patches of hardy annuals. Trim off all decayed stems, clear away mulchings, and where it is not practicable from fear of injury to the plants to dig in well decayed stable manure, give a dressing of guano or of soot and wood ashes, and then surface fork the entire border. Fresh labels should be substituted for all that are becoming illegible, and especially should they be fixed to the less known kinds of plants, in order that all who are interested in them may the more readily become conversant with their names.

Indoor work.—In the houses and frames there is now much requiring to be done. All kinds of roots and tubers ought to be started into growth. *Cannas* are quickly increased by cutting up the roots into single eyes, and starting them in small pots in warmth. Part the roots of herbaceous *Lobelias*, and plant them out in frames having a temperature of 50°. *Dahlias* may be planted in the same way, but require greater heat if intended to produce cuttings. Those started a month ago will now afford cuttings, which strike quickly in a bottom-heat of 75°. The stronger the cuttings the longer are they in forming roots, and as they make no better plants than smaller ones, it is not therefore necessary to delay propagation in order to get strong shoots. Tuberous *Begonias* are gradually growing in favour for summer bedding; we tried a few last year, and they withstood the rain far better than *Pelargoniums*. Any tubers that are to be used for planting out should now be potted, and be allowed to start into growth slowly. A temperature of 45° or 50° is ample. *Begonia castanefolia*, a first-rate summer bedder, must be increased by means of cuttings. *Begonia Weltoniensis* also makes a fine bed, and this variety is most expeditiously propagated by division of the roots. Seedling sub-tropicals should be potted off before the roots get matted together in the seed-pans, and seeds of the quick growing kinds, such as *Tobacco*, *Castor-oil*, *Sunflower*, *Hemp*, *Maize*, and *Chilian Beet*, should now be sown. In order to make room for slow growing and less hardy kinds, *Lobelias*, *Verbenas*, *Ageratums*, and *Mesembryanthemums* may now be planted out in cold frames. The soil should consist of loam and leaf-mould in equal proportions. They will then lift with plenty of roots at bedding-out time. *Alternantheras* may now be planted out in manure frames, and a fortnight hence cuttings in abundance may be had, which, if inserted after the manner of the old plants in frames, will give but little trouble, except as to airing, till they are required for the beds. Fine-foliaged *Pelargoniums*

must still be kept in warmth, but the common and hardier varieties may be transferred to cold pits. Cuttings of the same struck during the winter will now be ready for potting off, and till re-established in the pots should be kept close and warm.

ORCHIDS.

East India house.—As the sun comes out now with considerable force, we have found it necessary to put up the shadings so as to have them ready for any emergency. All our plants having been surface-dressed, repotted, and placed in new baskets where these have been required, there has been no other attention required for some time except to see to their daily wants; some species require more water than others, and when they are making their growth they require more than they do at other times. The *Angræcums* are now being grown in nearly all collections, and from the tiny *A. hyaloides*, a species at present thickly studded with pure white flowers on small spikes, to the large *A. sesquipedale* with its wonderful waxy white blossoms with tails 18 inches long, all are well worth attention. *A. citratum*, one of the most useful of the genus, is now flowering freely in most collections. It ought to be well known that most of them require plenty of water and sufficient atmospheric moisture. *Thrips* have been very troublesome, and we have had to go over all plants likely to be attacked once every three or four weeks, either washing or dipping them in diluted tobacco water, in which some soft soap has been dissolved, in most cases washing the leaves afterwards with clear rain water. Indeed, for all purposes, either for washing or watering Orchids, rain water ought, if possible, to be used. The various species and varieties of the genus *Phalænopsis* are making a very beautiful display at present. They succeed best suspended from the glass roof in baskets or pans, and they dislike being disturbed; rather than move them, we would pick the decayed material carefully from amongst the roots and substitute fresh stuff, continuing to do this annually until the teak decays. The new *P. Stuartiana* requires the same treatment as the others. This is a very distinct and beautiful Orchid furnished with long, many-flowered, branched spikes like *P. Schilleriana*. It ought not to be placed near the glass on the sunny side of the house; rather choose a partially shaded position for it.

Cattleya house.—Blinds must now also be put up here, but early in the year it is best not to shade more than is absolutely necessary. The varieties of *Cattleya Trianae*, introduced during the last few years, are remarkably beautiful, and at this season of the year last long in perfection. In Messrs. Veitch's nursery during unfavourable weather a variety of this species had flowers which remained in good condition for five weeks. Considerable quantities of it have been imported recently, and those who have plants of it should plant them in clean potsherds, merely keeping these moist until roots are formed; then remove an inch or two of the crocks from the surface, and substitute the usual potting material, taking care not to injure the roots. *Cattleya citrina*, also recently imported, requires different treatment; it seems to do best attached to a block or bit of Tree Fern suspended near the roof. Although this is the usual method, we have found it to do well potted in shallow pans in the ordinary way. The *Masdevallias* of the *M. Chimara* and *M. bella* type should be placed near the glass in a shady part of this house; the *bella* form does best in baskets, as then the flowers either hang over the sides or push out through openings therein. The *Chimara* form, if true, produces its flowers on an upright stem. *Masdevallias*, now growing freely, require a good supply of water. If plants of *Odontoglossum citrosimum* have not yet been repotted there is yet time to do so, but it ought to be done at once, as the plants will now be making fresh roots. Anguloas of all the different species ought to be potted when the young growths are seen to be starting from the base of the old bulbs. This they are now doing, and no time should be lost

in attending to them. If the potting material is not in good condition it ought all to be shaken from the roots. We have frequently recommended plants of *Dendrobium Jamesianum* and *D. infundibulum* to be grown exclusively in the cool house, where they do well all the year round, but we do not think we ever saw more healthy plants of these than we did the other day in Sir T. Lawrence's collection at Burford Lodge and in that of Mr. Lee at Downside. In both cases they were grown in the cool end of the *Cattleya* house. Some of the plants were attached to blocks; others were potted in the usual way. *Odontoglossum Londesboroughianum* succeeds best in the warmest end of the *Cattleya* house. This is not often seen in collections, but when well grown it is an excellent plant, the long, drooping, branched spikes continuing to produce flowers for months together. It is well grown at Burford Lodge, attached to a semi-circular framework of teak rods, through which the roots run into a compost of turfy peat and *Sphagnum*. It also likes a light position.

Cool house.—Repotting and surface dressing being completed, it now remains to carefully attend to the growing and flowering of the plants, and it should be understood that the conditions most conducive to healthy leaf and bulb development are not those under which the flowers remain longest in beauty. A damp, cool atmosphere, with little artificial heat, causes the flowers to spot, and for this reason it is desirable when the collection is a large one to be able to remove the flowering plants into a house by themselves, where they can have the advantage of a warmer and drier atmosphere. They usually rest a little before they start into growth after flowering. It will also be found that although they were free from slugs and snails before they were potted some have been introduced with the fresh *Sphagnum*. As the weather gets warmer the temperature will increase. If 50° has been the minimum hitherto it will gradually rise above this in mild weather, although it may still fall below it on cold nights. Newly-imported plants of *Odontoglossums* need not be potted at once. If there is no room for them they may be laid on a surface of dry Moss or some similar material, and be shaded from the sun. As soon as new roots form they may be potted. Among the newer *Odontoglossums* adapted for cool house culture *O. Edwardsi* is proving itself to be a really distinct and desirable species. It is now throwing up strong spikes, each containing more than 100 blooms of a distinct violet-purple tint quite new, and about three-quarters of an inch across. It has blossomed in Mr. Walter Cobb's collection at Sydenham. We have noticed sometimes in looking over collections that the small-growing species of *Odontoglossums*, such as *O. Rossi*, of which there are now so many fine forms, a charming species; *O. roseum* and *O. Cervantesi* are placed where they are overshadowed by larger plants. It is better to place the pots containing these in baskets, and suspend them near the roof; or if the collection is large, they may be placed in a part of the house by themselves. These small growing Orchids also succeed if placed in shallow pans. It is well to be careful in watering such plants, as if they are hung up out of the reach of the eye they are apt sometimes to be neglected.

PROPAGATING.

No more suitable time could be chosen for cutting back and striking *Crotons* than the present. When the cuttings are taken off insert them as quickly as possible, removing no more leaves than is absolutely necessary; take some clean 2½-inch pots, put a few crocks in the bottom, and fill up moderately firm with soil consisting of loam, peat, and sand in equal parts. After insertion give them a good watering and keep them close, when they will soon root. *Nepenthes* may also be struck without difficulty, especially in spring, and by this means short, sturdy, fully developed plants may be secured. The soil in which they root best is fibrous peat and *Sphagnum*, cut up moderately fine with a liberal admixture

of sand. Take the cuttings, not necessarily at a joint, and insert them in small well-drained pots in the compost just named; after this water them, and then place them in a close case or under a hand-light in the stove, if possible, where there is some bottom-heat. Take care to keep them close and shaded from bright sunshine till rooted, and on no account allow them to become dry, as a moist, steamy atmosphere hastens the formation of roots.

Tree Carnations that have been flowering during the winter will, from the warmth received during that time, have made good young growth suitable for cuttings, and if put in now will make fine flowering plants by winter. A suitable soil for them is equal parts loam and leaf mould, with a good sprinkling of sand, the whole being well mixed together and sifted moderately fine. Let the cuttings be of as recent growth as possible. Remove the two bottom leaves, and shorten the others if they are of an unwieldy length, then insert them four or five around the edges of a 4-inch pot, and place them in a gentle hotbed. In this way they will soon root, when they must be hardened off and potted singly in small pots.

Cyperus alternifolius is frequently increased by division and treated as a stove plant, while if raised from seed now and grown on in a cool temperature till autumn the produce would be stout healthy plants, well calculated to resist the various changes of temperature, to which, when used for indoor decoration, it is exposed. In order to obtain seed two or three old plants should be potted in large pots and allowed to flower, when seed in abundance will be the result. It should be sown as soon as possible after it is gathered, for if kept long, it germinates much more slowly and irregularly. Before sowing give the pots intended to receive it a good watering, then sow on the surface, and afterwards sprinkle a little dry sand over the seeds. Place a pane of glass over the pot, and set it in the stove till germination takes place, which will not be long if the seed is fresh, and when that takes place remove the glass at once. The variegated form can only be increased by division, for which the present is a suitable time. In preparing pots for all kinds of soft-wooded cuttings do not press the soil too firmly, as that retards rooting. This remark only applies to soft-wooded subjects such as Fuchsias, Heliotropes, Verbenas, &c. All firm-wooded plants, such as Heaths, Camellias, Rhododendrons, and Coniferae, require the soil be made as firm as possible.

FRUIT.

Early orchard houses.—One of the most important operations in this department at the present time may be said to be the thinning of the fruit, else Nature may assert her right to relieve herself by casting the whole of the crop. It will not be wise to thin Peaches and Nectarines down to the exact number of fruits each tree is considered capable of carrying, but under well directed management a small percentage will suffice for the final thinning after the stoning process is complete. If thinning has been carried on simultaneously with disbudding, and all the drooping fruits have been removed, those which are placed near home should be selected for the crop, as the wood near the base is generally well ripened and swells off the largest fruit, while the cultivator insures to himself the option of disbudding and shortening back his trees where they show a tendency to become loose and unshapely in their growth. As the days increase in length and the sun gains power the trees will take liberal supplies of stimulating liquid a few degrees warmer than the mean of the house, and good syringing with clean soft water at a temperature of 70° twice a day when fine will keep them clear of spider and facilitate the rapid development of the fruit. If Strawberry plants occupy the shelves, keep them thoroughly syringed backwards and forwards until they begin to change for ripening, and then if possible move them to quarters where spider can do no harm, and thoroughly clean

the shelves they have occupied. Give timely attention to ventilation on bright mornings by opening the lights; when the temperature touches 65° run up to 75°, with a free circulation; reduce gradually and syringe about 3 p.m. The minimum heat should not exceed 55° on mild nights until the fruit is stoned, and 50° will be sufficient in severe weather.

Late houses.—Owing to the absence of sun, trees in late houses and others which have been wintered in the open air are all in an equally forward and promising condition. If the latter were well washed before they were taken into the house nothing more will be needed until the blossoms begin to show signs of opening, when a good fumigating will keep them free from aphids until after the fruit is set. In the arrangement of the trees it must be borne in mind that Figs, Peaches, and Nectarines will stand the most heat; then follow Apricots, Plums, Cherries, and Pears. Of the latter the best dessert kinds only should be grown, and in the event of the space being limited they may be plunged in a warm, sheltered place in the open air, when all danger of spring frosts is over. Ventilate to the full extent, and dispense with fire-heat until the blossoms begin to open, when a little warmth will do good service in damp or frosty weather.

Peaches and Nectarines.—We must again direct attention to the important operation of disbudding and pinching in early houses. Weak trees to which we lately alluded, as well as late kinds grown at the coldest end for succession, will now require manipulation upon the same principle as they break into free growth, the best of all proofs to the practised eye that root action is going on, and daily pinching will not produce a check. Many people make a point of leaving a great number of these pinched shoots to form spurs and sometimes in early houses they do very well, but to us spur fruit never appears so fine as that borne by a good shoot of 1 foot in length, and the system is a failure in late houses. When all the base shoots have been neatly tied down to the current year's fruiting wood, a free and easy growth may be encouraged quite up to the stoning period, gross shoots and leaders only being tied in to check an uneven distribution of the sap, or to form shade to large bare branches in the centres of the trees. With a large area of foliage exposed under glass and all the roots inside, plentiful supplies of water will be needed, and syringing twice a day will play an important part in good culture. If forcing is not being carried on against time, a low night temperature of 56° to 60° is strongly recommended until after the stoning is complete. The heat by day may range 10° to 15° higher, with plenty of air, provided it can be given without causing a draught or sudden depression in catching weather, when early closing of the valves and moderate ventilation will answer best. A sharp watch must be kept for green, brown, or black fly. The first, if taken in time, succumbs to a moderate smoking; the last two are more tenacious of life, and being generally found on the points of gross, crude shoots, dipping in a strong insecticide may precede the smoking. Spider sometimes puts in an early appearance, but unless Strawberries have been occupants of the shelves, no excuse can be found for the person who syringes the trees.

Succession houses.—Persevere in the regular syringing of trees in succession houses until the flowers are ready to open, and fumigate before they expand. This important, simple, and inexpensive operation should never be neglected, as many houses are spoiled for the season by allowing fly to get into the blossoms. See that the borders are well watered, and old or weak trees mulched before they begin to feel the strain of a crop of fruit. Ventilate freely, and lay up strength and vigour by keeping the houses cool at night. The buds on wall trees and in late houses are still coming on together, and it is a question if the walls will not be in advance at flowering time. Be this as it may, follow up liberal ventilation until the flowers are fertilised, and if extreme lateness be an object, only use fire-heat when there is danger of the flower being injured by damp or very severe

frost. Of the latter, Peach blossoms under glass will stand several degrees, provided they are kept dry and free from draughts.

Cherries.—Where the roots are confined to the interior of the house an examination of the borders should be made as soon as the fruit is set, and in the event of water being required it should be supplied at the mean temperature of the house, which may range from 40° at night to 56° by day. If late kinds are still in flower let them be carefully fertilised, and defer general syringing until they are safe and the petals of the flowers begin to fall. When trees which have covered the trellis have made five or six leaves, all side shoots not likely to be wanted may be pinched to form spurs, and leaders may be tied down to the wires. When syringing is resumed use tepid water twice a day. Give air at 50°, open the front lights at 58°, and run up a few degrees under sun-heat with a free circulation, always bearing in mind that the Cherry is the most impatient tree we have to deal with under glass, and it is always best to err on the side of low temperatures with plenty of air when cutting draughts can be avoided. When this stage has been reached, the usual enemies, black or brown aphids and the small grub, may be expected to appear. The first may be destroyed by timely and repeated fumigation, but the latter can only be extirpated by careful hand-picking.

Melons.—The first batch of pot plants plunged in bottom-heat from fermenting leaves placed over hot-water pipes will now be making good progress, and the daily routine will consist in careful watering, syringing, and ventilation wherever a chink of air can be admitted through the early part of the day. It was stated lately that confinement of the roots by means of pot culture causes some varieties to throw out side shoots and produce plenty of female blossoms before the leaders reach the top of the trellis. Where this is the case and very early fruit is wanted, the points must be pinched out to throw strength into the side shoots when the blossoms begin to open; the atmosphere of the pit must then be kept drier by means of increased fire-heat to admit of a gentle circulation of air, and syringing may be discontinued for a few days until the fruit is set and begins to swell. When grown under the restrictive or pot system it rarely happens that the most wilful rambler are not brought into bearing at an early age; and when a "set" of fruit has been secured, the plants may be well rammed and top-dressed with stiff loam, bone dust, and dry cow manure, into which a complete mat of hungry feeders will soon find their way. These must be well supplied with good liquid, a few degrees warmer than the house, which must now range from 70° at night to 80° by day, and 85°, or even 90° after closing, with solar heat and moisture. In pot culture the preservation of all the stem leaves is an important matter, and some of the succulent, hairy-stemmed varieties, which are subject to scalding, should never be syringed on bright mornings, as they hold the water and suffer when air is admitted, but this danger disappears after the house is closed for the day, when overhead syringing will do no harm.

Cucumbers.—To maintain the supply through March and April, old plants which have been in bearing all the winter will take liberal supplies of warm liquid to keep them going, for if once allowed to receive a check, early spring-sown plants will commence fruiting before they can recover and be of further use. By this time the plants will have replaced the old foliage with young growths, which must be neatly tied down and stopped at the first joint beyond the fruit when it becomes evident that the foundation of a complete covering has been laid. If spider has gained a lodgment, this cold weather will favour its destruction by the use of insecticides or regular syringing with clean, soft water, light cropping, and high feeding with good liquid from the tank and guano water alternately. Sprinkle all available surfaces with the same, top-dress the roots with pure loam and old lime rubble in preference to manure, which encourages worms and leads to ultimate failure. Aim at a steady bottom-

heat of 85° from pipes and fermenting material combined. Let 70° be the standard at night, and 85° by day. Give air at 78°, and close early with atmospheric moisture, but avoid wetting the pipes when they are hot enough to generate scalding steam.

Spring plants.—These are now making good progress, and their clean, healthy growth is always pleasant to look upon. If planted upon hills, avoid producing a too vigorous flush of Vine by feeding or the use of manure, as the time is at hand when stimulants will be needed. Train regularly without crowding, and defer stopping until quite two-thirds of the allotted space is covered. Keep the glass well washed inside and out. Let the night heat stand at about 68°, give air at 76°, and close with plenty of solar heat in preference to having recourse to sharp firing. Earth up plants in frames, renovate the linings back and front alternately, to prevent checks, and aim at the heat recommended for spring plants in houses. Always keep a supply of warm, dry compost and plenty of fermenting material on hand. Cover at night with dry mats and give a little air to prevent the accumulation of injurious gases.

KITCHEN GARDEN.

THE main crop of Brussels Sprouts, Snow's Broccoli, and Red Cabbage, the latter for cutting late, should now be sown on a slight hotbed under glass; also Veitch's Autumn and Self-protecting Broccoli, with a pinch of Paris Cos Lettuce. Still we always find in spring-sown Lettuce the few seeds sprinkled on the top of the Onion quarter the earliest. Onions and Carrots had better wait for some days; when sown early the sharp spring winds turn them yellow, and we have had on two occasions to re-sow Onions. Parsnips may now be sown with advantage. We are busily employed turning up every inch of ground which we possess, thus bringing all under crop at the proper season. Now is a good time to make plantations of Globe Artichokes. On taking up the old stools we found in one case many dead or crippled; we pulled away the young suckers and planted them in burnt refuse, a capital thing for many purposes; whenever we sow small seeds, outside or in, we always cover them with this material. Early frame Potatoes, Radishes, Carrots and young plants generally should be duly aired. When the weather has become warm and genial, all the lights should be drawn off, so that full advantage of the opportunity may be taken by all inmates of pits and frames to get fresh air. Prick off early Celery in small boxes for early work, and get manure well worked to make the bed which the main crop of Celery will occupy. We sow about this time. Tomatoes may soon be sown; grow them on until they worthily occupy 6-inch pots when they will be 3 feet high in May, and begin to flower and fruit at once. Little plants put out in May grow up to September before setting or ripening their fruit. French Beans must be attended to in accordance with the demand (as a market crop they are ruinous). This fine dry weather gives us an opportunity of getting all walks free from weeds, thus making all clean and tidy.

MARKET FRUIT GARDENS.

OWING to the favourableness of the season, work is generally in a forward state. Planting may now be considered to be finished. Stocks intended for grafting are headed down in readiness for that operation, and younger stock is planted out in nursery lines. Grafts, if not already secured, should be cut immediately, as the sap will now be moving in nearly all kinds, and they are best cut in as dormant a condition as possible. Young bush fruits, such as Gooseberries, Currants, and Nuts, not required for forming new plantations should be lifted and cut in quite close and replanted about 1½ feet apart, so as to make useful little bushes for another season. Cuttings collected and laid in by the heels during the pruning season must now be prepared and planted in lines. Suckers of the Farleigh Prolific Damson,

a kind that reproduces itself true in that manner, are collected and planted in rows to gain strength for forming standard or half-standard trees, the latter being preferred, except in positions where cattle would destroy the branches; for, if required, a half-standard can be readily converted into a full standard by cutting away the lowest tiers of branches by degrees; the stem, too, needs less supporting by means of stakes than that of standards, and it increases in diameter much more rapidly when the lower branches are left on for a few years than when they are trimmed at once. If not already done, all freshly planted trees should have a covering of partially rotted manure spread over their roots before drying spring winds affect them.

The pruning of Nuts of all kinds may now be completed, for the catkins are fully in flower, and the abundance of little red-tipped female blossoms give promise of a good crop. All useless wood is cut away and only fruitful spray reserved. The Nut crop is so valuable that special care is taken not only in forming the bushes by careful pruning, but also in manuring them—a favourite application being the refuse from skin and hair factories, such as the dressings from hare and rabbit skins, old rags, &c. This is lightly forked in around the bushes, which, being surface-rooters, are found to depend more for fruitfulness on their active roots close to the surface than those that penetrate deeper. This is a good time to give both trees and bushes a good dusting of freshly-slaked lime, which answers the double purpose of killing Moss and Lichen and making the buds distasteful to birds; when washed off, too, it acts as a stimulant to the surface roots. It should be put on in damp, still weather, so that it may stick to the trees and get dried on before heavy rains occur.

The protection of fruit in the way usually practised in gardens is not possible on a large scale in market grounds; nevertheless, owners of such grounds are fully alive to the importance of shelter, and we find many are now planting rows of Poplars and other quick, erect-growing trees quite thickly, so that they may run up and form a barrier to break cold currents from exposed quarters. Thorn or Quick hedges may also be allowed to run up, keeping them cut in narrow both at base and top, as it is surprising the amount of shelter which a hedge will afford. Preparation must also be made for the coming fruit season by looking over the stock of baskets, ladders, &c., and replacing any deficiency before the busy season arrives. A good supply of packing wood must be cut and stored in some dry place. Long rods of Ash, Hazel, or Chestnut are generally used; they are prepared in wet weather by cutting them in lengths to suit sieves or half sieves, and split up to the size required. If kept dry until a few days before they are wanted and then soaked in water, they will be found to be as tough as wire, and will withstand the rough usage to which the baskets are subjected in travelling to market, while green wood would fail.

Cost of plant carriage.—In answer to the question of "March" (p. 235), allow me to say that I have had many parcels sent to England by the Continental Parcels Post. Those from Germany reach England rapidly, and a parcel weighing 7 pounds or 8 pounds costs about four shillings; but on reaching England, instead of being forwarded by railway, as I have always requested they may be, they are consigned to a private firm of carriers, who, it seems, has the monopoly of these German postal parcels in England. This firm has agents in the large towns of the kingdom, to whom the parcel is then sent. A letter is sent by post to your address as represented on the parcel, and you are informed that a parcel has arrived for you, which you must send for, and can then have on payment of whatever the carriage may cost. The nearest agent to me is nine miles off, and if I happen to be from home when the parcel arrives at the agent's, it is probably a week before it is forwarded. As at present managed, therefore, the Continental Parcels

Post is by no means a desirable form of conveyance from Germany for those who live in the country.—C. WOLLEY DOD, *Edge Hall*.

FRUIT GARDEN.

TRAINING VINES.

"PEREGRINE," in his remarks on the latest author but one on Vines, condemns in a sweeping manner the somewhat modern, yet none the less sound, method of training Vines 3 feet or 4 feet from the glass. In the bygone days of half opaque roofs there were good reasons for training the Vine as close to the glass as possible, but that necessity no longer exists since we now obtain far more luminous rays at the base of the house than we did formerly immediately under the glass. Not only do the Vines now receive sufficient light at this distance, but one of the greatest evils in Vine culture under glass, contact with leaves and glass, is thereby averted, and that without hourly attention in the growing season. No sealing of leaves to the glass by condensed moisture to be converted into tinder by the sun's rays by this method, but a clear space, allowing a free and uninterrupted circulation of air between roof and foliage. It is useless to say that less than 3 feet allows ample space for this purpose, because the leaves themselves in this vinery to which he adverts are Rhubarb-like in dimensions. The argument that not one Grape grower in a hundred will be found to favour the idea is worthless, inasmuch as most probably not even that percentage of Grape growers have tested it; when they have done so, however, the comparison may be reversed. There is unquestionably some slight loss in length of rafter, but the loss on a trellis 3 feet from the glass as compared with one at the ordinary distance is so little, as not to be worth consideration when weighed against the advantages derived from the greater distance where ample space is afforded for the proper development of every necessary leaf without impinging against the glass. The high lantern roof to which "Peregrine" alludes is no doubt both unsightly and expensive, and to my mind worse than useless either in a vinery or plant house; but I feel assured that the author just referred to does not thus value it, and I must admit that I have never looked at the contents of that noble vinery without being both surprised and gratified. Whether it be from the peculiar construction of the house, the somewhat novel method of cultivation, or both, and all other details of management combined, and made to properly suit each other, that these satisfactory results have been obtained, I know not, but true it is that at the present time it is perhaps one of the most wonderful vineries in the kingdom.

W. C. T.

TOP-ROOTED VINES.

PERMIT me to assure "Peregrine" that I do not feel at all aggrieved at having been anticipated in the discovery of the readiness with which Vines take root at either end by the writer to whom he alludes. Why should I? seeing that the writer in question says, "be it remembered I have not tried the plant, and it only occurs to me just at this moment" (which moment was some time last year), whereas I practically tested the plan at least seven years ago, and I myself had been anticipated, years before that, by the late Mr. Rochford, of Page Green, Tottenham, a fact that makes it the more surprising that the author in question had never heard of the plan till it dawned on him last year in the form of an "original idea" when writing a chapter on pruning the Vine. All of us might expect to be similarly left in the rear if, like him, "we never had read an essay on Vine culture," or if, "when one was placed in our hands," and its contents were found not to agree with our pre-conceived notions, "we at once closed the book." Such a proceeding would certainly soon make all of us his brethren in misfortune. In answer to "Peregrine's" query as to what I think

of this plan of rooting the tops, I have to say that the Vines have done better ever since. They are not double, but treble rooters, a double rod having been run up from each Vine, and each of the rods being layered in a border as soon as they reached the opposite side of the house, thus giving to each Vine three distinct sets of roots. Before this was done they had always borne prodigiously and finished well, but both bunch and berry beginning to deteriorate, and there being no means of extending the original border to keep the Vines up to their original state of excellence, I determined on making a new border for the tops, and, this being done, they were layered in it to a length of from 1 foot to 5 feet, according as the wood of each top was considered sufficiently well ripened. The result exceeded my most sanguine expectations; the Vines the first season finished a much heavier crop and just as finely as they did when but four years old. In 1881 there were again signs of deterioration of bunch, and as I was anxious to test the experiment still further, I, in January of last year, cut off a few of the Vines at the apex of the roof, and pulled out the halves on which were the original roots; the parts left, the tops, looked comical enough, certainly, with their thickest end uppermost, and I was half afraid that I had been too daring, but as it happened all turned out well, for those standing on their heads showed and finished their fruit just as well, of course in lessened proportion, as did the treble rooters at the other end of the house; a new border was made in the part from whence the original roots were taken and new Vines planted, and as soon as these are sufficiently strong to have their tops layered as the others were, the remaining halves of the Vines will be pulled out.

Heckfield.

W. WILDSMITH.

ALICANTE GRAPE.

I WAS glad to read in the notice of Mr. Barron's new work on the Vine that he had the courage to speak out in reference to the quality of this Grape, which he considers to be third-rate, and that in my opinion is what it is. It has been overpraised for years. When fairly well cultivated, however, it is the most showy and taking in appearance of all black Grapes, and, if we except the Hamburgh, it is the easiest of all black Grapes to grow. It is, in fact, an accommodating variety; as Mr. Barron says in his cultural notes, it sets well and colours magnificently. To this I would add that it grows vigorously, and will bear a little rough treatment without resentment. A half-hour's neglect in giving air on a bright June morning will nearly spoil the foliage of Gros Colmar and scald a score or more berries in the bunches of Lady Downes, but it will have no effect on Alicante. Therefore for amateurs and others who cannot for various reasons give so much attention to their vineries as is absolutely necessary when more tender kinds are grown, a better variety than this could not be selected for use from December to the end of January. It will therefore be understood that I do not wholly condemn it. There are "Grapes and Grapes"; the Alicante in my opinion occupies a useful place, but those who would wish to grow Grapes of the best quality should avoid it.

As a late keeper it has not many rivals, but, according to my experience, if required to be kept until February and the early part of March, it will keep better if not hurried too much in the early part of the season, and, what is equally important, if the Vines are allowed to develop their bunches as much as possible in a natural temperature. Under such circumstances they will be more regularly formed, their shoulders will be more prominent, and there will be a greater number of bunches than when the Vines are forced to start into growth by artificial heat. I have always found when the crop was ripened in rather a high temperature in September and in the first half of October that the flavour has been much superior to that of those finished off in a cooler house. There are several varieties of Grapes that require a long season of growth in order to ripen their fruit properly, but there cannot be two opinions about the Alicante

not being adapted for starting early. If it is allowed to start without the aid of artificial heat it always breaks more regularly and produces better formed bunches, and all it wants in order to secure it in its best condition as to flavour is to give it a high temperature to finish with. Any outlay upon it at the end of the season will give much better results than the same expenditure would do if devoted to it earlier.

The best examples of this Grape which I have seen were in a small house devoted exclusively to it. It was a lean-to with a long rafter, and the roots had the advantage of a wide space extending a good way across one of the quarters of the kitchen garden. The rods were therefore of a substantial character, and the crops which they bore were simply magnificent, because all the conditions for promoting vigorous growth were eminently favourable. Each rod had a clear space of 5 feet; therefore there was plenty of room for lateral growth. These Vines were allowed to start into growth without artificial heat, but as soon as damp and dull weather set in after the middle of August, fire heat was applied for six or seven weeks to keep up the temperature to 75° during the day and 60° at night. Very frequently the day temperature by means of sun heat would range from 85° to 90° with a fair proportion of air. This treatment seemed to suit it exactly, for I have never before nor since tasted such well flavoured Alicantes as these Vines produced.

J. C. C.

DOMESTIC GARDENING.*

WE may well say of gardening, as a beginning, that it is "an art which does mend Nature—change it rather, for the art itself is Nature." We may define gardening as the art of providing suitable plants for certain conditions of soil and climate, or of providing suitable soils and climates for those plants we especially wish to cultivate. Vegetation is the earth's clothing, and was created before all animal life, because it is of all things most necessary to animal existence. Before man was created, as the Bible tells us, vegetation flourished. The animal and vegetable worlds are balanced so exactly that whatever is useless or superfluous to the one is taken hold of by the other, and so utilised that nothing is lost. Domestic gardening comprehends the culture of all plants, useful as well as beautiful, which may be grown in or about our homes. For children especially a garden in which they can dig and plant flowers of their "very own" is most important, so conducive is such employment to healthy development both of body and mind. I never was so surprised at the results which children can produce in plant growing as last year, when Dr. Nelligan asked me to award the prizes for plants, flowers, and vegetables as exhibited in his schoolroom at Leeson Park. Some few of the plants exhibited there, and which had been grown in windows, could not have been surpassed had their owners had the advantages of a greenhouse. One little child—a girl—obtained the first prize for Parsley by sending a cigar box full of earth, in which the most fresh and beautiful Parsley imaginable had been grown from seed. As I left the little exhibition I wished many more prizes had been available, so good and interesting of their kind were the exhibits. In any

Domestic gardening movement we must firstly and above above all things enlist ladies on our side. Women are by nature, if not actually gardeners, lovers of the beautiful, as it shows itself in blossoms and leafage, and upon ladies as a body all ideas of domestic gardening must mainly depend. Home, be it what it may, is emphatically woman's province. She spends a far larger proportion of her life and her labour within its walls than man can ever do. It is the place in which she rules by right as well as by custom, and she is wise to make it attractive. One

way to this end, after scrupulous cleanliness, is to have flowers about the house, plants in the cottage window, or, better still, a garden, be it ever so small, in which fragrant blossoms and fresh vegetables for culinary uses may be grown. The greatest men of our time, such as Longfellow, Cowper, Keats, Wordsworth, and Wendell Holmes, have written favourably of flowers and their culture. "In the culture of flowers," says Dickens, "there cannot, by their very nature, be anything solitary or exclusive. The wind that blows over the cottage porch sweeps over the grounds of the nobleman, and as the rain descends over the just and the unjust, so it communicates to all gardeners, both rich and poor, an interchange of pleasure and enjoyment, and the gardener of the rich man in developing or enhancing a fruitful flavour or a delightful scent is in some sort the gardener of everybody else." The more we see and know of flowers the more we learn to cherish them. We lay flowers, autumnal leaves, and fruits on the altars of our places of public worship at festival times. The Hindoo strews the gorgeous flowers of *Amherstia nobilis* or those of the Sacred Lotus in his stately temples, while the Mexicans gather the finest and rarest of Orchids from the Andes for their various religious rites and ceremonies.

Towngardening.—Everyone cannot possess the luxury of a garden in the widest sense of the word, but all may grow plants and flowers in and around their dwellings. Many who live in crowded courts and in lanes, and who unfortunately have no little garden wherein to grow a few sweet-scented flowers, yet manage to extemporise ways and means to gratify the love of nature which appears to be nearly universal. Window gardening in towns has indeed been practised for centuries under difficulties, and our garden poet Cowper thus alludes to the practice:—

The sashes fronted with a range
Of Myrtle or with fragrant weed,
There the pitcher stands,
A fragment, and the spoutless teapot there;
Sad witnesses how close-pent man regrets
The country; with what ardour he contrives
A peep at Nature when he can no more.

Nor is this love for cultivated plants and window gardens confined to our own country alone; for whoever visits Paris cannot fail to notice the rich profusion of Palms, Dracænas, Cyperuses, Ferns, and delicate Mosses with which the windows and apartments there are most tastefully decorated. In Germany, Russia, and also in America, the love for beautiful plants and fragrant window flowers is rapidly increasing; nor is this to be wondered at, since the great charm of window gardening consists in the immense variety of beautiful effects that may be obtained at a slight cost, even by the use of hardy plants alone. Ivy is common enough everywhere in hedges or on old walls and on the stems of trees; and when tastefully arranged in a basket or vase of wet Moss, it forms one of the most elegantly beautiful of all plants used for the winter decoration of apartments. Beginners in plant culture should commence with common hardy plants first.

One of the greatest mistakes in any branch of floriculture is to commence with rare and valuable species before the few simple rules necessary to insure successful treatment are understood. I say this because failure at the first is apt to disappoint beginners; not but that experience of this kind is very instructive, and often teaches us far more than can possibly be learned from written directions alone. Do not, however, let imaginary difficulties deter you from attempting their culture. Many an old countrywoman who cannot read or write can root cuttings under cracked tumblers, and can grow Musk, Mignonette, Calceolarias, Fuchsias, sweet-scented Verbenas, and Geraniums to a high state of perfection, and, with the aid of a few other common plants, can keep her cottage window gay with flowers all the year round. That many fail in window gardening is true, but really the whole affair is very simple where a real love for flowers exists. It is

* A lecture (abridged) by F. W. Burbidge, F.L.S., Curator of the Trinity College Botanic Gardens, Dublin, author of "Domestic Floriculture," &c., delivered by desire of the Rathmines Sanitary Association, in the Town Hall, Rathmines, Dublin, March 6, 1883.

not enough to buy a few plants from the market and place them in the window to droop and die. They must be carefully and regularly watered; and as the love for fresh, healthy plants increases, something like a succession must be kept up, so as to secure as much variety as possible. Indeed, the knowledge essential is so easily obtained by observation that we can only wonder why every window and balcony is not gay with ornamental plants and flowers for a considerable portion of the year. Lavender, Wallflowers, Thyme, Carnations, Rosemary, and Mignonette should be around every country house, and it is possible that in years to come some part of every dwelling will be constructed expressly for the culture of plants and flowers within it. A small conservatory, or at least window cases, as fixtures will be considered as essential as a good kitchen range or a bath room. At the present time we have a few roof conservatories and gardens, and doubtless in time these and other appliances will become universal, especially in towns where space is valuable.

Ill effects of gas on plants.—One of the most serious of all drawbacks to the successful culture of plants in rooms is the use of gas as a lighting agent. The slightest escape, either from the metre or pipes, is sufficient to cause the leaves to droop and fall off prematurely, besides otherwise injuring their appearance. In all cases where the use of gas cannot be dispensed with provision should be made for carrying off the fumes as speedily as possible by a thorough system of ventilation. This much is actually essential for our own comfort and convenience, and the evil of a gas-polluted and over-heated atmosphere ought to be more generally acknowledged and provided against than is at present the case. If much gas is used it is as well to content ourselves with a few interesting plants and Ferns, and to give these the protection of a close glass shade or Wardian case. Most plants grow very luxuriantly in these contrivances, defying both the destructive influence of the gas, aridity, and dust. Cold draughts, caused by opening doors and windows simultaneously, must also be avoided when possible, though our own personal comfort generally guides us correctly in this matter. It will be found an excellent plan to carry room plants outside once or twice a week during the summer months, and either syringe or sprinkle them with a watering-can thoroughly well, so as to remove all dust, insect pests, and other impurities from their foliage. Setting plants outside during warm, summer showers is an excellent plan, none the worse because old-fashioned. In

Selecting plants for the decoration of our dwellings we are too apt to commence with fully developed specimens, selected either from the greenhouse or plant stove of the nearest nursery garden, and as a rule such plants disappoint us by their gradual decline from health and beauty when brought into cooler and more exposed positions in the house. Plants always suffer more or less when brought suddenly from a high temperature into a comparatively cold and irregular one; hence, in selecting plants for the decoration of apartments or the sitting-room window we should prefer those that have been grown in pots out-of-doors, or in a temperature as cool as or even cooler than that of the room for which we require them. It is always best to commence with young plants, either seedlings or rooted cuttings, as these gradually become inured to the fresh conditions in which they are placed.

Artisans' greenhouses.—I think it is the poet Cowper who has said, "Who loves a garden loves a greenhouse too." Let me, therefore, just describe a greenhouse—a conservatory for green and healthy plants—which I should like to see in the garden or back yard of every artisan who is fond of flowers. A structure such as I propose is cheap and effective; indeed, anyone handy with a saw, a hammer, and nails may erect it for himself. It is simply a framework or skeleton erection of rough timber quartering put up in the form of a greenhouse, and covered with rough tiffany or hempen canvas instead of with glass. The idea is not my own; it is that of Mr. Matthew

Williams, as given in a lecture delivered before the Society of Arts in London: "When the Midland Institute commenced its existence in temporary buildings in Cannon Street, Birmingham, I was compelled to ventilate my class rooms by temporary devices, one of which was to throw open the existing windows, and protect the students from the heavy blast of entering air by straining it through a strong, gauze-like fabric (tammy) or canvas stretched over the opening. After a short time the tammy became useless for its intended purpose; its interstices were choked with a deposit of carbon. On examining this, I found that the black deposit was all on the outside, showing that a filtration of the air had occurred. The recollection of this experience suggested that if a cheap, strong, gauze-like fabric can be obtained, and a sort of greenhouse made with this in the place of glass, the problem of converting backyards into gardens might be solved. After some inquiries and failures in the trial of various cheap fabrics, I found one that is already to be had, and well adapted to the purpose. It is called 'wall canvas' or 'paperhanger's canvas'; is retailed at 3½d. per yard, and is one yard wide. If I am rightly informed, it may be bought in wholesale quantities at about 2½d. per square yard, i.e., one farthing per square foot. This fabric is made of coarse unbleached thread yarn, very strong and open in structure. The light passes so freely through it that when hung before a window the loss of light in the room is barely perceptible, and, stretched upon a frame, a printed placard, or even a newspaper, may be read through it. The yarn being loosely spun, fine fluffy filaments stand out and bar the interstices against the passage of even very minute carbonaceous particles. These filaments may be seen by holding it up to the light. The fabric being one yard wide, and of any length required, all that is needed for a roof or side walls is a skeleton made of lines or runs of quartering at 3 feet distance from each other. The cost of such quartering, made of pitch pine or Memel, the best material for outside work, is under 1d. per foot run; of common white deal, about ¾d. Thus the cost of material for a roof, say a lean-to from the wall top to the side of a house, which would be the most commonly demanded form, of 30 feet by 10 feet, i.e., 300 square feet, would be 110 feet of quartering (11 lengths), at 1d., 9s. 2d.; 300 square feet of canvas, at ¾d., 6s. 3d.; nails and tacks, say 1s.; total, 16s. 5d. The size of the quartering proposed is 2½ inches to 1½ inches, which, laid edgewise, would bear the weight of a man on a plank while nailing down the canvas. The canvas has a stout cord-like edge or selvedge, and holds the nails well. I find that what are called 'French tacks' are well suited for nailing it down, and if the nails are driven through gun wads or sections of a bottle cork, the strain is not so likely to tear the canvas. The construction of such a conservatory is so simple that any industrious artisan or clerk with any mechanical ingenuity could, with the aid of a boy, do it all himself. No special skill is required for any part of the work, and no other tools than a rule, a saw, and a hammer. Side posts and stronger end rails would in some cases be demanded."

Canvas screens.—There is another purpose to which this coarse canvas material might be applied. A week or two ago, Dr. Dickenson, in a singularly practical and able lecture entitled, "The Influence of Light on Life," told us that the light of windows in narrow thoroughfares might be much improved by stretching a piece of canvas in front of the window flush with the masonry of the house itself. For such a purpose this coarse canvas may well be employed, and in addition to an increased quantity of light, we obtain also an atmosphere filtered so that it is practically free from dust and sooty particles, and the window sashes may be freely opened to admit fresh air without any danger of cold draughts. Those also who remember what Huxley has taught us as to the subtle connections between dust and disease will here recognise a simple plan for purifying the atmosphere of town houses. I have used canvas screens over some of the doorways and ventilators of the glasshouses devoted to the culture of rare

tropical Orchids and other plants under my care in the Trinity College Botanic Gardens, and with the best possible results; and I have observed that mountain plants, from the pure air of high altitudes, have been especially benefited by the adoption of these simple canvas filters or screens. This being so in hothouses especially constructed for plant culture, I need scarcely say that plants grown in windows and in town apartments would be even further benefited by their adoption. Even if some little loss of light be in some cases the result of using the canvas, I feel sure the gain of a comparatively pure atmosphere and effective ventilation would more than compensate for any seeming loss of light.

Temperance and good gardening go hand in hand. In the discussion which followed Mr. Williams' lecture Mr. Liggins remarked that, although not a total abstainer himself, he had recently, when travelling in the United States, been struck by the difference in appearance presented by the houses in districts wherein the Maine Liquor Law was enforced, and soon learned to distinguish where it was adopted by the clean, cheerful look of the workmen's dwellings, the neatness of the gardens, and by the presence of beautiful trees and flowers which in other districts were wanting. Another speaker, a landed proprietor, said that his own experience in the building of cottages had proved to him that the addition of a piece of garden ground had a most beneficial influence on the social, moral, and religious life and welfare of the inmates. It kept the father from the public-house, and the boys, who had been brought up to hoe and weed these little home gardens, had turned out the most industrious and intelligent labourers upon his estate. This last remark reminds me of the fact that in those districts in England where what are called "allotment gardens" are most common, it is a popular remark that those men who make the best use of their little gardens are also the best workmen in their respective callings. So patent, indeed, is this, that some proprietors offer prizes and other inducements to their dependents, and in many villages the date of the rustic flower and vegetable show is looked forward to as the gala day of the year. The secret seems to be that gardening offers moderate exercise congenial to both body and mind, and the material results of earth culture are quite as remunerative, even if not more so, than any other kind of rural labour. Gardening teaches people to be observant, and in cultural matters attention to detail is everything. We must keep our eyes open. If I wanted to know what kinds of fruit trees or of flowers to plant in a garden in any particular district or locality, I should not look into trade lists or scientific books, but I should carefully observe what varieties were most fruitful in the neighbouring gardens. A friend of mine told me the other day that he had planted an orchard consisting of 300 fruit trees, Apples and Pears, only ten varieties or kinds being admitted; but, headed, those ten kinds as scattered here and there in our locality have never missed a crop for the past ten years. This I have called common sense, but it is really "applied science" of the most valuable kind. It would be very easy to give you the names of the plants which grow best in rooms and windows, but those really interested would learn this best by a walk around their own neighbourhood, carefully observing those plants which succeed best in other rooms and in other windows quite near to them, and so growing under the same advantages or disadvantages as the case may be.

School gardens.—In the case of our public schools I am convinced that elementary horticulture should be made use of as an educational subject of the highest possible value. In France, in Germany, and in Sweden this is done already with the best of results, and I trust the day is not far distant when it will also be so used nearer home. In the case of countries like France and Ireland, both alike mainly dependent on the results of agriculture for their revenue, it seems inexplicable that the rudiments at least of those laws which regulate successful earth culture are

not taught to children when at school. Just a word on

Plant propagation. This is very interesting work, and either seeds or cuttings of the plants required are the means most generally employed to this end. Nature's great plan of reproduction in the vegetable world is propagation by seeds; she sows most of her seeds as soon as they are ripe, at the same time giving them the protection of the falling leaves of autumn, which eventually act as manure to the seedling plants. Multiplication by seed is simple, and is generally adopted in the case of hardy herbaceous and border plants, and always in the case of annuals or such plants as spring from seed, grow, flower, and perfect seed in their turn within the same year. *Mignonette*, *Asters*, *French Marigolds*, *Balsams*, and many other beautiful plants belong to this class. The main point in seed sowing is to sow during dry, warm weather, and not to cover your seeds too deeply. The smaller the seed, the less earthy covering it requires; the finest of dust-like seeds should not be covered at all with earth, but sown in a well drained, and watered seed-pan, a pane of glass being laid on the top to augment the heat and prevent drought. A little frame for raising cuttings or seeds in the open air is a great advantage. Those who have tried town gardening will have had some difficulty in getting up seeds. A waggish friend once told me he had no difficulty at all—they came up quite quickly; and when I pressed for detail, he said, "The cats scratched them up at night, and the sparrows ate them up next morning." Now I think a simple frame or several of them even in large gardens will be useful. Some may make them for themselves of a brandy box, costing sixpence, two panes of glass and a dozen nails costing only a few pence more. Wherever nice little hardy plants are grown, such as *Pinks* and *Carnations*, these cutting or seed-protecting boxes will be found very useful, defying, as they assuredly will do, both the nocturnal industry of the cats and the self-help tendencies so characteristic of the town sparrow.

ORCHIDS.

A FEW USEFUL DENDROBES.

D. NOBILE is so well known as one of the most useful of this class of plants, that it is unnecessary to say anything about its culture. The possessor of a dozen specimens of it may have it in flower for at least six months in the year with very little attention indeed compared with what some plants require. *D. Wardianum*, now in many gardens, is a magnificent species, and one easily cultivated. It may be grown either in pots, pans, or baskets. The two latter I prefer, as the plants have the best effect when suspended from the roof, and the stems should be allowed to hang about in their own wild way. Its cultural requirements may be summed up in a few words; it has a season of growth and a season of rest. The resting period may be continued from the autumn when growth is completed until the flower-buds are far advanced in spring. During that period scarcely any water is required, and the plants do best in a warm greenhouse temperature while they are at rest. I like to expose them well to light, and in a part of the house where they are not in a direct current of air between the top and side lights. In order to obtain a succession of bloom the plants must be put into heat at intervals, but if the heat is too great early in the season many of the flower-buds will come blind; on the other hand, if the plants are gradually inured to the warmer temperature, they will not be so likely to come defective. Perhaps the best time to repot or rebasket is immediately after the flowering period is over; by that time the young growths will have advanced considerably, and young rootlets will just be starting from their base. The fresh compost gives new life and vigour to them, and if a moist temperature and warm atmosphere is maintained, they will make considerable progress in the course of three or four months.

D. crassinode is by some preferred to the more showy and richly marked *D. Wardianum*. It is a beautiful species, and quite as easily grown as that just named, requiring indeed the same treatment. When its thick pseudo-bulbs with their singularly swollen joints are about 2 feet long, and furnished nearly the whole length with beautiful white flowers blotched with yellow and purple tipped, few *Dendrobies* can excel in beauty this species. *D. Ainsworthi*, also in flower now, is a charming garden hybrid, but it is too expensive as yet to be universally cultivated. It requires the same treatment as the others. There are two forms of it—one with rose sepals and petals, the other with white. The variety *roseum* is most esteemed; it does not differ from the hybrid form *D. splendidissimum*.

I have drawn attention to the foregoing because they are *Dendrobies* that may be grown in every garden, whether there are houses specially devoted to Orchids or not; all that they want is sufficient heat during the growing period and a fair amount of light. The flowers are delicately beautiful, and yet of sufficient substance to stand well in vases or glasses when cut; and if the plants when the flowers first open are removed to a warm greenhouse they will last in beauty for

markings, and well merits culture in quantity for the sake of its grateful fragrance.—F. W. B.

ORCHIDS AT SUDBURY HOUSE.

DURING such wintry weather as that which we have had during the last week or so, such a paradise of flowers as that which exists at the present time in Mr. Peacock's garden at Sudbury House, Hammersmith, seems all the more enjoyable when compared with the dreary aspect of things outside. In this particular garden there is, however, not much room for comparison, for the whole place is almost one vast conservatory, thus defying the vagaries of our English climate. Since our last visit, at the close of last year, five more capacious glass houses have been completed, or nearly so, and these are to be filled entirely with Orchids. What more striking proof of the rapidly rising popularity of that class of plants? A few years ago such a vast Orchid collection as exists here at the present time could scarcely be found in the country, and if the larger collections increase in size, smaller ones also become proportionately larger. Mr. Peacock could scarcely have turned his attention to a more beautiful or more satisfactory class of plants, though his old love for Cacti is



Odontoglossum Rossi var. Warneri.

some six weeks. With the exception of *D. Ainsworthi*, plants of these can be obtained for a few shillings each, and the flowers which they will produce in a few years would repay the cost of plants ten times over.

J. DOUGLAS.

Orchid perfumes—I remember a green sepalled *Pilumna* which once bloomed in the Orchid house at Kew had precisely the odour of the Poet's *Narcissus*, and the old *Epidendrum ciliare* smells like roasted Apples. *Coelogyne cristata* is often scentless, but when odorous it is not at all nice. All the *Angræcums* are mostly perfumed at night, nearly entirely losing their perfume during the daytime. On the other hand, *Zygopetalum Mackayi* and one or two other species are deliciously fragrant during the day, but lose their odour towards evening. The old *Dendrobium nobile* is very variable in odour, having a breath of Primrose in the morning, honey-like at noon, while its odour is Grass-like in the evening. *Brassavola nodosa* is scentless during daylight, but fragrant at night. *Anguloa Clowesi* has a strong odour of Fennugreek; *Dendrobium macrophyllum* like Turkey Rhubarb, although one form or variety of it is called *anosmum* because it is scentless. *Epidendrum radiatum* has the smell of parched corn, and *Stanhopeas* are suggestive of a chemist's shop. *Odontoglossum Warneri*, to which I alluded as having a Violet-like odour, well deserves more general culture. It differs from *O. Rossi majus* in having a halo round the dark chocolate spots on its petals, as also in habit and peculiar

still undiminished, and he justly prides himself in still possessing the richest private collection of succulent plants in existence. From now onwards till June the garden here will contain an unequalled display of orchidaceous plants, and nearly all the houses being arranged in continuous lines, the visitor passes literally through vistas of Orchid flowers in infinite variety and of every conceivable hue and form. At present it is difficult to say which section is the more beautiful, but the gayest are the housefuls of *Odontoglossums*, *Phalænopsis*, and *Dendrobiums*.

The Phalænopsis house is a lovely sight, there being hundreds of flower-spikes all in perfection, and none appear to have been affected by the foggy weather, which proved so disastrous to other London collections. Probably the reason of this is that the plants were later to flower, and the buds were not advanced enough. Since we saw the collection last the whole of the *Phalænopsis* have been removed to a house to themselves specially prepared for their culture. It is a low, sharply pitched, span-roofed house, running east and west, and fully exposed. On either side of the central path is a raised bed, and above this is a raised trellised stage high enough to bring every plant within a foot or two of the roof, a condition, we are convinced, quite indispensable to successful *Phalænopsis* culture. On this stage the plants are placed, and the majority of them being in square wood baskets, their roots are thrown out in all directions, and fasten themselves to the staging in eagerness, as it were, for the moisture which arises from the moist bed of Cocoa-nut fibre beneath.

This is, we consider, an excellent plan of growing *Phalenopsis*, for, all the plants being get-at-able and under the eye, the individual wants of each can be attended to, and there is less chance of their delicate and brittle roots becoming bruised than if they were in suspended baskets. The main display of bloom is effected by *P. Schilleriana*, of which there are some admirable examples and some beautiful varieties, some with flowers $2\frac{1}{2}$ inches across, others with deeply-coloured blossoms, and some, again, with branching and numerous-flowered spikes. One, we observed, was copiously spotted with minute dots of deep purple on a rose-pink ground, similar to one we lately saw at Burford Lodge under the name of *delicatissima*. The still rare *P. Stuartiana* was in bloom, among which the variety *nobilis* could be at once singled out by its finer and more richly spotted flowers. It is found here to be a capital grower under the same treatment as *P. Schilleriana*. The rare little, but not very showy, *P. Manni* was in bloom, but the choicest of all were two fine specimens of *P. grandiflora aurea*, which is a great beauty, remarkable for the rich golden yellow markings on the labellum and by its larger and more rounded blossoms. It is an extremely fine Orchid, as beautiful as it is rare. It was originally received by Mr. Peacock direct from Borneo among an importation, and it is a pity that more of it could not be imported.

The *Dendrobium* house was a brilliant sight, for, being just the height of the *Dendrobium* flowering season, there were crowds of species and varieties in bloom. The greatest show was made by masses of such as *D. nobile*, *Wardianum*, *crassinode*, *Pierardi*, and other bright coloured kinds which might be counted by scores. It is only when seen in such quantities as this that the grand effects Orchids are capable of producing can be obtained, and it seems to be one of the first principles with Mr. Peacock to have the finest display possible of his particular favourites among Orchids. Where the species are represented so numerous as here there are of course many varieties among them, some exceptionally fine. Here we saw the finest variety of *D. crassinode* we have yet seen, the flowers being more richly coloured than those even of the splendid variety *Barberianum*. A plant of this fine form, in a small basket, had a growth about a foot in length literally covered with blossoms. The type and numerous other forms were similarly represented. We should think that all the known varieties of *D. nobile* may be found here from large to small flowered, and from almost white to the deepest tinted forms. Some of the growths of *D. Wardianum* are a yard or more in length, and furnished for fully one-half with blossoms, which in the best forms are quite 4 inches across and most beautifully tipped. The plan here is to grow this *Dendrobe* in pots, which, compared with the size of the plants, are small, and the bulbs are tied erect. The home-grown bulbs are in many cases larger than those imported, which in itself is a proof that they receive skilful treatment. Another *Dendrobe* grown here uncommonly well is the old, but pretty, *D. Pierardi*; against a wall are suspended some dozens of plants attached to blocks, and from these depend long slender bulbs often 4 feet in length, wreathed with delicate mauve-tinted blossoms. The wall being covered with greenery sets off the flowers to perfection, and the moisture therefrom no doubt conduces to the well-being of the plants. We observed a variety of *D. Pierardi* with a decidedly yellow cast on the blossoms, rendering it very distinct, quite unlike the ordinary form. The following other *Dendrobes* worthy of special note were *D. Freemani* in the way of *D. nobile*, but with more deeply tinted blossoms, a useful kind and one that every Orchid lover ought to possess. *D. luteolum*, with primrose-yellow blossoms, is quite different from the ordinary run of *Dendrobes*, and, moreover, with a perfume akin to Primroses, and being evergreen the flowers look well among the green foliage. *D. crepidatum* is a pretty species not much known, but worthy of consideration. It has flowers the size of those of *D. crystallinum*, but with bluish tinted segments and a rich yellow

blotched lip. The rarely seen *D. hedyosmum* was just in perfection, and perfumed the house with its delicious odour like a mixture of Violets and Cowslips. The flowers, white and green, are not showy, but the scent amply compensates for this. *D. primulinum*, *fimbriatum*, *Paxtoni*, *barbatulum*, and a host of others were in flower, besides *D. Findleyanum*, which we consider one of the prettiest of *Dendrobes* when seen in such a finely grown condition as here. It is of dwarf growth, and has singularly knotted bulbs, which are thick and of a pale green. The flowers, about 2 inches across, have rosy pink sepals, and the broad shallow lip has a large blotch of rich yellow; a fine plant of it here with a dozen or more bulbs was quite a picture in itself. It does not seem to be much known, but it is undoubtedly a valuable kind, and distinct from any other. Passing from the *Dendrobe* house, we come to the

Odontoglossum houses, in which hundreds and we might say thousands of flower-spikes were either carrying expanded flowers or incipient buds. The most numerous species is *O. crispum* (Alexandrea), which is evidently the greatest favourite with Mr. Peacock, for he grows it by the thousand, and, as may be imagined, their effect when in full bloom, as at the present time, is indescribably beautiful, for each houseful of them fairly bristles with spikes. Some excellent varieties were in bloom at the time of our visit, chiefly of the Blunt type, which Mr. Vicary, the gardener here, distinguishes from *O. Alexandrea* by the flowers not having broad segments spotted and usually suffused with a purplish tinge.

Against a wall (facing north) are hung hundreds of plants on oblong trellises of *O. Rossi majus*, the greater portion of which bearing flowers, and among them may be singled out some exceptionally beautiful varieties, remarkable both for large size and rich colouring. This is no doubt one of the best ways to grow this Orchid, for it seems to like the subdued light, and the roots cling to the damp wall with great tenacity. Among rarer kinds we noted *O. Wilckeanum*, of which there were two distinct forms, one with flowers of a brighter shade than the other, and which Mr. Peacock originally bought from Mr. Norman. Both are superb varieties, with flowers 3 inches or 4 inches across, richly coloured with chestnut brown on a yellow ground. Another variety was *O. Ruckerianum*, and we thought it the finest form of it we had seen. It may be best described as having the flowers of *O. Andersonianum*, but flushed with purple, and in the plant here the colouring is much deeper than usual, rendering the flowers exceedingly attractive.

The new *O. Sanderianum* is not such a great rarity here as in other collections seemingly, for we observed several flowering specimens of it, and one was a particularly fine variety. This novelty is in the way of *O. gloriosum* as regards habit of growth, size, and shape of the flower, but its chief character is the pure white labellum, which, combined with the yellow, chocolate blotched petals and sepals, makes a handsome flower. *O. triumphans*, *bictonense*, *cordatum*, *maculatum*, *pulchellum*, *Halli*, *nebulosum*, *gloriosum*, *odoratum*, the rare and beautiful *O. Edwardi* with branching spikes of purple blossoms were among other kinds in bloom, and shortly there will be a grand display of bloom of the beautiful *O. cirrhosum*, judging by the number of spikes which are produced.

Cymbidium eburneum forms in itself a beautiful floral sight, there being not far short of a hundred plants in one group massed at the end of a span-roofed house. Each plant was carrying one or more spikes of its large ivory white blossoms amidst the elegant grassy foliage. We had never previously seen such an assemblage of this Orchid before, and rarely have we seen it grown so well. It is grown by Mr. Vicary, not in ordinary Orchid soil, but in a compost of loamy soil. He has treated the plants thus for a long time, and they seem to luxuriate under the conditions. A few years ago this species was a great rarity, and no one then supposed that it would in so short a time be seen grown in such numbers in one garden as

here. There are one or two distinct forms of it having flowers copiously spotted with purple on the labellum. The flowers are deliciously scented, and, being of easy culture, it should be a favourite with everybody.

Among other Orchids of note in flower were *Ceologyne ocellata maxima*, with flowers larger and more richly spotted than in the type; *Miltonia cuneata*, remarkable for the snowy-whiteness of the lips of the flowers, produced on tall erect spikes; *Cyrtorchilus Karwinski*, a handsome and uncommon species, with the sepals and petals mottled with brown and olive-green, and with a white labellum; *Oncidium Rogersi*, the loveliest perhaps of the genus, having long hairy branches of blossoms some 2 inches across and of a clear chrome yellow; *Laelia harpophylla*, the beautiful species alluded to in *THE GARDEN* several times lately, was still in charming bloom; as was likewise *L. anceps Barkeri*, there being numerous spikes in excellent condition, though so late; *Ada aurantiaca* lighted up one of the houses with its long spikes of orange-scarlet blossoms, as did likewise the sweetly pretty *Angraecum citratum*. The *Cattleya* houses were enlivened, as might be expected, with *Cattleya Trianae* in its endless varieties. Among the curiosities might be mentioned *Epidendrum criniferum*, with singular triangular blossoms, and one, we believe, is very rare. Every portion of this extensive collection bears evidence of the skilful treatment it receives, though of course there are the inevitable failings as in every large collection, but lessons are derived from these for future guidance.

Cattleya Trianae Bonnyana.—A variety so named we saw the other day in Messrs. Veitch's nursery, Chelsea, and is, we consider, one of the finest forms of *C. Trianae* yet introduced. The flower is of the largest size, with petals $2\frac{1}{2}$ inches broad, and these, as well as the sepals, are of a soft lilac-mauve tint. The labellum measures 2 inches each way, and the edges of it are beautifully frilled. Its colour is pale mauve in the throat dashed with yellow, the rest a brilliant carmine-magenta, while the margin is of a pale tint. The plant is a large one fixed to a suspended flat trellis, and the flowers, three in number, are borne from one sheath. Ordinary forms of *C. Trianae* have a poor appearance compared with this superb variety. It was named after Mr. Bonny, of Hackney, with whom it originated.

Phalenopsis Sanderiana.—This new Orchid was exhibited for the first time at South Kensington, on Tuesday last, by Mr. Hill, gardener to Sir Nathaniel Rothschild, Tring Park. The flowers strongly resemble those of *P. amabilis*, but are larger than even the finest forms of that species; the petals are almost round, and, with the sepals, are of a snowy whiteness flushed with a faint purple tinge. It differs from *P. amabilis* most in the structure of the labellum. The leaves are said to be mottled like those of *P. Schilleriana*, and not plain, as in *P. amabilis*, hence it must be a very distinct plant. The spike shown bore three flowers, each over 3 inches in diameter.

SHORT NOTES.—ORCHIDS.

Cocoa-nut fibre for Orchids.—My experience agrees exactly with that of Mr. Baines (p. 218) respecting the use of this fibre for Orchid growing. I have always found that after twelve months the fibre began to rot and get white with fungi that killed the roots. Fresh-made roots that came in contact with it turned black and stopped growing. The consequence was, I had to shake the plants out, wash them clean, and put them in fresh compost.—G.

Books on Brazilian Orchids.—"Walper's *Faunales*," vol. vi., price 25s., is a more modern work than Lindley's "*Genera and Species of Orchidaceous Plants*," and contains descriptions of many Brazilian Orchids. So also the parts of De Candolle's "*Prodromus*," art. Orchids. A flora of Brazil is now being published in volumes, one or more of which will no doubt include the Orchids of that region. At Kew, in the herbarium, our correspondent could see many Orchid books and obtain much information re Brazilian Orchids unobtainable elsewhere. R.

Odontoglossum nevadense.—Of this handsome and distinct species Sir Trevor Lawrence exhibited on Tuesday last three unusually fine spikes cut from the plant to which the name was originally applied. The spikes are more slender than those of similar species, and one of those shown bore eight expanded flowers. The flowers are about the size of those of *O. luteo-purpureum*; the sepals and petals are chocolate brown, edged and tipped with a yellowish tint; while in contrast to the dark colour is the pure white labellum which bears a prominently ridged crest. It is a rare species and grown to perfection in the Burford Lodge collection.

GARDEN DESTROYERS.

APHIDES IN ADVANCE OF THEIR FOOD.

UNDER this heading Mr. D. T. Fish makes some remarks on the early appearance of aphides, a circumstance doubtless owing to the mildness of the winter. Having had a few sunny days, they hatch and show themselves round the fast-budding shoots or young blossoms, and are often a great source of trouble when they get into the latter, especially in the case of Peaches and Nectarines, which they spoil. The best way to prevent this is to do as Mr. Fish says—fumigate the house before the buds open, as then the trees will be free from insects till the blooms set, when it will be necessary to repeat the fumigation, but this should always be done with care, and only when the tender foliage is dry. Instead of a heavy fumigation, it is always safest to give several whiffs following each other night and morning till the aphides are destroyed, which they will be after two or three turns if the tobacco paper is good. The latter varies so much in quality, that it is always advisable to procure the best, as much harm is often done by using inferior kinds. However good the paper or cloth may be, I always like to have some real tobacco with it; and though it is now high in price, I am not sure that it is not the cheapest in the end. Proper fumigators should be employed, so as not to require anyone to remain in the house. There is much economy in this as well as safety, for with a good fumigator the tobacco only smoulders and gives off much smoke, and may be left to burn itself out if only a limited quantity is put on at first. With an open pot or any makeshift of that kind, it would be highly dangerous to do that, as the paper would be almost sure to flame, and send up hot blasts of air that would ruin the foliage. To start the tobacco, and keep it burning, a few pieces of lighted charcoal are best, as they hold the fire a long time, and are not liable to become extinguished by the ashes in the way hot cinders do, S. D.

Woodlice in Mushroom houses.—If your correspondent (p. 126) damps the edge of the Mushroom beds and the floor about three o'clock with a very fine rose, so as not to make the floor too wet, and then go into the house at night with a light, he will find that all the young ones have come out after the moisture—small red creatures—they can then be killed with ease by merely smearing his fingers over them. It must, however, be done very carefully, or they will run back again into their holes. This must be repeated night after night till he finds that none are left. This is how I cleared our fernery, which, when I came here, was smothered with them.—J. H., Bedford.

Onion and Carrot grubs (T.).—Your Onions and Carrots, as you imagine, are attacked by different grubs. The former by the grubs of the Onion fly (*Anthomyia ceparum*); the latter by those of the Carrot or negro fly (*Psila rosea*). The same remedies are useful in both cases. Take up carefully any roots which are attacked, and be sure not to leave any of the grubs behind in the earth, and after the crop is removed trench the ground deeply. Gas-line or a quart of paraffin oil mixed with a barrowful of sand or ashes strewn over the bed is very useful in keeping

the flies away. Sow as far as possible from ground which has borne an infested crop; keep the ground round Carrots as firm and compact as possible to prevent the flies from getting to the roots.—G. S. S.

ROOF HEATING.

ADVERTING to our system of roof heating, allow me to say that it has been greatly misrepresented. Many who have seen it, and to whom we have pointed out all particulars, have afterwards described it so reverse to the actual facts, that we hardly care to say anything further about it. As "W. C. T.," however, seems to imply that we are not sincere as regards the system first adopted by us at least twelve years ago, allow us to state that our houses and even pits, without a single exception, are all heated with pipes running along the rafters 3 inches or 4 inches from the glass, and about 10 inches from the wall plates or sill. It must, however, be understood (strange as it may appear) that all our water is made to circulate in a way exactly contrary to that usually adopted—that is to say, it flows along the pathway, turning up towards the roof at the far end, and running, as before described, just beneath the rafters to the end of the house, where it first entered in the pathway, having a gentle rise all the way, and where the pipes pitch down (being the highest point) into the main return pipe the air tap is inserted. With us nothing can be more satisfactory than this plan, and it is very evident plants like growing towards the heat as well as towards the light. Hitherto the notion has been to apply the heat somewhere under the roots. We have no bottom heat whatever of any description, and it is our belief that having the heat applied at bottom has done more to injure horticulture than all other erroneous notions put together. The flow and return pipes from and to the boiler are not in any way different from ordinary pipes. Any kind of boiler will answer for this method of top heating just as well as our own. H. CANNELL, JUN.

Swanley.

QUESTIONS.

Charcoal in Vine borders.—I am going to make a new Vine border, and as I have some charcoal, would some of your readers kindly let me know if it would be a good thing to mix with the soil, and, if so, in what quantity?—CONSTANT READER.

Mushrooms in caves.—Would some of your readers state how Mushrooms are grown in the caves of Paris, and what is the temperature of those caves? Here, at Sandwich, in Kent, we have large caves in the solid chalk, and the temperature of them is always 52°. How are Mushrooms to be grown in them?—W. V. L.

Pruning Rhododendrons.—Will some of the readers of THE GARDEN kindly reply to the following question? We have a large bed of Rhododendrons, some of which are in flower now, and others will come in succession for the next three months. They are overgrowing their limits, and getting hollow in the centre. I want to know the proper time for pruning them, and if there are any special rules to be observed.—LOCKHART.

Beds in a span-roofed house.—Will some of the readers of THE GARDEN kindly give me their advice as to which is the best mode of constructing beds in a span-roofed house, 12 feet wide, with 3-feet path up the centre, leaving the remainder for beds on each side? The house is wanted for growing stove plants, propagating cuttings, and raising seedlings for bedding, &c. Two ways have been recommended, viz., 1st, filling in from the bottom pipes with coarse gravel; 2nd, covering with slate slabs. Which of the two is best? or if there is a better way still I should be glad to know it. We are in a district where thin stone slabs can be procured cheaper than slate. Would they answer the same purpose?—W. K.

Our readers will greatly oblige by replying, so far as their knowledge and observation permit, to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 13.

OWING to the cold weather which we have had, and still are having, there was on this occasion almost an entire absence of plants of a very tender character; but, on the other hand, there was a goodly display of greenhouse and hardy plants, chiefly Abutilons, Primulas, Cinerarias, Fuchsias, and Amaryllises.

First class certificates were awarded to the following:—

AMARYLLIS DR. HOGG.—A fine variety, having flowers 7 inches across, with broad overlapping divisions of a deep rich crimson, and with a band of white running up to the middle of each segment. Shown by Messrs. Veitch.

DENDROBIUM WARDIANUM VAR. WADDELIANUM.—A variety differing from the type in having smaller flowers and without colour, except deep yellow and maroon blotches in the interior of the labellum. It is identical with the variety album. Exhibited by Mr. Ward, gardener to Mr. G. Waddell, Stony Stratford.

AMARYLLIS GEORGE GORDON.—A handsome flower 6½ inches in diameter, with broad reflexing segments, making a finely shaped flower. The colour is a bright scarlet, and with a band of white running along the centre of each division. Messrs. Veitch.

AZALEA DEUTSCHE PEARLE.—A variety of the Indian or greenhouse Azalea, with large, perfectly double flowers 3 inches across, of snowy whiteness, and abundantly produced on small plants, one of the best double white Azaleas known. Shown by Mr. C. Turner, Royal Nurseries, Slough.

AMARYLLIS A. F. BARRON.—A fine flower 7½ inches across, but not so perfect in form as the smaller varieties. The colour is a splendid rich crimson, and there being four fully developed flowers on the plant it was remarkably attractive. Messrs. Veitch.

DENDROBIUM NOBILE NOBILIUS.—The finest coloured variety of the old *D. nobile* known. Its flowers are 3½ inches across; the petals are 1½ inches long by 1 inch broad, and are of a resplendent purple colour, while the lip has a dark blotch on it like that of the type, in contrast with a zone of white edged with purple. Shown by Mr. Salter, gardener to Mr. Southgate, Selborne, Streatham.

ZYGOPETALUM CRINITUM ROSEUM GIGANTEUM.—A fine variety of an old Orchid. The flowers are larger than those of the type, and the markings on the labellum are decidedly of a rosy hue. The plant shown bore four spikes, each about a foot high, and was a fine specimen of good culture. Shown by Mr. Wilson, gardener to Mr. H. M. Pollett, Farnside, Bickley.

PESCATOREA LEHMANNI.—A flower of this Orchid was shown also by Mr. Pollett. It was 4 inches across; the petals and sepals were a deep plum colour copiously lined with white; the labellum was singularly studded with white hairs on a purple ground. A very handsome and rare Orchid.

CINERARIAS COLONEL CLARKE AND CAPTAIN EDWARDS.—Two very fine varieties, perfect as regards size, shape, colour, and habit. The first has flowers just upon 3 inches across, with broad overlapping florets and of a deep velvety magenta. The other has similar flowers and of a brilliant magenta, set off by a ring of white in the centre. Exhibited by the raiser, Mr. James, florist, Farnham Royal, Slough.

FUCHSIA MRS. RUNDLE.—A remarkably fine hybrid variety in the way of Lord Beaconsfield, with flowers 2½ inches long and with the spreading sepals 4½ inches across. The sepals are flesh colour, while the corolla is an orange-scarlet. It is a wonderfully free flowering variety; the plants, about a score in number, though in 3-inch pots, were 1½ feet high, and completely hung with blossoms on their upper parts. Shown by Messrs. Cannell, Swanley.

CINERARIA A. F. BARRON.—A double flowered variety, with large, globose, full flowers 2 inches across, and of a bright magenta. It is of a dwarf, compact growth and floriferous. Messrs. Cannell, Swanley.

A very pretty group of forced shrubs was shown by Messrs. G. Paul & Sons, Cheshunt. It consisted of about a dozen standard bushes of Pacquerette Rose, a variety of *Rosa polyantha hybrida*, an extremely pretty plant, with clusters of small, pure white double flowers. Some excellent examples of Lilac Charles X., and white Clematises, Vesta, Edith Jackman, and Miss Bateman, all beautiful varieties, and some superbly flowered plants of *Staphylea colchica* completed this choice group, for which the exhibitors were awarded a bronze medal.

Messrs. Cannell brought from Swanley a fine display of Cinerarias, Fuchsias, and Primulas. The Primulas consisted chiefly of the old double white, which was remarkably well grown, being fully 1½ feet across, and profusely flowered, though the plants were only in 4½-inch pots. The Cinerarias were single and double varieties. The doubles included some very fine sorts, notably Sir T. Clarke, with large violet flowers, good in form, and Professor Henslow, with bright violet large flowers. The best of the single varieties were G. F. Wilson, with tricolorous flowers with maroon margin and white zones; R. Dean, bright magenta, with central ring; Dr. Masters, similar, but smaller, but, like the last, perfect in form; S. Hibberd, G. Bryceson, W. Robinson, W. E. Gladstone, J. Moore, and J. Douglas were likewise among the best of this choice selection, all of which were far in advance of the ordinary strains. These were all admirably grown, and a bronze medal was awarded to the exhibitors.

A group of about three score of seedling Abutilons was exhibited by Mr. George, Putney Heath. These embraced a great variety of colours, and the majority were remarkable for large size and fine form of the flowers and distinct colouring. A selection of the finest included Brilliant, reddish scarlet; Lustrous, rich scarlet; Striata splendida, orange-scarlet, much striped; Purpurea, dull reddish purple; Cloth of Gold, one of the best of the yellows; Silver Bell, pinkish, veined with red; Orange Gem, very large, shallow flowers, orange-red; and The Bride, pink, veined with red. The above are a few of the best of larger-growing varieties. Another and very distinct type was shown under the name of Compactum, the members of which were very bushy in growth and not more than a foot or so high. The varieties Little Beauty, Vivid, Roseum, Pink Gem, Aureum, and Scarlet Gem were the best in this group, which is one that ought to be encouraged. A bronze medal was deservedly awarded to Mr. George for his extensive collection.

Chinese Primulas in variety and admirably cultivated were shown by Mr. Child, gardener to Mr. W. G. Bell, Garbrand Hall, Ewell. The most remarkable of these was that named Alba gigantea, having large trusses of white flowers 1½ inches across and beautifully fringed. It is vigorous in growth and a profuse flowerer. Other kinds were Rubra superba, good in colour and habit; Laingi Improved, an excellent white; and the now well known Chiswick Red.

Two new seedling Roses were shown by the raiser, Mr. Bennett, Shepperton. These were named Mrs. George Dixon, a large flower with massive petals of a deep rose-pink. This was a Hybrid Perpetual. The other was a seedling Tea variety named William Francis Bennett. This was exhibited in the bud state, shown as a button-hole bouquet flower. The colour is a deep crimson, and very pretty in a bud state.

Azaleas Duke and Duchess of Albany, new seedling greenhouse varieties, were shown by Mr. Todman, gardener to Mr. G. Connell, Bushy Down, Tooting Common. Both are small flowered, the first a kind of Indian red, the other pure white. Both are extremely floriferous and very useful sorts for forcing into flower early.

A fine Chinese Primrose in the way of Alba magnifica was shown by Mr. Burgess, florist, h iple, Bradford. The plant is vigorous in

growth and very floriferous. The trusses were large and the flowers, 2 inches across, pure white and beautifully fringed.

A double Cineraria named Vortigern was sent by Mr. Vertegans, Chad Valley, Birmingham. It is a pretty sort with full globose flowers of a bright magenta. A very elegant foliage plant, *Sisymbrium millefolium* was also sent by Mr. Vertegans. It is an erect herbaceous species with long ferny foliage of a bright green. It is nearly hardy and particularly suitable for growing in pots for decorative purposes.

A very fine group of coloured Primroses and Polyanthuses in pots, about 150 in number, came from Mr. A. Waterer, Knap Hill Nursery, Woking, which made a bright display, and the same exhibitor showed a fine plant of *Andromeda japonica*, an extremely elegant hardy shrub. The plant was bushy and clothed with thick evergreen foliage, and nearly every branch was terminated by drooping clusters of small waxy flowers of transparent whiteness. Such a beautiful shrub as this is well worthy of pot culture for conservatory decoration in spring. A silver medal was awarded.

Primulas were likewise shown by Mr. Eckford, gardener to Dr. Sankey, Boreatton Park, Shrewsbury. Among these were Crimson Gem and Duchess of Albany, both of a brilliant crimson; Emperor and Empress, rich purple; and Perfection, of a pale pinkish purple. A well-flowered plant of *Dendrobium Wardianum* was exhibited by Mr. Ward, gardener to Mr. J. Waddell, Stony Stratford. The variety was one of the best, the blooms being 3 inches across and tipped with deep purple-magenta.

Cut spring flowers, including Primroses, Narcissi, Scillas, and Iris reticulata, were shown by Mr. G. F. Wilson, from his garden at Oakwood, Wisley, to show how well the flowers had withstood the effects of high winds and severe frosts. A charming basketful of Primroses came from Mr. R. Dean's seed grounds, Ealing. These included three superb sorts—Bluebell, with pretty purple-blue flowers, yellow eyes, and striped petals; Virginia, almost a pure white, with orange centre; and Sulphur Queen, yellow, with deep yellow centre. Another called Bedford Beauty, with flowers as large as a crown, and of a rich crimson-maroon.

From Chiswick Mr. Barron sent a fine painful of plants of the beautiful orange coloured *Lachenalia Nelsoni*, admirably grown; also two fine specimens of *Imantophyllum miniatum*, one named superbum being remarkable for its intensely rich orange-scarlet flowers.

Fruit.—The principal exhibit was a dish of a new seedling Apple, called Warner's Seedling, exhibited by Mr. E. Warner, Broomfield, Chelmsford. It is of large size, evenly round in shape, and with the skin of a pale yellowish green. It is said to be of good flavour. It was in excellent preservation, thus showing what a good late variety it is. A first-class certificate was awarded. A large dish of forced Vicomtesse Héricart de Thury Strawberry was sent by Mr. Allan, gardener to Lord Suffield, Gunton Park, Norfolk. The fruits were of fair size and good colour, and a cultural commendation was accorded to the exhibitor. Fruits of *Carica cundinamaricensis* were exhibited by Mr. Green, gardener to Sir George Macleay, Pendell Court, Bletchingley. They were egg-shaped, about 2 inches long, and of a reddish orange colour.

The committees included the following members—Fruit: Mr. H. Veitch (chairman), Messrs. P. Crowley, S. Lyon, J. Willard, F. Burnett, J. Roberts, W. Denning, W. Paul, A. Sutton, C. Silverlock, J. Lee, G. Paul, R. D. Blackmore. Floral: Mr. G. F. Wilson (chairman), Messrs. J. Llewellyn, W. Bealby, N. Ridley, T. Moore, H. Bennett, G. Duffield, H. Eckford, H. Turner, T. James, H. Ballantine, C. Green, J. Wills, H. Cannell, W. B. Kellock, J. Hudson, J. Doyle, H. Ebbage.

Scientific committee.—Sir J. D. Hooker in the chair.

Tulipa Christiana.—Dr. M. Foster made some remarks on the eastward extension of this species,

stating that it had been found in South Persia, further east than had been previously recorded.

Lachenalia Nelsoni.—He also exhibited flowering spikes of a *Lachenalia* named by Messrs. Barr aurea × rosea, which appeared to be the same as L. Nelsoni. It had a red rim to the edges of the petals, and some features resembling L. tricolor. What rosea referred to appeared doubtful.

Frost at Lamorran.—The Hon. and Rev. Mr. Boscawen stated that the frost last Friday was 12° Fahr. in a valley, the thermometer being on the ground and fully exposed. It was 10° of frost less on the higher and more open country. Mr. Loder said he had recorded 3° Fahr. on the same night at Weedon at an altitude of 300 feet above the sea.

Potato disease.—Dr. Masters read a portion of a paper on this subject forwarded to him by Mr. A. Stephen Wilson, and having special reference to the Sclerotia, which Mr. Wilson had discovered in nearly all the organs of the adult plant as well as in the seedlings and tubers. The Sclerotia are supposed to germinate and lie in a state of incubation in the haulm. Ultimately they give rise to the conidial threads. The conidia form, according to circumstances, either (1) zoospores, (2) plasm granules, or (3) secondary conidia. These are succeeded by oospores and a non-parasitic mycelium, from which latter, as it creeps through the soil, are thrown out "floats" and specks of the seminal plasm. The seed tuber comes in contact with the plasm in the soil, it is absorbed, and becomes developed in the shape of Sclerotia, and thus the life cycle is completed. From the tuber or seed to the conidia is the parasitic arc. From the conidia to the tuber is the non-parasitic arc. The author illustrates his position by what happens in the case of cereals, wherein the plasm, say, of smut or rust is absorbed by the cells of the scutellum or cotyledon, passes through a period of gestation, and then germinates. Mr. G. Murray observed that a microscopical examination of certain specimens did not clearly reveal any organic connection between the sclerotia and the Peronospora mycelium, and thought that possibly they might prove to be glandular bodies of some kind belonging to the Potato itself. Moreover, they could not be true Sclerotia in the fungoid sense, as the latter are a compact mycelium.

Plants exhibited.—*Hybrid between Carica cundinamaricensis and Carica erythrocarpa.*—Mr. Green sent leaves and fruit. He observed that the fruit of this plant is borne all the way down the stem like that of C. cauliflora, whereas the flowers of C. papaya, the Papaw tree, are in a terminal cluster. The fruit was devoid of seeds, though the plant which bore them was originally raised from seed.

Retinospora pisifera and R. plumosa.—Mr. Noble contributed a specimen showing the foliage of these two supposed species on one branch. Dr. Masters remarked that the spinescent foliage of the latter is characteristic of a young state, but the adpressed form of the latter is adult. There are correspondingly microscopic differences in that the latter has more stomata than the former, possibly correlated to its more vigorous growth when young.

Juniperus chinensis.—Mr. Noble also sent a male spray, taken from a female tree, growing from an altitude of 14 feet from the base of the tree of the latter kind, the sexes in this species being usually quite distinct.

Garrya elliptica grafted on Aucuba japonica.—He also sent a young plant showing the two growing together. Mr. Henslow remarked how this was an instance where physiological affinity corroborated the morphological in that while Endlicher placed Garrya between the Hop and Plane, Sir J. D. Hooker assigned its position next to Aucuba, but the discovery of its power of grafting on Aucuba was a purely accidental discovery in Messrs. Veitch's establishment.

Primula.—A variety called Miss Eckford, shown by the gardener to Dr. Sankey, of Shrewsbury, was a curious instance of an attempt at "dialysis" of the petals, which were very deeply cleft, somewhat in imitation of the Ragged Robin (*Lychnis Flos-cuculi*).

Primula sinensis (hybrid ?).—A supposed seedling hybrid between an *Auricula* and *P. sinensis* was sent by Mr. Roberts, of Rose Hill, Ipswich. The pedicels and calyx were of a pinkish hue, the corollas white, but with no trace of the mealy character of some *Auriculas*.

Primula denticulata.—Six very fine varieties of this species from Nepal was sent by Mr. J. D. Llewellyn. It was first introduced by Mr. Veitch in 1842, and figured in the *Botanical Magazine*, No. 3959.

Phajus maculatus.—Mr. Boscawen exhibited a fine spike of this Orchid, which he described as being nearly hardy.

Lecture.—Mr. Henslow first called attention to a fine collection of *Primulas* of the *Polyanthus* type exhibited by Mr. Waterer, as well as to a collection of finely flowering double white ones by Mr. Cannell, and a series of six varieties of the Nepal *Primrose* by Mr. Llewellyn. It was at one time thought that the common *Primrose*, which has given rise to so many excellent types under cultivation, was the same species as the *Cowslip*, the probable origin of all our older *Polyanthuses*, and that the *Oxlip* is a hybrid between them; but Mr. Darwin was inclined to think them distinct, as their habit of growth and time of flowering do not agree, as well as that they differ in the details of the flowers. The fine *Polyanthus* forms exhibited by Messrs. Waterer, Dean, and others are the results of various crossings of *Primrose*, the usual flowers of which, though apparently growing singly from the rootstock, really rise from an abbreviated peduncle which elongates under cultivation. Mr. Henslow alluded to the other *Primroses* described in the report of the Scientific Committee. *Sisymbrium millefolium*, a European species, with finely divided leaves, suggested remarks upon an allied species, *S. Irio*, the London Rocket, which appeared suddenly after the burning of London, and also in the Oxford Botanic Gardens after the burning of weeds, &c. It was suggested by Dr. Masters that the sudden appearance might be specially due to the increase of the quantity of potash and other salts which stimulate the dormant seeds into life. Similar results arise after burning forests in America. Mr. Henslow alluded to the practice of forcing coloured lilac in the dark to develop white-flowered sprays, and remarked on M. Bert's experiments with plants grown in high latitudes, and which bore more brilliantly coloured flowers than those grown in the neighbourhood of Paris. The colours do not depend directly on light, but on the supply of nutriment supplied by means of the foliage, which is finer under the more continuous supply of sunlight in high regions. Hence *Hyacinths* will bear blossoms of their normal colour in the dark, but the *Lilac*, though coloured under sunlight, is colourless in the dark, presumably because it has no or insufficient food in reserve.

***Sisyrinchium grandiflorum*.**—This deserves a better generic name than it has got. *Rush Lily* is indeed a good name in every way for this charming plant. I have grown it for six years, and we have always spoken of it as the *Satin-flower*, a name by which it is known at its wild home, and used by the trade in North America. "W. G." (p. 199) speaks of this plant as of doubtful hardiness. It has, however, survived with me the recent severe winters; and in the autumn of 1881 I put a plant of it in the coldest part of my garden which is not without clay, and it has grown strongly, having made an extra crown, and will probably be in flower in some two days' time if the weather be sunny. During the past week we have had 8 inches of snow, and since most of it melted we have had 23° of frost during one night (March 9 and 10), which has cut off nearly all the *Helibore* bloom stems and many other things; the *Satin-flower*, however, is all right, though the friendly snow scarcely covered it at that time. I therefore think it perfectly hardy, and, moreover, fond of moisture, but not in the least of that of a stagnant character. Such has been my experience of this plant for six years.—J. Wood, *Kirkstall, Yorks*.

AMERICAN NOTES.

Manures for bulbs.—An ounce of nitrate of soda dissolved in four gallons of water is said to be a quick and good stimulant for bulbs to be applied twice a week after the pots are filled with roots and the flower-spikes are fairly visible. A large handful of soot, or about a pint, tied up in a piece of old canvas and immersed in the same quantity of water for a day or two, will furnish a safe and excellent stimulant; also good and safe is a quarter of a pound of cow manure mixed in a large garden pot of water and used as required. Any of these stimulants will do good, or the whole of them applied alternately will benefit bulbs that need more sustenance than the soil affords.—*Scientific American*.

Coal ashes as a fertiliser.—These are said to contain very little enriching material, a statement with which I agree, but they derive some value from the ashes of wood used in lighting the fire. We used anthracite in the kitchen as well as parlour some years ago. When the grates required clearing we removed ashes, slag, &c., that would not sift through the bars. Pine was mostly used to rekindle, some few Beech or Maple chips being employed with it. A liberal estimate of wood ashes, hard and soft, would be one-half bushel to each two-horse load of twenty bushels of coal ashes. The ashes were run through a sieve, and early the following spring drawn and spread on three acres of lawn, not expecting to derive any benefit, but as a convenient method of getting rid of them. Where the ashes were spread there was a noticeable increase in thrifty growth of red Clover where little was to be seen before. The result would have been as beneficial had a less quantity been applied and the surface harrowed, the sod being thin and "hide-bound." From the above experience I am satisfied that coal ashes are a fertiliser of the nature of gypsum, although they will not show as good results as the latter in equal weights.—I. S. MASTERS.

Dried fruit.—These, being reduced in weight to one-fifth, are easily moved from place to place; 200,000 baskets of Peaches canned in San Francisco making 250 car-loads, would be reduced to 42 car-loads if evaporated. The sale of dried fruits in California already amounts to over £400,000. The raisin crop in 1882 amounted to nearly 200,000 boxes, worth £100,000. The recommendation was strongly urged "to put up nothing to sell not first-class." It may be proper here to remark that the improved facilities for drying Grapes to raisins in trays, and turning by inverting a loaded tray while drying into an empty one by placing their faces together, are a simple and great improvement.—*Country Gentleman*.

Sex of the *Ailantus*.—A note in the *American Agriculturist*, probably from the pen of Professor Thurber, than whom there can be no better authority, calls attention to the fact that there are three kinds of *Ailantus*—the male, which is fetid for the few days it is in flower, the female, which is inodorous, and the hermaphrodite, which, though perfecting seeds as the female does, has also disagreeable flowers. The purely female is the form which those should raise from root cuttings who find fault with the odour of the others.

A new Catalpa.—Dr. Warder says that Mr. H. H. Hunnewell, of Boston, has contracted with Messrs. Douglas & Sons, of Waukegan, the well-known nurserymen, for the planting of several hundred acres with the hardy Western *Catalpa*, the soil being first broken up and planted with grain for one year or more before setting out the *Catalpas*. They are placed 4 feet apart, requiring nearly 3000 for an acre, and Messrs. Douglas agree to furnish the trees, plant and tend them until old enough to take care of themselves, at the rate of 3 cents each. This would be 80 dollars an acre, probably one of the most profitable investments on the part of the land owner that can be made.—*Gardeners' Monthly*.

Canning Oranges.—By a process similar to that used for preserving other fruits, Oranges have recently been successfully canned and shipped. The fruit is peeled and broken into its natural sections before canning, and when taken out is just ready for use. This is likely to become an important industry in the Orange growing districts of California and Florida.—*American Garden*.

Trees in May.—The month of May is a critical time in northern tree growth. The stem is surcharged with crude sap which soon decomposes as the weather becomes warm if the leaves do not unfold and use it. Hence rapid decay of wood cut then, and fatal effects from pruning at that time. But a week may make a great difference, especially if the weather is very wet or very warm, or both or neither, and one tree may be in the critical stage of growth, while another adjoining may have passed it.—*Rural New Yorker*.

OBITUARY.

WE learn from a Colombian paper of the death of Mr. J. H. CHESTERTON, the well-known botanical collector, which took place at Puerto Berrio on January 26 last. He has for many years followed his precarious calling, collecting chiefly in South America, and he is said to have crossed the Atlantic 48 times. His name is associated with several new plants, which among others he discovered and sent home. Among them are *Odontoglossum Chestertonii*, one of the finest varieties of *O. crispum*, and *Oncidium cucullatum Chestertonii*, also a very handsome variety. His last trip was taken, we believe, for Mr. James O'Brien, who instructed him to confine his attention to collecting Orchids.

Cinerarias.—(G. A. F.).—Good, but much inferior to the best strains.

Fruits (*Pomologie, A.*).—"Dictionnaire de Pomologie," by Andre Leroy, Paris.

Chinese Primulas (*T. Bush*).—The flowers you send represent a fine strain, being of large size, brilliant in colour, and, as you observe, good in substance.

Primula and Cineraria (*D. D.*).—The flowers you send represent beautiful strains. The *Primula* seems to be identical with that known as *Chiswick Red*.

Cinerarias.—A boxful of blooms sent to us by Mr. Bull, Chelsea, are remarkable for large size (some nearly 3 inches across), good in form, brilliant and varied in colouring.

Kew Gardens (*J. T. H.*).—A two years' stay at Kew would be of much service to you, provided you fully availed yourself of the advantages there offered for study. Young gardeners on leaving Kew do not receive any of the Government grant.

The weather in Yorkshire.—I do not remember such severe weather at this time of the year as we have lately had. Roses and Gooseberries which were green in leaf on the 1st inst. are now hanging black and dead. Wall trees have not suffered so much; they are not quite in flower yet; but the change from the fine weather we have lately had is terrible. Snow 4 inches deep fell on the 8th.—B. WADDS, *Birdsall, York*.

Names of plants.—A. S. Smith.—*Physalis edulis* (Cape Gooseberry).—A. C.—*Dendrobium crassinode*. Fern is too much withered to recognise; send latter in season when fronds are much more matured.—M. Lockwood.—A species of *Tillandsia*. Grow it on a block as you suggest.—D. D.—*Dendrobium Freemanii* (good variety).—Raby.—*Dendrobium fimbriatum oculatum*, *Doryopteris nobilis* (Fern).—Ferns.—*Young Botanist*.—1, *Blechnum occidentale*; 2, *Polystichum angulare proliferum*; 3, *Goniophlebium subspatiolatum*; 4, *Polystichum capense* Syn. flexum; 5, *Cytidium anomophyllum*. Jan.—Fern is *Lastrea Filix mas cristata*.—Constant Reader.—Apparently *Acacia pulchella*; Australia (try layering).

COMMUNICATIONS RECEIVED.

Vitis.—G. D.—A. D.—J. B. (next week)—A. B. W.—E. T. A. B. C.—E. H.—R. I. L.—A. F. B.—T. H.—O. L.—H. P.—W. I. M.—J. A.—T. W. C.—R. T.—C. M. O.—C. (next week).—T. E.—F. W. B.—F. S.—W. M. (next week).—J. H. E.—H. H. C.—A. R.—C. W. D.—F. W. B.—J. G.—R. M.—W. E. L.—Peregrine—J. R.—H. B.—J. H. E.—F. A.—V.—J. D.—J. E.—W. A.—G. S. S. (next week).—Brookhurst.—S. D.—J. W. S.—A. B. K.—J. D.—J. V. Alpha.—B.—W. E. G.—W. B. & Son.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

FRUIT GARDEN.

VARIABILITY OF GRAPE SEEDLINGS AND CROSS-FERTILISATION.

It has been a matter of surprise to me, and no doubt to many others of your readers, that in the various notices of Mr. Barron's book on the Vine his statements relative to the subjects which head this paper have received so little attention. His opinions on the fertilisation of the Grape and Grape seedlings are, I believe, hardly shared by any other authority. It is a great pity Mr. Barron has not been more explicit on this subject, and stated when and where and by whom his somewhat dogmatic assertions on these matters have been verified. I do not remember ever to have read or been told before that "the varieties of Grapes usually reproduce themselves from seed—that is to say, if the seed of a certain variety be sown, that same variety will most likely be raised from it. *They do not sport or vary*, or but to a very limited extent, excepting they are artificially impregnated. . . . Excepting great care has been taken to properly cross or fertilise the flowers the chances are a hundred to one that nothing ever will be raised." I have reproduced Mr. Barron's full statement on this head from p. 25 of "Vines and Vine Culture." "This accounts," Mr. Barron continues, "for the many varieties of Grapes sent out as distinct, which ultimately prove to be nothing but old sorts." With the exception of Venn's Muscat and Bowood Muscat, we have not heard of any authenticated seedling Grapes reverting to the original type. No white berried seedlings have turned black that we know of in the course of time. The white Lady Downes Grape, for example, is a seedling from the black variety of that name "not crossed with pollen from any other variety" (Burbidge's "Cultivated Plants," p. 575), and there are many other seedlings in cultivation. Mrs. Pince and others have as yet shown no disposition to change. In the work just quoted (Burbidge) it is also stated that "Vines raised from seed are nearly as variable as Apples, Plums, Pears, or other cultivated fruits," and I believe this is the generally accepted opinion, if not the correct one, so that the discovery to the contrary must be Mr. Barron's own, and ought to be authenticated. The writer of this paper has probably seen as many seedlings raised and proved as most growers, but he cannot remember any variety reproducing itself except the Black Hamburgh. In fact, it is doubtful, according to Mr. Barron's showing, if any of the so-called crosses in existence are anything else than seedling sports from self-fertilised seeds, for I believe I am quite within the mark in stating that in few instances were the flowers fertilised in the careful manner Mr. Barron says they require to be. He states that cross-fertilisation "is a ticklish operation, requiring the greatest care and patience, and one of the most trying garden operations." If in the bunch of flowers to be cross-fertilised "a single flower be allowed to expand naturally, it may ruin the whole experiment. . . . the chances are a hundred to one nothing new will be obtained," &c. The flowers are to be manipulated by a pair of scissors "in advance of the natural development," every single flower is to be carefully operated upon, not a grain of the natural pollen is to escape, and the bunches under operation are to be enclosed in muslin bags. Is Mr. Barron aware that many of the most remarkable of reputed cross-bred Grapes were from bunches of which no such care was taken, a bunch of another variety having been only shaken or suspended over the bunch to be fertilised? And yet the progeny

from such Vines warrant the opinion that they had been cross-fertilised. If they had not been, it is almost certain that Mr. Barron's assertion that "Vines do not sport or vary" unless cross-fertilised must be erroneous, for not one of the seedlings so treated came like its parent. Raisers of seedling Vines will, I believe, corroborate this view. If cross-fertilisation be as difficult a matter as Mr. Barron represents, what comes of the reputed cases of the setting of such varieties as the Alnwick Seedling, for example, which, it has been confidently stated, has been set by simply sprinkling foreign pollen over the bunch? In fact, Mr. Barron recommends that plan himself in his book, although the Vine produces plenty of pollen of its own, which, according to Mr. Barron, it is a hundred to one will effect the fertilisation if but one flower be allowed to expand naturally. Are we to understand that the Alnwick Seedling and other shy setters are an exception to Mr. Barron's rule in regard to self-fertilisation? Such an admission would be fatal to his case; but it is for Mr. Barron to explain the inconsistency of his theory and practice.

In Burbidge's "Cultivated Plants," in a well-authenticated chapter on Vines, I find a long list of the best new Grapes given as examples both of "cross-breeding and seminal variation." Whoever is right, it is certain that one has only to sow seed of Grapes to get new varieties, for the most part worthless, perhaps, but still different from the parents. Mr. Barron's idea, too, that self-fertilisation is the rule in Grapes is opposed to Mr. Darwin's views, which have been verified by others. "Nature abhors self-fertilisation," he has stated. GROWER.

DOUBLE-ROOTED VINES.

It would appear from "Peregrine's" note (p. 209) that information respecting double rooted Vines would be acceptable. Having a wish to test the plan, I began seven years ago to prepare for doing so. I had a house of Vines, 30 feet long, with all the roots inside; the Vines, three in number, were planted at one end and trained horizontally under the roof. They had been planted about eight years and had already reached the other end of the house; I therefore selected one of them and trained down the wall the leading rod, which reached the border in one season. Early next spring I pegged this rod down on the border and left about 1 foot in length beyond the point where it was pressed on to the soil. This was necessary in order to insure growth being made beyond the point, which touched the soil, and to encourage the formation of roots. With this in view I encouraged one bud to grow and extend a few feet in length. In a few weeks roots began to form rapidly, and in one season there were sufficient roots to thoroughly establish that end of the Vine. At pruning time the branch that extended beyond the roots being no longer necessary was cut off, and at the present time this Vine remains rooted at both ends, the whole length of the rod being as near as possible 50 feet, 30 feet being bearing rod, the other 20 feet divided between each end. The house being a high one, the rod has therefore to make a growth of nearly 10 feet before it reaches the wires on which the lateral growths are trained. This Vine has now existed, with roots at each end, for five years, and if I were asked if I thought it had in any way been benefited by the additional roots, I should, without hesitation, answer "No." Up to the present time I do not consider I have obtained one ounce in weight of Grapes more than I did when it existed on one set of roots. The only benefit I have received from this experiment was the year that I was training the leading rod down the opposite wall. I had that season the best Grapes on that Vine that I have had since or before, a circumstance which, to my mind, conclusively proves that the extension system of Vine growing has much to recommend it. Nevertheless, the experiment proves, as it has done in other instances, that the Vine is an accommodating plant. I may even go further and say that its amount of capacity to enable the cultivator to

step out of the beaten track is not yet fully comprehended. People interested in this subject may fully satisfy themselves as to the

Flow of the sap.—Get a strong pot Vine, place it in a warm house, get another pot of the same size filled with good soil, and then peg down that end of the Vine on the top of the soil, leaving two or three eyes beyond the point from which the roots are expected to obtrude. Encourage one of these buds to grow for a time, and rub off all the rest but one on the other side of the pot as they break forth. The growth of the buds on each side will be about equal for a time, but the one at the extreme end will take the lead if not checked to the injury of the others. As soon as roots begin to form, the end growth must be gradually shortened back until only a leaf or two is left; this will throw all the strength of the roots into the growth on the other side. In order to secure a cane strong enough for fruiting the next year, it should not be detached from the parent Vine until the leaves fall off in the autumn. Of course the young rod will want some support in the way of a neat stick, or else be so placed as to be trained on wires; but for all practical purposes a rod 4 feet long and well ripened will be of sufficient length to test the principles of growing Grapes with the sap flowing backwards, because it must be clearly understood that no roots are attached to that bud from which the young rod is grown. The sap must therefore, as ordinarily understood, flow backwards.

A pot Vine which I had obtained in the way just described grew and fruited as freely as if it had been raised in the ordinary way; but I attach no importance to either of these experiments in a useful sense beyond demonstrating the erroneous impressions entertained that it is not possible for a plant to exist under the circumstances just described. In my own case the experiment was not made with a view to obtain definite information. The idea was merely fanciful, and worked out without there being any particular object in view. J. C. C.

Unpruned Pear trees.—Were I in your correspondent's place (p. 235) I should refrain from pruning the Pear trees in question at all beyond taking out any weak shoots that seemed to be useless for any good purpose. Having terminal bloom buds is a good sign, as that is evident that growth from the points will be checked, and that the vigour of the trees will largely flow into the side buds, causing them to plump and possibly form fruit buds for next year's cropping. Were these long shoots shortened back materially, as possibly some might recommend, the result would be that the buds left would burst into strong growth all over the trees, and a setting of fruit buds would be as far removed as ever. If some of the shoots seem of ungainly length, they may be drawn in in a drooping form and tied to the stem of the tree by means of stout twine, and in a year or two this pendent form will become set.—A. D.

Vines away from the glass.—"W. C. T.," in THE GARDEN (p. 251), upholds the method of training Vines 3 feet or 4 feet from the glass. Perhaps it may interest some to know that "W. C. T." is not alone in thinking that Grapes may be well grown trained 3 feet from the glass. Last year I was about to cut out three young rods I had trained up the previous year from the base of two Black Hamburgs and one Muscat of Alexandria, but the thought occurred to me that I might try and fruit them tied to a wire strained under the other Vines. I accordingly strained three wires 42 inches from the glass, and on these wires under the other Vines these rods fruited, and finished their crop as well as those did above them on the permanent Vines. It seems to me from this experiment that Vines do not require so much light as is generally supposed. I may add that the Grapes were not highly finished in this house, but I do not attribute that deficiency to the manner of growing them, but to over-cropping

as they were allowed to carry far too heavy a crop. I mean to repeat the experiment this year with one or two Vines, and if they do well I do not see why one should not have a double crop under one roof. The only trouble would be thinning that next the glass.—G. A. PASSINGHAM, *Milton, Cambs.*

ORCHIDS.

NOTES ON ORCHIDS IN FLOWER.

THE Orchid houses in Mr. Ball's nursery, Chelsea, are now gay and spring-like, and among the crowds of species and varieties are some worthy of special note either on account of their rarity or beauty.

Masdevallias alone make a beautiful show—the whole collection fairly bristling with flower, spikes. The chief display is made by the charming *M. ignea*, indisputably the finest *Masdevallia* for winter and early spring—its chief flowering season. Its colour, a bright orange-scarlet, is very telling, and the flowers are produced in profusion even on small plants. On one plant in a 4½-inch pot we counted a score of flowers nearly all expanded. Some dozens of this species in a mass at one end of the house formed one of the brightest sights we have seen among Orchids this season. Too much cannot be said in praise of *M. ignea*, and it is particularly a suitable plant for small and select collections. Similar to this species is *M. militaris*, as yet a very scarce plant. It differs in its brighter colour and larger and thicker texture of the flowers. This is likewise in bloom. *M. triangularis* to us is a singularly interesting species, though not a showy one. The flowers are triangular, and the tails of the sepals much attenuated, and their bronzy colour is very pleasing. Like *M. ignea*, it is extremely floriferous; on a small plant have we counted no fewer than thirty-two blossoms. Other noteworthy species in bloom were *M. Shuttleworthi*, probably the most perpetual flowering of all, and very pretty; *M. xanthina* in the way of *M. Wageri*, but the paler flowers produced much earlier; *M. Estradæ* delicata, a new and rare variety, differing from this type in its lighter coloured flowers. All the three preceding are among the gems of the genus. In a short time, judging by the number of spikes that have been developed, there will be a fine display of the *M. Harryana*, *Veitchi*, and *Lindeni* groups. Already there are some in bloom, and among them we noted a very fine variety of *M. Harryana* called *vivicans*, which has large rounded flowers of such a brilliant carmine-magenta as no colour on the artist's palette could reproduce. The rare Humming-bird Orchid, *M. trochilus*, was just expanding its large grotesque-looking flowers.

The white Cœlogyne is just now a lovely sight. Numbers of plants of it placed in one mass are full of bloom of snowy whiteness. Nothing could well surpass the chaste purity of the flowers of this Orchid, in which there is not the slightest trace of colour so often found in the majority of so-called white Orchids. There is no question that this white Cœlogyne is one of the most valuable additions to Orchids of recent years, but it will be a long time before it will come into general cultivation. It is apparently as easily cultivated as the ordinary *C. cristata*, and flowers quite as freely, but in the form of the flowers there is a marked difference, so much so that some believe it to be a distinct species. Prof. Reichenbach calls it *C. cristata hololeuca*, but it is generally called simply *C. cristata alba*—certainly the more expressive name. In company with this was a huge specimen plant a yard through of a major form of *C. cristata*, usually known as the Chatsworth variety. In this the flowers are not only considerably larger than those of the type, but as many as seven, eight, and nine are borne on each spike. It surpasses the type in every respect. It flowers later, and so prolongs the flowering season of *C. cristata*, which is, perhaps, its greatest merit.

Among the *Odontoglossums* were superb varieties of *O. crispum*, as fine both as regards size and form as could be wished for; so

also of *O. Pescatorei*, of which we saw a variety that has not previously come under our notice. Its point of distinction is the crest of the labellum, which, instead of being pale yellow, is of a deep, rich apricot, at once rendering it distinct from all the rest of the varieties. If it should prove to be constant, it will be a beautiful addition. The charming little *O. blandum*, one of the neatest and prettiest of all *Odontoglossums*, was conspicuous among all the rest. From its allied species it may be at a glance distinguished by the small, much spotted flowers gathering into a congested spike, and by the broad white labellum. Such a refined little Orchid only needs to be seen to be appreciated. The full beauty of *O. Rossi majus* can only be enjoyed when seen in considerable numbers, and this is the case here. In a large group, all in flower, may be seen every imaginable gradation in size and colour from what is generally thought to be the type to these varieties, having flowers 3 inches across and superbly coloured. One called *mosaica* with tessellated markings on the sepals and petals is most distinct. *O. Rossi* is grown in a cool, moist house in company with *Sarracénias* and similar plants, and under such conditions it thrives admirably. Among other varieties in bloom were *O. Wilckeanum pallens*, with flowers paler than those of the type; *O. cristatellum*, with handsomely marked blossoms; and a beautiful *O. baphicanthum*, with narrow sepalled flowers of a soft lemon yellow sparsely spotted with chocolate brown. A variety of *O. Halli*, called *leucoglossum*, on account of the lip being white instead of yellow, is an extremely handsome plant, so likewise is *O. facetum*, a great rarity of the *luteo-purpureum* stamp. It has flowers some 2½ inches across, with light yellow sepals marked with cinnamon-coloured blotches and with tooth-edged petals of the same colour, except that the spots are smaller and more numerous. The lip is adorned with a fine yellow-fringed margin, and is also heavily blotched with chestnut brown; it is as handsome as it is rare. *O. nebulosum pardinum*, a finely spotted variety, is very pretty, as was also a fine variety of *O. cirrhosum*, a species which will take a prominent part in the display presently.

Dendrobium Johannis semifuscum.—This is a new variety of a distinct Australian species, itself by no means common in cultivation. In habit of growth it resembles *D. superbiens*, and every pseudo-bulb bears from near its apex an erect spike of flowers about 1½ inches across, having singularly twisted sepals and petals of light green flushed with a bronzy hue. It is not a showy Orchid, but from the profusion of its blossoms and their uncommon colour, combined with their delicious perfume, it is a kind sure to be in request. Among the numerous other *Dendrobes* in bloom we singled out from among the plants of *D. Wardianum* a very fine variety called *superbum*, remarkable for the large size (4½ inches) of the blossoms and the deep, rich markings of the sepals and petals. *D. macrophyllum giganteum* was worthy of note, being one of the handsomest of *Dendrobes* notwithstanding its strong Rhubarb-like perfume. The flowers are 5 inches across and of a plum-purple colour.

Other flowering Orchids of note were *Cœlogyne ocellata maxima*, with blossoms nearly twice the size of those of the type, and an extremely beautiful plant; *Phalenopsis Stuartiana*, a superb variety form of this choice species; *Aerides Leeaeum* with a much deeper crimson labellum than ordinary, thereby rendering the raceme of flowers more attractive. *Trichopilia suavis superba* is a truly superb variety of a lovely plant. The labellum of the flower is much larger than usual, and is white copiously blotched with rose-pink. The perfume of this Orchid is in itself a recommendation to grow it.

Cymbidium Devonianum is a singularly handsome Orchid, and though introduced nearly fifty years ago, seems to be scarce at the present time. It is distinct in habit of growth from most other species, having rather broad leathery foliage produced from small bulbs; from the base of these the long pendulous flower-spikes proceed,

and often attain as much as 18 inches in length. The flowers, over an inch across, have olive-green sepals and petals, with veinings of purple, while the labellum, the most conspicuous part, is a deep, rich crimson, inclined to claret. When the blossoms first expand the colour of the lip is strikingly bright and attractive, but at length it becomes duller. It is now in flower in Mr. Peacock's collection at Sudbury House, Hamersmith. It is an Indian plant, inhabiting the Khoosea Hills, in India, whence it was sent home in 1837 to the Duke of Devonshire, by Mr. Gibson, then collecting plants for the gardens at Chatsworth.

THE SPECTRAL MASDEVALLIA.

(M. CHIMÆRA.)

OF all Orchids no genus we can just now call to mind is more distinct or is composed of species more widely divergent in size, form, structure, and colour than is this one of *Masdevallia*. It was founded well-nigh a century ago by Ruiz and Pavon on a species from Mexico, *M. uniflora*, which, so far as I know, is nearly if not quite unknown to present day cultivators. When Lindley wrote his "Genera and Species" in 1836 three species of *Masdevallias* only were known to botanists, but twenty-five years later, when he prepared his "Folio Orchidaceæ," nearly forty species were known in herbaria, and to-day perhaps fully a hundred kinds are grown in our gardens, while travellers tell us of all the gorgeous beauties which are known to exist high up on the cloud-swept sides of the Andes and Cordilleras of the New World. *En passant* it is a little interesting to note that while species of *Cypripedium* exist in Europe, Asia, and America in both the east and west, the *Masdevallia* is confined to the western hemisphere alone, and as in bird and animal distribution, so in the case of many Orchids we find that when any genus is confined to one hemisphere, those who look for another representative genus in the other are rarely disappointed. Thus hornbills in the east are represented by toucans in the west, and the humming bird of the west by the sunbird of the east, and so also in the Malayan Archipelago. Notably in Borneo we find *Bolbophylls* without pseudo-bulbs and with solitary or few flowered scapes and other traits singularly suggestive at first sight of the western *Masdevallia*. Thus some *Bolbophyll*, for example, have caudal appendages to their sepals, as in *Masdevallias*, and on the other hand some *Masdevallias* have their labellums hinged and oscillatory, which is so commonly the case as to be almost "characteristic" in the genus *Bolbophyllum* or *Sarcopodium*. Speaking generally, *Masdevallias*, coming as most of them do from high altitudes, lend themselves to what is now well known as "cool treatment," and cultivators find it equally necessary to offer them moisture in abundance both at the root and in the atmosphere, also seeing that when at home in cloud-land they are often and well nigh continually drenched by heavy dews and copious showers. Although collectors tell us of their epiphytal habits at home, they succeed so far as we at present know when treated as terrestrial Orchids, and potted in small well-drained pots of peat fibre and Sphagnum Moss. Now and then, as at Burford Lodge or at Chelsea, we find a special structure entirely devoted to this genus; but, as a rule, they succeed well in company with the *Odontoglossums* and *Disas*. When we come to consider the

Species best worth notice in a short paper of this kind, the difficulty is where to begin. Those fond of small things will see infinite beauty in *M. triaristella*, a fine plant of which might be packed into a match box, flowers and all, and yet its dwarf Agave hystrix-like habit of growth and tiny speckled flowers are, of their kind, most attractive. *M. Wageri* is another little beauty of the spatulate-leaved race, having stiff tails to its lower sepals, so that its little blossoms rest on the moss on these and the slender scape in a way which reminds one of a three-legged stool or easel. *M. melanopus*, with



MASDEVALLIA CHIMERA (natural size).

two or three flowers on a scape white spotted with purple, with short yellow tails, is another beauty of the pigmy group, and the densely speckled

M. polysticta is most floriferous; also *M. Shuttleworthi* is very distinct—indeed its markings are unique, and its beauty is such that no collection of rare Orchids is complete without it. It is a long time since its discoverer showed me dried flowers in a sun and rain-stained pocket-book at a time when one or two plants only were alive in Europe, but it is now more abundant and a general favourite to boot. When may we hope to see *M. racemosa*, which Bateman says “has scapes a foot long, flowers larger than any Burlingtonia, and of the most vivid scarlet?” Now and then we come across species of melancholy interest apart altogether from their beauty. For example, take those species discovered by poor Franz Klaboch, also *M. lata*, with flowers of metallic brilliance, which reminds one of poor Zahn, who, with his horse or mule, was drowned while crossing a stream in Central America. Then there is *M. Bruchmulleri* (poor Bruchmuller!) and that dainty little *M. nidifica*, which Lehmann found growing out on the twigs of dead trees in Ecuador, making the gaunt white branchlets lovely in February during the heavy rainy season there. There are, in fact, species of equal and differential styles of loveliness by the dozen equally deserving of our notice had we space to comment on their beauty and singularity. When we come to the showy everyday kinds what glowing colours do we not find. What in floral colouring surpasses the subtle variations observable in different individuals of *M. Veitchi*, varying from yellow to scarlet shot with purple? *M. Harryana* and its forms, *M. Denisoniana*, *M. coerulescens*, *lata*, “Bull’s Blood,” *M. Whitechurchiana*, and *M. Lindeni* (André), again, are most beautiful in their variety, and so of *M. ignea*, which exhibits somewhat of the glowing brilliancy of a red-hot iron in the type, but becoming nearly yellow in the distinct variety called *M. Marshalliana*. Then of all forms of *M. ignea*, that known as Dr. Paterson’s variety is one of the largest and finest in blossom, although dwarf withal. As an example of snowflake-like purity of whiteness, perhaps no other flower can equal *M. tovarensis* (*M. candida*), each of its triangular scapes bearing from two to four flowers. Just as I write I come across a note of Baron Rothschild’s plant of this species in the Ferrières collection, which in 1878 bore no fewer than 137 flowers on forty-five spikes, and I remember a pan in what some of us call “Seden’s department” at Chelsea a year or two ago bearing about a hundred blossoms. *M. amabilis*, *M. Davisii* (golden), *M. ephippium*, *M. Colibri* (Linden and André), *M. Estradae*, *M. coriacea*, *M. civilis*, *M. fenestrata*, *M. Wallisi*, *M. Bruchmulleri*, and others, if less showy than some of the foregoing, are yet to be included among the most interesting of all cultivated Orchids. Of all the cultivated *Masdevallias*, however, none are so weirdly strange and fascinating, as is the species *M. Chimæra*, which is so well illustrated in the accompanying engraving. This singular plant was discovered by Benedict Roetzl, and about 1872 or 1873 I remember *M. Lucien Linden* calling upon me one day and among other rarities showing me a dried flower of this species. I remember I took up a pen and rapidly made a sketch of the flower, which soon after appeared (1873, p. 3) in the *Florist*, and was perhaps the first published figure of the plant. It was named by Professor Reichenbach, who could find for it no better name than that of the mythic monster Chimæra, than which, as an old histori an tells us, no stranger bogie ever came out of the earth’s inside. Our engraving shows the plant about natural size, and indicates the form and local colouring pretty accurately. The ground colour is yellowish, blotched with lurid brownish crimson, the long pendent tails being blood colour, and the interior of the sepals are almost shaggy. The spectral appearance of the flower is considerably heightened by the smooth, white, slipper-like lip, which contrasts so forcibly in colour and texture with the lurid shagginess around it. Sir J. D. Hooker in describing this species in

the *Botanical Magazine*, t. 6152, says that the aspect of the curved scape as it bears aloft its buds and hairy flowers is very suggestive of the head and body of a viper about to strike. Dr. Houghton, F.R.S., told me long ago that *Darlingtonia californica* always reminds him of a cobra when raised and puffed out in a rage, and certainly the likeness is a close one. To return, however, we have several of these

Chimæroid Masdevallias in cultivation, and *M. Nycterinia* so closely resembles the true plant, that it is even yet grown and mistaken for it in some gardens, as also is *M. Wallisi*. Then there is *M. Backhousiana*, near to but much superior in size and colour to the last named. A plant of this variety, which flowered at York in 1879, bore great blotched flowers, the extended tails of which measured 16 inches from tip to tip. Another of this strange group is the *M. troglodytes*, figured in the *Belgique Horticole*, 1877, t. 5, although the flowers are rather small. *M. radiosa*, found by Wallis at an altitude of 8000 feet, near Frontino, is at first sight in habit and general appearance so near *M. Wallisi*, that even that keen-sighted collector himself for some time confounded them. Grown in shallow Teak wood baskets, suspended near the roof in a partially shaded structure, all the Chimæroid section of *Masdevallia* succeed even better than when grown in pots or pans, as they have a *Stanhopea*-like habit of pushing out their flowers at all sorts of deflected angles. A close glance at the engraving will show that for convenience sake the artist has propped up the flower with a stick, this much arrangement being a necessity so as to enable the tails to lie diagonally across the picture. From tip to tip the flower represented is 9 inches, or not so much by 7 inches as the flower measured in Messrs. Backhouse’s nursery at York. Those who wish

Further information on this genus may refer to *THE GARDEN*, Vol. X., pp. 240-245, where are descriptions and references to figures of some of the more showy of cultivated species, and a charming group of *Masdevallia* flowers was painted by Mrs. Duffield for *THE GARDEN*, Vol. XIII., p. 102. The plate referred to is a good example of successful colour printing, and the portrait of *M. Veitchi* more especially therein given is perhaps the most faithful and characteristic ever produced. Of all Orchids none are more singularly weird and uncanny in their general aspects than are these *Masdevallias* (named after Dr. Masdevall, a Spanish botanist, &c.) of the Chimæroid or slipper-lipped (*Saccolabiate*) group. F. W. BURBRIDGE.

Vanda Parishii Marriottiana.—Judging by some flowers of this very rare variety sent us by Sir W. Marriott, The Down House, Blandford, with whom it originated, it is a splendid Orchid, the flowers, over an inch across, having thick wax-like segments of a rich amethyst purple, flushed at the tips with a brownish hue. The type is a handsome plant, but this surpasses it much in richness of colour.

A gigantic flowered Dendrobium nobile has been sent to us by Sir William Marriott. Each of the three flowers sent measured fully 4½ inches across the outspread petals, which are an inch broad. The colour, too, is rich and deep, each tip of the petals and sepals being stained with violet-purple, while the huge lip has an intensely deep blotch of maroon-purple. This variety is far beyond all others in point of size that we have seen, and we imagine that it is unique, at least in this country.

Epidendrum Wallisi.—A flower of this rare Orchid, sent by Sir William Marriott, shows well what a handsome species it is. It is one of the tall-growing kinds, with slender reed-like stems, at the top of which the flowers are produced in clusters. The flower is about 1½ inches across and of very thick waxy texture; the sepals and petals are a clear yellow spotted with dark purple. The broad wedge-shaped labellum is white and veined with purple, altogether a singular and rare combination of colours. It flowers

continuously for several weeks in the early part of the year, and is exceedingly attractive when well grown and flowered. It is a native of New Granada, and has been introduced about eight years.

Cymbidium Lowianum.—An extremely fine spike of this Orchid comes to us from Dr. Paterson, Fernfield, Bridge of Allan. It is nearly a yard in length, and carries about a score of blossoms. These are some 4 inches across, and of thick fleshy texture. The colour of the petals and sepals is a mistletoe green, while that of the labellum is a deep crimson—a strange association of colour, yet a remarkably striking one, and seen in no other Orchid. It is evident that Dr. Paterson knows the requirements of this plant. With this comes the deepest coloured variety of *Odonoglossum cordatum* we have seen, the colour being a rich reddish brown, set off by the transverse bars of white on the petals and the almost wholly white heart-shaped labellum. There is a richness of colour about these flowers that make them singularly attractive, and the spike bears a dozen of such blossoms.

Dendrobium Ainsworthi roseum.—Mr Douglas in his interesting remarks on useful Dendrobies (p. 254) says, in reference to this hybrid that “it does not differ from the hybrid form, *D. splendidissimum*.” I do not know if Messrs. Veitch grow the rosy-tipped variety of *Dendrobium Ainsworthi*, but if they do so, perhaps they could best tell us if there is any difference between them. I am the more interested as I have quite recently been making a special study of all these *D. nobile* × *heterocarpum* hybrids for a purpose which I need not now name, and any opinions *bona-fide* growers may have formed of them would just now be very welcome. It is most desirable that any opinions offered are the results of actual comparison from plants growing side by side, as memories of the best are treacherous in these matters.—F. W. B.

Dendrobium Dalhousianum.—A remarkably fine flower-spike of this species, one of the finest of all Dendrobies, has been sent to us by Mr. Field, from Stanley Hall gardens, Bridgenorth. It bears 15 flowers, all expanded at once, and each over 4 inches across. The sepals and petals are of wax-like texture, creamy white, but so thickly veined with pink as to give the flower quite a salmon blush tint. The large shallow labellum has two heavy blotches of deep maroon-crimson which make the flower so attractive. Though this is such a handsome Orchid, good specimens of it are scarce, owing to its being a somewhat difficult plant to grow well. Respecting his plant, Mr. Field writes that “it is bearing three spikes, this being the third year in succession in which the same growth has borne flower-spikes, some of them even finer than the one sent.” It is evergreen, and, as a rule, flowers on the old growths, which attain as much as 8 feet in height.

Dendrobium nobile var. nobiliss.—This without question is by far the finest of the varieties of this popular Dendrobe, and we have never seen it in greater perfection than in Mr. Southgate’s collection at Selborne, Streatham, where there is a plant of it bearing now nearly thirty flowers and buds. Each flower measures quite 3 inches across; the sepals and petals are deep violet-purple, while the labellum has a dark blotch of maroon edged with creamy white. This superb variety originated in Mr. James’ nursery, at Lower Norwood, a few years ago, being part of an importation bought at Stevens’ rooms. This plant was afterwards sold to Messrs. Rollißon, who exhibited it at the great Ghent International Exhibition in 1877. Mr. James subsequently re-bought the plant which forms the subject of the present note, and a few other plants of it have been propagated and sold at high prices. It is still extremely rare, and is much sought after by lovers of Orchids. Mr. Southgate’s plant is a large one, having been admirably grown by Mr. Salter, who grows Dendrobies uncommonly well; indeed, at the present time the Dendrobe house at Selborne contains some remarkable examples of skilful culture; among them the most remarkable is *D. Wardianum*,

of which numerous fine specimens are grown in 6-inch pots (small for the size of the plants); the bulbs are not drooping, but tied to erect sticks, as is usually done with *D. nobile* and others. Some of the growths have as many as thirty flowers on a space of about a foot. The home-made bulbs are quite as large, and in some cases larger, than the imported ones. Another extremely fine plant is the still rare hybrid *D. Ainsworthi*; a specimen of it in a suspended basket about a foot square is bearing about six dozen blossoms. Both the type and the roseum variety are represented here. *D. crassinode* is also very fine, as are likewise numbers of *D. nobile* representing several varieties including that known as Rucker's, a pale flower, and one with quite a yellow suffusion in the blossoms.

Substitute for Orchid peat.—Dr. Paterson's intended experiment with the outer shell of the Cocoa-nut as a substitute for Orchid peat will not be a new one. When visiting the Orchid houses of the New Plant and Bulb Company, Colchester, last year I saw *Cattleya Trianae* planted in this material, and was very sceptical as to its being successfully utilised. Another visit after showed me it could be so. The pots were filled with vigorous roots, and the plants appeared in robust health. I do not know whether Mr. Horsman, the manager of the Company, uses the material for other Orchids besides *Cattleyas*, but no doubt he would furnish information if it were desired.—W. MORGAN JONES, *Rectory, Mark's Tey.*

Orchids from Perth.—Judging by some very fine specimens sent to us by Mr. Macdonald, Woodlands House, Perth, Orchids are grown to perfection in the north by a few cultivators. The gathering includes some remarkable examples of *Odontoglossum*. *O. Pescatorei* is represented by a glorious four-branched spike carrying nearly a score of spotless white blossoms—in itself a sufficient indication of skilful culture. *Of *O. cordatum* there is one of the finest varieties we have seen. The long attenuated sepals measure nearly 4 inches across, and, like the petals, are of a clear reddish brown, transversely barred and spotted with yellowish green; the heart-shaped lip is of a warmer brown and blotched with white. When represented by such a fine variety, this species is really a handsome and desirable Orchid, and, moreover, one of easy culture. The spike sent bore ten flowers; a similarly fine spike, bearing seven flowers, of *O. triumphans* represented a superb variety, the flowers measuring 4 inches across, with the sepals and petals of a pale yellow, heavily blotched and spotted with coffee-brown. This is one of the best varieties we have seen of this species. Two *Masdevallias* were also sent—*M. Shuttleworthi* and the rare *M. trochilus*, the Humming Bird Orchid. The first is now tolerably well known, but it is not often represented by such a fine variety as Mr. Macdonald possesses, the colour of which is much brighter than usual, though perhaps the Scotch air has something to do with its richness. *M. trochilus* is a very singular species, having baggy sepals of a reddish brown furnished with long slender yellow tails between 4 inches and 5 inches in length. This, Mr. Macdonald considers to be the most perpetual flowering of all the *Masdevallias*, as he has had it in flower for ten months, and he has now small plants "bristling with blossoms."

Edgings.—After trying various materials for these I have proved black vitrified stable bricks, though perhaps a little more expensive than some other articles, the cheapest and most satisfactory in the end. They afford no harbour for vermin, and no foothold for mosses or fungi, and are practically indestructible. They are set on edge with the face side towards the path, and may be either sunk level with the soil or raised a little above it. I use the kind with a channel across the centre to match with the joined ends, which if they are properly laid are scarcely visible. If by the action of frost on the soil or from other causes, any become out of line, a blow with the foot sets it right again. They cost, at the nearest railway

station to me, about 14s. a hundred, but probably near the kilns they could be got for considerably less.—J. M., *Charmouth, Dorset.*

TREES AND SHRUBS.

HEDGES AND SCREENS.

NEXT to walls hedges are the most important fences around a garden; indeed, in many new places they are made to take the place of walls, as, now that glass is so cheap, houses may be put up at moderate cost, and Peaches and Nectarines grown therein with the certainty of obtaining a crop; whereas on walls these and other tender fruits have been almost a failure for several years past, and from present appearances are likely to be so again. To be of real service hedges should be dense and close, both for the purpose of keeping out intruders and warding off wind, for which purpose there is nothing like

Yew or Holly, the last named being preferable where it will succeed. The soil that suits Holly best is that which is light and sandy, and in districts where it can be so accommodated this fine evergreen flourishes amazingly, and always has deep green healthy foliage quite cheering to look on. Like building a house or other structure, the great point towards success in raising a Holly hedge is to start with a good foundation, the first thing to be thought of being the preparation of the ground, as on this much depends as regards the growth of the plants, for to stick them in without digging or trenching is to lose time and not give them a fair chance at the start, as it is impossible for their roots to ramify in land that is bound together and nearly as hard as a floor. Not only is it necessary to dig or trench in preparing to plant a hedge, but it is also important that the soil be enriched by giving a dressing of rotten manure, which, however, should not be strong and rank, but of a mild nature, as then the young plants can feed on it at once, and get the rich diet they want. In places naturally wet it is better to have a shallow ditch for draining them, and the earth thrown out in cutting it may with great advantage be used to raise a sort of embankment, which should be wide and flat, so that the Hollies can have the full benefit of rain during the summer, instead of its running away and being lost, as would be the case were the ridge narrow and sharp at the top. Where lands are naturally dry, it is better to plant without raising the surface, but before doing this the ground should be broken up at least 2 feet deep and 1 yard wide; and when this operation is being carried on the manure can be well worked in and thoroughly mixed up with the soil. All will then be ready for planting, which can best be done by taking out a trench a foot or so wide and 8 inches or 9 inches deep, according to the size of the plants to be planted. Some go in for those that are large; but size is not always desirable, as it often happens that large plants suffer more than small ones from removal. The most preferable for making hedges are those from 1 foot to 2 feet high that have been frequently transplanted, as then they have an abundance of fibrous roots that take to the soil at once, and the young Hollies are therefore able to start off and grow without feeling a check through the lifting. In planting, the roots should be spread out in the trench, and after being just covered with soil, heavily watered, by doing which, the earth will be carried thoroughly in amongst them, and if then allowed to settle, the final filling up can be done a day or two after. The next thing to be thought of is a mulching, which is a great protection, as it not only keeps the moisture in by preventing evaporation, but, by shading the ground, fosters and encourages root action, and greatly expedites the growth of the plants. The best time for planting Hollies is the first week in April, as then they are just on the move, and the genial showers and refreshing night dews we generally get at that season keep the bark plump and enable the buds to break quickly and strongly. Planted in the autumn

or winter, they have searching winds and hard frosts to contend with, and the two combined take the sap out of them and wither the leaves and rind to such an extent that often many die, and those that live are left crippled and are long in recovering. The next best plant to the Holly for forming a hedgerow or screen is the

Common Yew, which will thrive in cold, heavy land, and grow where the Holly will not. At Campsey Ash, near Wickham Market, in this county, there are some remarkable specimens of Yew hedges, which are, or were, some 15 feet to 20 feet high, and so thick and dense as to look like solid green walls. There are also some equally good in this latter respect at Culford, near Bury St. Edmunds, which are used to shut out the vegetable quarters, and right well they answer the purpose, besides forming shelter-screens, which Yew hedges do in a most effectual manner, as they sift and break up the wind, which seems to bury itself in them, and is lost. Desirable, however, as the Yew is for screens and hedges, it should be widely known that its leaves and branches are poisonous to cattle, and therefore it ought not to be planted anywhere within their reach; it is necessary, too, to exercise great care in disposing of the clippings, which should be burned at once on being cut off. The Yew is so hardy and always so well rooted that it may be planted at any time from September to the end of April or later if the soil is washed in about the roots to give the plants a start. To have thoroughly good hedges, whether of Yew or Holly, or any other shrub, they must be kept wedge-shaped, or wide at the bottom and narrow at the top, as it is only by letting plenty of light on the base and forcing out the growth there that hedges of any discription can be kept well furnished below. At first commencement, and while in full vigour, it may be necessary to clip twice during the season, but after a time once clipping at or about midsummer will generally keep them in order.

For simple screens that can be got up quickly, Laurel answers admirably, but it does not bear clipping, or rather soon looks slabby afterwards, and to have a nice face the shoots must be taken out with a knife, as then the leaves are not severed. The *Arbor-vitæ* is also a capital screen plant, and one that stands the shears better than most others, and becomes very dense and close after being subjected to a few years' trimming. Box, too, of the large-leaved, upright-growing sort is also excellent for hedges and blinds, and is a plant that may easily be kept in good order, the only thing against it being that it will not get very high and is rather slow growing. For quickness in getting up, the Privet is one of the best, and with tall iron hurdles to thread the shoots through between the bars to support them, it may soon be run to a height of 10 feet or more, and by careful clipping made to look well. As an ornamental hedge there is nothing to equal *Berberis Darwini*, which is not only a beautiful evergreen, having small handsome shining foliage, but bears masses of rich, warm-looking, orange-coloured flowers, that are succeeded by a wealth of bluish-black berries. This *Berberis*, like most of the others, is a ticklish one to deal with in transplanting; it should not be moved till April, and then it is necessary to exercise great care in taking the plants up and getting them into the ground again before the roots dry. For an outer boundary fence, a mixture of Beech and Quickthorn forms one of the best, as the former draws the latter up, and they interlace their branches in such a way as to be impenetrable by any large animal if the plants are planted thickly and are well furnished below. Quickthorn and Holly are also good, although they do not agree so well as the first named mixture, as the Holly, being evergreen and thick, has a tendency to choke the Quick by robbing it of light and air when making its growth. Privet and Thorn get on well together and make a capital hedge, as the Thorn, being stiff, supports the Privet, and the latter, having small leaves, does not unduly encroach on and overshadow the Thorn.

J. SHEPPARD.

BIRDS' NESTS IN WELLINGTONIAS.

We have a great many Wellingtonia trees here of goodly size, but only once have I found a nest in one. That was about twelve years ago. The bird was a small one, and I regret I did not note at the time what the bird was. The branches of these trees are not naturally well adapted for nest-building; both they and the branchlets feather downwards and do not present an inviting place in which to tempt a bird to build its nest. Most of our common birds try to select a position where the branchlets form a fork in which the nest can be built and there maintained steady during windy weather, a condition which cannot very safely be calculated upon in the Wellingtonia. Since the query respecting nest-building in the Wellingtonia appeared in THE GARDEN I have sent my boys—now well versed in the smaller British birds and their eggs—round all our Wellingtonias to try and find even an old nest, but none was found.

The *Araucaria imbricata* is a tree one would think presented but little temptation for a bird to build a nest in, particularly where there is abundance of other trees, but I remember a few years ago finding a hawkfinch's nest in one of these Chili Pines, *i.e.*, if nest it could be called, for it consisted only of about a dozen small sticks without lining of any kind, and so loosely put together that one of the eggs dropped down into the miserable wattle and so escaped hatching. This egg I kept for years as a specimen, unblown, when one winter night, having a good fire in my office, it burst with a loud report. In these trees we have also found the nest of the missel thrush, chaffinch, and fly-catcher. Why they should select a prickly tree of this kind to build in is difficult from our point of view to account for. It is said that monkeys find it difficult to climb these *Araucarias*, and so in this country small birds in choosing them may, from some natural instinct, hope to escape the ravages of the claws and teeth of the prowling house cat.

All birds, however, do not confine themselves to forking in trees or bushes in which to build their tiny nests. For instance, the reed warbler (*Salicaria arundinacea*), a small migratory bird, all the way from Morocco, will lay hold of three or four more reeds by the side of or over a stream, and with dry Grass and Moss weave together in a most extraordinary manner a little nest which in its way is nothing more or less than a very interesting natural curiosity. When these birds are with us the reeds are quite alive with their noise. They are very intent on minding their own business, and when disturbed their flight is short, soon turning in and dropping out of sight among the reeds. How this small bird, which is little larger than a jenny wren, and having so short a flight, can find its way to this country over both land and sea, all the way from Morocco, is a problem in natural history difficult to solve. The land rail, though of course much larger, is also a bird of short flight, and the wonder, too, is how it maintains its flight over that narrow streak of sea which only one human being has been known to cross aided only by his own natural limbs and arms.

Once I was much amused by the performance of a nest of house sparrows and a pair of martins. The sparrows had got possession of a hole in a wall over a door prior to the arrival of the martins. On the arrival of the latter they chose a spot on which to build their nest immediately below the hole in which the sparrows entered theirs. The martins soon had their nest constructed, and the sparrows were in danger of being shut in or out, for, judging from the contour of the martins' nest, it was evident that unless some arrangements were come to between the two families, the sparrows would lose possession of the entrance to their home. An arrangement, however, was made, for there was left on the top of the martins' nest a small depression which allowed ample ingress and egress for the sparrows. The year after the house was repaired; the hole in which the sparrows domiciled was filled up with cement; they lost their home, in short, and I the opportunity of observing

how friendly the two small families lived in such close proximity.

During the last days of February of this year we had occasion to remove a quantity of decayed leaves which left a rather overhanging face of about 5 feet high. Scarcely had we got away when a wren took possession, and snugly, in the face of the decayed leaves, built the usual comfortable little home. Wrens, it is said, build seven nests before they select one in which to breed; whether, therefore, the one got together so early in the season is to be the chosen one remains to be seen.

From the mild weather we have lately been having we have now a return to very cold east wind, with snow showers, which may, perhaps, put a temporary stop to such precocious early nesting of, it may be after all, only young birds.

Combe Abbey Gardens.

WM. MILLER.

THE AUCUBA AS A POT PLANT.

If the late Mr. Fortune had done nothing more in the interest of horticulture than introduce the male variety of this shrub he would have merited the grateful thanks of all lovers of ornamental plants. In the open-air of this country, however, owing to the uncertain character of our climate, the flowers of the female variety do not always get sufficiently fertilised to induce them to carry a crop of berries. The protection of a glass roof is necessary to secure an effective display, and the conservatory and greenhouse during winter and spring can contain few more attractive objects than fine healthy plants of the Japanese *Aucuba* densely furnished with rich scarlet fruit. The foliage of the plant, whether under glass or in the open air, is very ornamental, and when such plants are raised from seed there is considerable diversity both in the way of foliage and habit of growth, some of the seedlings having the leaves green, while in others they are more or less blotched or variegated. Until, however, the plants show indications of flowering their sex cannot with certainty be ascertained; and as the female or berry-bearing plants are the most ornamental, it will seldom be necessary or desirable to have more than one or two male plants in a structure, as pollen is generally produced in great abundance; so much so, that artificial fertilisation is hardly necessary. Plants of any desired dimensions may be used for greenhouse decoration, as even when of small size they produce their small and very inconspicuous flowers in abundance. As in the case of the Hazel, the pollen generally appears to be ripe long before the female blooms are expanded, but if the weather prove at all favourable, fertilisation, nevertheless, to some extent generally takes place, effected either by insect agency, or possibly by atmospheric action alone. Not the least attractive objects in a large garden establishment near where I write are two large seedling plants of the Japanese *Aucuba* growing in tubs placed inside a large span-roofed unheated orchard house—one on each side of the doorway. One is of the male variety, and has very prettily marked foliage, while the other, or match plant, is a female, with bright green foliage and literally covered with bright red oval-shaped fruit. Both plants are handsome pyramidal-formed bushes in an exceedingly healthy condition.

P. G.

Bury St. Edmunds.

Abutilon vitifolium.—I think there must be more than one variety of this fine shrub. The plant figured in the *Botanical Register* is very different from Mr. Gumbleton's plant figured and described the other day in THE GARDEN, and my own plant differs from both. Mine came from South Devon, where it grows and flowers well, but both leaves and stems have a greyish tint, and the flowers are large and more purple than those of the *Botanical Register* and THE GARDEN. Moreover, I gather from Mr. Gumbleton's description that his plant is deciduous, but in mine the leaves remain all the winter. It is hardy, but in most places requires the protection of a wall. It is increased easily by cuttings, and so ought to be

more common than it is.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

—*Abutilon vitifolium* is a beautiful plant in some parts of Devon and Cornwall, where it comes up from self-sown seeds. In the isles of Scilly it is also a fine plant, and there I have seen a white variety. At Cambridge it does not flourish; in the open it has been killed, but on a wall in a warm corner I have had a plant for nearly three years. It is now about 6 feet high, and has not yet flowered, though it will flower this summer probably.—R. IRWIN LYNCH, *Botanic Garden, Cambridge*.

HARDY TREES AT HERRENHAUSEN.

LAST autumn, when travelling from Hamburg to Vienna, I visited the Botanic Garden at Herrenhausen, and found there, besides the far-famed collection of Palms in the great Palm house, an equally interesting collection of trees in the grounds. In the quiet part of the garden, surrounding the mausoleum, I was much delighted with the fine groups of trees abounding thereabout. Amongst American Oaks I noticed *Quercus palustris*, *coccinea*, *rubra*, *falcata*, *heterophylla*, *imbricaria*, *tinctoria*, *nigra*, *oliveaformis*, *macrocarpa*, *Phellos*, *castanea*, *ilicifolia*; of others *Q. Egilops*, *Cerris*, *lacinata*, *pedunculata*, *pendula*, *Concordia*, &c. Equally interesting was an old specimen of *Robinia Pseudacacia* covered with Ivy. Others consisted of *R. Pseudacacia crispata*, *R. amorphæfolia*, *Carya amara*, *Betula nigra*, *B. papyracea*, *Celtis occidentalis*, *Gymnocladus canadensis*, *Virgilia lutea*, *Liquidambar styraciflua*, *Sophora japonica*, *Nyssa aquatica*, *N. biflora*, *Acer heterophyllum*, *A. platanoides* var. *Leopoldi*, *Tilia grandifolia*, *argentea*, *mandschurica*, *Catalpa Bungyana*, *Liriodendron Tulipifera*, &c. Of conifers there are fine specimens of *Pinus Strobus* and several noteworthy examples of *Taxodium distichum*; smaller in size, but equally good, were also *Cupressus Lawsoniana*, *C. nutkaensis*, *Pinus excelsa*, *P. Cembra*, *Abies canadensis*, *A. Nordmanniana*, *A. cephalonica*. In the central part of the garden, sheltered by hedges of *Thuja*, is a small dale planted with peat-loving plants, such as *Magnolias*, *Rhododendrons*, *American Azaleas*, *Andromedas*, *Kalmias*, *Hydrangeas*, and *Heaths*. On the borders of the shrubberies were patches of Lilies and hardy Ferns, all in luxuriant health.

LOUIS KROPATSCH.

Laxenburg.

Striking Japanese Privet and Garrya elliptica.—Both of these plants may be readily increased by means of layers or cuttings. *Garrya elliptica*, however, succeeds best from layers, although cuttings placed in sharp sandy soil under a hand-light in a shady position root freely. Layering should not be practised in the case of Privet unless as a means of extending game covers, as cuttings strike readily and produce the best specimen plants. The end of August is the proper time to insert cuttings, the temperature of both earth and air being then about equal.—A. D. WEBSTER.

Hardiness of Erica codonodes.—I was surprised to read in THE GARDEN recently that this Heath was hardy so near London as Coombe Wood, because here in Somerset I have had great difficulty in keeping it alive through a severe winter. As a matter of fact we lost two large plants of it in the hard winters of 1879 and 1880; the first terribly crippled them and the last killed them outright. Before these dates we had a run of mild winters, and I had begun to look upon this plant as being quite hardy, and found it of great value for cutting from during mild weather in January and February. Its small white flowers, so thickly studded on the branches, and its stiff erect growth make it peculiarly valuable in a cut state, and the fact that it flowers in the depth of winter makes it still more welcome. As regards its hardiness, it is only right to say that our plants were growing in a very exposed position. The soil is a silky loam in which *Rhododendrons* and other similarly rooted plants thrive so well with us, and I am inclined to believe that although the plants grow in the most vigorous manner and never failed

to flower, that both soil and climate were too damp for them. As a consequence the wood did not get sufficiently ripened to endure nearly 30° of frost, which we had here in the last named winter. The best plants of this Heath I ever saw grew some years ago in the nurseries of Messrs. Wood & Son, at Marefield, near Uckfield. They were 4 feet high and broad in proportion, but there the soil is light and friable and well drained. If I had a good peaty, well drained soil and the position well sheltered from cold cutting winds, I should not hesitate to grow this Heath again. From my experience of it I should say it is rather inclined to get lanky. It appears to have a disposition to start away with three or four main shoots, and then the plants have not a very pleasing appearance. To secure well formed specimens they should stand at least 4 feet apart.—J. C. C.

NETTED RAFFIA BALLS.

MR. G. F. WILSON, Heatherbank, Weybridge, has directed our attention to what we consider a capital plan for keeping raffia fibre for tying plants neat and tidy. The strings of raffia are



Netted Raffia ball.

tied end to end and worked into a compact egg-shaped ball, about 6 inches long by 3 inches in diameter, on much the same principle as balls of twine are wound. Over this ball is a netting of twine, and this keeps the whole intact, and as the raffia is used by drawing it out from the bottom of the ball the net may be tightened; a loop at the smaller end serves to hang the ball up by, or suspend it to a button while in use. For amateurs especially these little balls will be found useful, and they do away with the untidiness of the bundles of matting or raffia as used in the ordinary way. These balls, we understand from Mr. Wilson, are made by Miss Campbell, a lady eighty-one years of age, who sells them for a shilling apiece, and gives the proceeds of her industry to a charity. The annexed illustration is a miniature representation of the raffia ball, and, as may be seen, it is a neat contrivance and one that would find a ready sale provided there was an ample supply.

SMOKELESS FUEL.

I AM happy to welcome the adhesion of so reliable an authority as Sir John Hawkshaw in a matter which has been repeatedly advocated with more earnestness than visible effect. Sir John writes to the *Times* to urge, after the example set by New York, the use of anthracite, or smokeless coal as the real preventive of black fog. It may be in the recollection of some people that the outcome of some very careful remarks on the Smoke Prevention Exhibition at South Kensington in THE GARDEN pointed steadily in this direction. In the present state of science the only mode of preventing smoke, at all events from domestic fires, is to burn smokeless fuel. Hitherto it has proved impossible to consume smoke liberated by the combustion of ordinary fuel for household purposes. Of smokeless fuels there are two descriptions, viz., solid and gaseous; or, in other words, anthracite coal and gas. As to the latter, the chief drawback in its use is its cost. A ton of coal will yield only from 9000 cubic feet to 10,000 cubic feet of gas, that is to say, 333 lbs. of fuel, or less than 15 per cent. of the weight of coal. And although the value of the other 1907 lbs., or, at all events, of a large proportion of them, is enough to pay for the cost of distillation, we are still in face of a price which checks the use of clear, smokeless, and ever-ready fuel.

It may seem almost paradoxical, but our opinion is that it is the use of gas for lighting purposes that has been the main obstacle to its general utilisation as a fuel. For the production of light the richer the gas is in carbon the higher is its illuminating power. On the other hand, for heating purposes, the larger the amount of hydrogen the better. All our efforts, however, have hitherto been chiefly directed to the improvement of the luminiferous quality of gas. Whether in the selection or treatment of coal, this object is continually kept in view. The increase of the heating power has been attempted by the Bunsen burner and some other expedients. But we are yet at some distance from the time when we may expect to see a double gas main, one set of pipes being intended for the conveyance of luminiferous and one for that of calorific fuel, laid on to our houses. Unless, then, some revolution in this respect takes place we must look forward for some time to come to the production of gas as rich as may be in carbon, and thus to the neglect of a cheaper and more calorific gas for the purpose of fuel. Under these circumstances the only alternative—if we would diminish the terrible evil of fog, distressing as it is to every one, and often fatal to the aged and the delicate—is to burn anthracite. I call attention to Sir John Hawkshaw's testimony, accordant as it is with long personal experience of the combustion of the coal in South Wales. Nor must I fail to repeat the recommendation that was before given of the

Pembrokeshire "ball fire," the balls being composed of culm, or anthracite dust mixed with clay, as at the same time the cheapest, and, taking it for all in all, the best of kitchen fires. This admirable fire, which never goes out, and on the grates containing which reliance may be placed for a supply of hot water at all times, had no advocate in the smoke abatement exhibition, for the simple reason that it was only the users, and not the recommenders, of the method who would derive advantage from its adoption. Of course London servants or Yorkshire servants, or any but the active, sprightly maidens who hail from the anthracite districts, would rebel against the ball-fire. But in any case of improvement that kind of opposition—and I would be the last to deny its formidable nature—has to be reckoned with. It is, I think, however, rather the negative than the positive aspect of the case which is most hostile. When the coal merchant's bill is set against the ill-will of the cook there is a very powerful influence at work; and where a great economy is actually ascertained it will in many instances turn the scale. But against the other difficulty, the doubts—Who ever used a ball-fire? Who ever saw one? Who ever heard of one? the remedy is less obvious. And

the fact that it is nobody's interest to introduce the best fire (unless he can get something out of it) is the real dead weight in the matter. So simple is the ball fire that it can be burned in the rudest form of grate. Therefore no ironmonger has any lively interest that it should be burned, and it is not a great leap to say, therefore, that it is not burned anywhere, except on the very verge of the culm districts, where it has been burned from time immemorial. As to the introduction of anthracite coal, clear and bright as it is, into the dining room, there are certain objections to be weighed against the advantage of its smokeless combustion; but as to the use of ball-fire in the kitchen, we know of no serious drawback to set against its smokelessness, its great heat, and its large economy. In these days of frugality this, it may be mentioned, is a subject of great importance to the gardener, and one to which he must, in order to keep down the expenses of the garden, give his careful attention. In the past age of

Heating by flues, when the price of fuel was comparatively low, when the coal cart was from necessity nearly always kept on the move, and when the coal bill was generally passed over as a matter of course, the first lesson the young gardener then had to learn was not how to stoke a fire in the most scientific and economical manner, but rather how to perform the herculean task of shovelling on tons of coal to a score of fires in the most dexterous manner and in the quickest possible time. Thanks to our scientific friends in the hot-water line, this state of things fortunately exists no longer, although they do sometimes, like the wonders of Aladdin's lamp, enchant and bewilder us with their multifarious and marvellous productions; still we willingly admit that they have to a great extent provided us with the means and the power to economise considerably in this department of the garden. Although, however, they appear to have taxed their inventive powers to the utmost in discovering and manufacturing the most economical and efficient fuel consumers, they have done comparatively little in testing and deciding which are the cheapest and most effective kinds of fuel for horticultural use. With some truth it may be said that this is a matter which concerns the gardener more than the hot-water apparatus manufacturer, also that the real value of fuel is uncertain and depends to a great extent on the ease and facility with which a special kind of fuel can be obtained in a given locality. This uncertainty and doubt seem to point to the very reason why it is essential that the scientific hot-water apparatus engineer should aid the gardener in choosing the most effective and economical fuel to be obtained in the district in which he may be located; and, what is equally important, that he should be in a position after making careful experiments to be able to recommend to the gardener not only the best form of boiler, but also to construct the furnace in such a manner as to be most suitable for the special kind of fuel it is intended to burn. At the exhibition held at South Kensington last year of the appliances for the abatement of the smoke nuisance, some of the exhibitors set an example in this respect which might perhaps be copied with advantage by hot-water apparatus manufacturers. There might be seen

Special grates for gas, coke, anthracite, and other kinds of fuel. A good many years ago I saw a large and very excellent hot-water apparatus arranged. When finished the question was asked the engineer, "What kind of fuel would you recommend?" His reply was "coke," as it is the least injurious to the boiler, and also the most economical. Coke was, therefore, used for several years, but the expense was found to be very great, and as clay was plentiful in the locality it was decided to re-set the boiler so as to make it available for "ball-fire" fuel, which was then tried with the result that the fuel bill was reduced to two-thirds of its former amount, although the cost of the anthracite, with which it was mixed, was necessarily high in consequence of the great distance of

the place from whence it was obtained. Again, in another locality I have seen a mixture of culm and chalk used with equally satisfactory results, and I doubt not but that in the peat districts an equal if not a more economical fuel still might be readily manufactured. To be successful, however, a suitably arranged boiler and furnace for these special kinds of fuel should be first supplied, and no attempt made, if I may use the simile, "to place the saddle on the wrong horse." If inventors would only turn their attention to this question, I venture to think something tangible might be effected towards lessening one of the greatest items of expense in garden management.

Having such an authority as Sir John Hawkshaw advocating the freer use of anthracite, and also as it has proved to be so superior to other kinds for the manufacture of compound fuels, it does appear strange that no greater advance has been made in this direction by horticulturists giving, as it does, a steady, lasting, clean, and a thoroughly economical and smokeless fire.

W. C. T.

INDOOR GARDEN.

BEGONIA WELTONIENSIS.

THIS Begonia is so free flowering and so easily cultivated that time and space could hardly be devoted to a better plant. It is not difficult to grow into an exhibition specimen, and it is equally useful for flowering in 6-inch pots. Young tops of it taken off now and inserted in sandy soil on bottom heat either in a propagating pit or Cucumber frame will root freely in three or four weeks. They should then be potted singly in 4-inch pots; the best soil for them is equal parts loam and leaf mould with a sprinkling of sand. After being potted they will be benefited by being again placed in heat. A temperature by fire heat of 60° will be ample for them. At the same time it may be well to state that artificial heat is not absolutely necessary, as this Begonia may be successfully grown all the year round in a greenhouse. The advantage of a warm temperature is that young plants grow faster into large ones than where there is less heat. After the middle of June any warm greenhouse will suit them admirably, and as they fill their pots with roots they must be shifted into larger ones. If then placed in 6-inch pots they will not require any more shifting the first year. We find that when the cuttings are struck early in spring and grown on in a suitable temperature, that plants in this sized pot become valuable for dinner table and other household decoration. The habit of the plant also renders it suitable for this purpose, as the bunches of flowers droop gracefully, and being of a delicate pink colour they contrast admirably with the surrounding greenery. To make

Specimen plants requires time; no doubt when pushed on in a high temperature it may be possible in one season, with an early start, to convert a small cutting into a large plant, but there is not always the convenience of doing this, and for my own part I should prefer for exhibition purposes plants with more stamina in them than there can be in those obtained by means of undue excitement. I should prefer an intermediate temperature, and for this purpose should insert half-a-dozen cuttings round the side of a 6-inch pot, and shift them on without disturbing them. A large amount of pot room is not necessary for this plant, for although the roots are numerous, they are not so strong as those which some plants possess. With careful watering with manure water, a strong plant may be kept growing vigorously after the pot has become full of roots, and when well-flowered examples are required it is better to resort to manure water than to give more pot room. This is supposing always that there is not more than six or eight weeks before the plant is wanted to be in flower. Should there be a longer interval between the time the plant has filled the pot with roots and its being wanted for a special purpose it will be wise to give a

small shift. This Begonia is not very particular as to

Soil so long as it is moderately light and rich. We grow our plants of it in a mixture of loam and leaf mould, equal parts, and a rather liberal supply of coarse sand. If required to furnish flowers during the later part of the autumn, they must have a light position in some structure in which the temperature is maintained at about 10° warmer than that of an ordinary greenhouse. In order to prolong the flowering season the plants seem to want a warm, dry air and plenty of light, and then they furnish flowers that are valuable for any purpose. In dealing with old plants in spring they should first have some of the long weak growths shortened back; then they should be taken out of their pots, and two-thirds of the old soil shaken away from the roots, when they may be put back into the same pots again. I find it to be best to place them in rather large pots at once, as in the case of large plants there is some risk of injuring the roots in shifting them. A few neat sticks are necessary in order to get large plants into proper form, and these should be used early in the season. In the matter of watering a moderate degree of care is necessary, as too much moisture at the roots causes the bottom leaves to turn yellow. When the pots get full of roots more water may of course be given, except during the dull winter months when the plants are at rest, and then the soil must be kept rather dry than wet.

J. C. C.

PROPAGATING PINGUICULA CAUDATA.

In a note of mine published some time ago in THE GARDEN I mentioned this plant among others on which I had successfully experimented with a view to increasing it by means of leaf propagation; and as it does not appear that this ready means of raising a stock of this beautiful Butterwort is generally known, perhaps a word on the subject may prove serviceable. On the 13th of December, 1881 (I always put the date on which cuttings or seeds are put in on the label), I took off several of the largest of the leaves of *Pinguicula caudata* close to the stem, and after cutting these across the middle of the midrib, they were placed on a pan of very sandy peat and held down by means of pieces of crock. A pane of glass was placed over the pan and the soil was kept moist. The pan was placed on a shelf in the propagating house. In about a month afterwards roots were emitted both from the base and the transverse cut, little bulbs were formed, and in less than a month afterwards the plantlets were separated, with a portion of the parent leaf attached to each, and potted in small pots. We nursed them on in the propagating house until midsummer, and then placed them in a cool house near the glass, still keeping the small pots plunged in moss in a pan with the pane of glass over them. Either fourteen or sixteen plants were thus raised, and these, with the exception of three which are now bearing flowers, were distributed. I think cool treatment is better for this *Pinguicula* than that of an intermediate house, as suggested by "Veronica." Peat and loam are what we pot these plants in, and of course plenty of water is given all the year round.

I have thus given the details of our treatment as complete as I can, because I believe others have tried to increase this plant by means of leaf cuttings, and have failed. Ever since the summer of 1881, when our plant commenced to flower, it has continued to bloom without ceasing, and at the present moment it has open on it one fine flower and two other buds are pushing up. I know of no plant which for its size and nature can vie with this either in the production of flowers or in beauty. It has won the admiration of many, and there is a future of great popularity in store for this the finest of all cultivated Butterworts. Last year we saved seeds, which germinated freely, but the seedlings are still small and very delicate. Can "Veronica" spare a plant of *P. alpina*? Our collection of these plants wants only this amongst the cultivated species, and it seems rare. We grow *P. grandiflora*, *P. lusitanica*, *P. vulgaris*, and *P. caudata*. Large pans, 1 foot in diameter, of these

little plants have a very pretty effect; we grow them in the house in which *P. caudata* is grown, though of course during the resting period we place them in a cool frame. Frost does not injure these plants, even after they have been kept in a warm house through the summer. *P. grandiflora* is the most difficult to keep, the bulbs rotting round the base, and for no apparent reason so far as regards treatment.

B.

CAMELLIAS AT WANDSWORTH.

As a select and admirably grown private collection of Camellias we have not seen an equal to that which is now the chief attraction of Mr. Hermann Rucker's garden at West Hill, Wandsworth, and, considering that it is only just outside the four mile radius from Charing Cross, the cultural success is the more remarkable. It was in this garden that the once celebrated collection of Orchids existed belonging to the late Mr. Sigismund Rucker, under the care of Mr. Pilcher, who still superintends the garden, but this has gone, and now the Camellia seems to be one of the main objects of culture. There are three or four capacious houses devoted almost exclusively to Camellias, but the finest display is that in what is called the promenade, a large structure with its lofty roof hung with red and white *Lapagerias* and other climbers. On either side of the central pathway is a wide border in which are plunged the pots containing the Camellias—large bushes, some of which are 10 feet in height and nearly as much through. Every one of the plants are in pots, and this arrangement admits of their being readily removed or taken out for cleaning. Standing at one end of this house these two fine lines of luxuriant bushes profusely laden with blossoms are a grand sight, and show well what a beautiful shrub the Camellia is in the hands of a good cultivator, like Mr. Pilcher, and what a valuable aid it is in making gay cool conservatories in early spring which otherwise would be flowerless.

The most effective bushes in this house were Marchioness of Exeter, one of the finest of all the rose-pink sorts, the flowers being large, well shaped, and abundantly produced. This specimen was a sight in itself, being laden from top to base with blossoms. An equally fine example was Countess of Orkney, a lovely variety with large white flowers, with closely imbricated petals prettily striped pink. This also is an excellent cropper and a luxuriant grower. Of the old Double White (*Alba Plena*) there was a fine bush, but as the main crop was past there was but a few stray blooms. Madame Strekaloff, with large, finely shaped blossoms of a delicate peach colour, is one of the finest in its colour, and here it was represented by a splendid specimen. The old Matthotiana, with its huge, lurid crimson blossoms, was as effective as any, and must be named among the finest. Of *Reine des Fleurs* there was a splendid bush literally covered with medium sized, but exquisitely shaped blossoms of a rich crimson. *Lavinia Maggi*, a very fine white flaked like *Carnation* with pink, was just in perfection. *Beauty Supreme*, with lovely peach-coloured blossoms of moderate size; *Story*, another fine deep pink variety; *Verschaffelt*, rose-coloured, very large; *Chandleri*, a profuse flowerer, with large crimson blossoms; and *Centifolia alba*, a good white form. The above is a dozen of the finest in flower in this fine collection, and all of which may without hesitation be recommended to those who require a small, but choice collection.

Another capacious house contained the collection of smaller specimens, all in pots except those trained against the back wall of the house. These comprised a magnificent plant of the old *Camellia reticulata*, loaded on every part with huge blossoms some 6 inches across, semi-double, and of a soft rose-pink. This was a beautiful sight. Other wall plants were *Gaelo*, with small, but neat and compact flowers of a deep crimson, particularly suitable for cutting for bouquets. From the pot plants in this house we singled out the following as being worthy of notice: Mrs. Anne Maria

Hovey, an American raised variety, varying from pure white to deep crimson, but pretty in all its phases; *Triomphe de Liege*, with rich rose-coloured high-centred flowers freely produced on fine-habited plants; *Clementina Magnani*, pink edged with white; *Napoleon*, deep rose banded with white—a beautiful variety; *C. H. Hovey*, dark velvety crimson, large, and perfect in form; and *C. M. Hovey*, similarly fine, but scarlet-crimson in colour. These two last are both the newest of American raised varieties in English gardens, and very beautiful they both are; in fact, indispensable to a choice collection of Camellias. W. G.

SINGLE CHINESE PRIMROSES.

THE season for these beautiful winter flowers is now practically over, although some few late plants will continue to yield blooms till the end of April. Really the season of the Chinese Primroses is from the beginning of November to the end of February, and from that latter period onward they begin to exhibit evidence of deterioration, in so far as quality of bloom is concerned, though March is perhaps the best month for floral fertilisation and the setting of the seed organs. In one respect not a few of our newer varieties of the Chinese Primrose entirely fail as the truss expands to sustain the promise of a well-rounded or full head of bloom, and so far scarcely one out of the many new kinds can compete with, much less excel, the old market white and red forms. The very best heads of bloom yet seen on any apparently new sort were on *Princess of Wales*, a charming bluish-tinted variety, evidently from the old alba strain, and shown in lovely condition by Mr. Cannell. This, as grown in 4½-inch pots at Swanley, seemed to be the very acme of a market Chinese Primrose. The cause of the failure just alluded to on the part of newer kinds lies chiefly in the undue length of the single flower-stalk and its lack of stoutness, a defect which growers will do well to work by fertilisation to rectify. It is obvious that even the finest flowered kind we have may yet be far behind commoner kinds in decorative value if defective in habit.

Some new distinctive kinds are being added yearly to our stock of sorts, but the distinctions are necessarily minute. Of the red, or so-called purple-flowered, section, however, none exhibit more entire distinctness than a variety shown the other day at South Kensington by Mr. Eckford, and which he has named *Perfection*. The colour of the flower is a soft peach, not shaded, as most of the flowers of the red section are, but a pure self. The blooms are large, very stout, perfectly flat, and the eye a clear lemon, admirably defined. It is hoped that this variety may be seen in better form next winter. Mr. Child, of Garbrand Hall, at the same time, put up a very fine form of *fimbriata alba*. If it is, as he claims it to be, perfectly distinctive, it is a very fine strain. If it be not distinct from the old white, under Mr. Child's culture the strain had developed marvellously fine blooms. It is of the true old white hue, and in no sense is it flushed as so many whites so-called are. Tomkins' *White Queen* is a huge flower, and is borne on plants so stout and robust, though of compact habit, that, as far as the latter is concerned, the ideal of a Chinese Primrose seems to have been realised. Yet the blooms are ragged and irregular, and so flushed with colour, that the merit of the kind for decorative purposes is much detracted from. One great fault of these exceedingly large flowered kinds is that when two or three blooms drop a space is left on the truss that does not fill up again. White kinds, so called, that come tinted always fail in producing good effects. This feature is particularly apparent in *alba magnifica*, a kind that blooms profusely and has elegant foliage, and yet always fails to produce an effective head of bloom. A very prettily shaded white named *Mont Blanc* is a product of the old white crossed with *Holborn Gem*, and the latter has impressed upon the white some of its blue tint, so that we get nearly a mauve flower. However, as in most other flowers, so in the Chinese Primrose, the

more colour is intensified so much the more are the kinds appreciated. It therefore happens that whilst *Holborn Gem* is better than a mauve, so will that kind be all the more acceptable when its blue tint is deepened. In the same way, because *Princess of Wales* is a deep pink flushed flower, so does it, next to the pure whites, command most admiration. Nearly all the old carmine and red-flaked flowers have gone out of cultivation. They are seldom seen, and probably have been little cared for, because not effective. On the other hand, all the madder-coloured sections have grown into greater favour the more the colour has been deepened, because a bright vermilion-madder is so very striking, and specially so under artificial light. Carmine of pleasing hues have been with us for a long time, and producing plenty of flowers as fine as we see now.

The *Chiswick red strain*, however, showed a marked advance in colour, though it is to be regretted for the sake of the colour that there are strains in which the blooms are thin and poor, and besides really good rich coloured fringed flowers look very inferior. We see in such developments from *Chiswick Red* as *Swanley Red*, *Meteor*, and *Vermilion Queen* really superb flowers, the richer forms laying on colour so dense as to be quite blood-red. Then the purple or magenta-flowered section have given some advanced hues of great beauty. *Rosy Morn* and *Magenta Queen* are both flowers of good size and quality, with colour somewhat deeper than is found in the market reds or purples. Perhaps the designation of magenta hardly does justice to the deepened hue of the latter kind. *Swanley Purple*, too, is a rich, deep coloured variety of the same section, and in the dull sunlight some of the colouring is truly brilliant. The kind certificated some time since as *rubro-violacea* is of the same strain, though hardly so robust in habit. One or two striking flowers have been shown from *Chiswick*, one especially, an unnamed seedling having flowers of fine form, pale purple in colour, and charmingly fringed. Another one, named *Chiswick Rose*, was a beautiful rosy carmine, the foliage being of an intermediate tint, neither red nor pale green. There are some charming flowers of the *punctata*, a speckled strain, carmine blood-red, and magenta. One of the most pleasing was seen at *Chiswick*, a deep red flower, literally covered with minute white specks. These are but a few of many kinds, or perhaps the so-called kinds, for as every raiser or hybridist works very much on the same lines, very much the same results follow in each case. About a dozen really distinct kinds make up a pleasing and truly representative collection, and those who may be fortunate to secure such a collection have no reason for complaint. No doubt the present prices of many of the kinds are almost prohibitory, for 5s. for a tiny packet of seed, with considerable risk attached, is not encouraging. A good packet of all the best kinds in equal mixture for 5s. that would produce 100 plants would not be dear, and if such mixtures were obtained from three or four growers, probably all the best kinds in commerce would then be secured. It is not at all difficult once good Chinese Primroses are obtained to keep up a good stock by seeding; given a small camel's-hair brush, a fairly dry atmosphere, and plenty of light, and flowers may be fertilised and made seed-producing easily enough. The practice of pulling up the anthers set down in the tube of the flowers to fertilise the pistil is not a scientific if a simple one, but cross fertilised blooms give the best results. A dozen good kinds are the *Old Alba* or *Market White*, the *Waltham* or *Swanley White*, which has dark red foliage; *Princess of Wales*, bluish pink; *Carnation Flaked*, white, with carmine or red stripes; *Old Carmine*, the foliage reddish; the *Rosy Carmine*, the leaf-stalks reddish green; *Marginata*, lavender, edged with white; *Holborn Gem*, blue; *Rosy Morn*, rosy purple; and *Magenta Queen* or *Swanley Purple*, both deep magenta; *Swanley Red* or *Vermilion Queen*, madder-red, and the deep coloured *Punctata*, make up a good selection of a beautiful class of greenhouse winter plants. A. D.

CHRYSANTHEMUM ROOTS V. CUTTINGS.

I WAS pleased to read the very sensible article of Mr. Harding on Chrysanthemums and his mode of propagating his plants by the roots instead of by cuttings. I referred to this plan in your pages a year or two back, and once you adverted in complimentary terms to a bundle of shoots loaded with flowers which I sent you, and which, if I remember correctly, were from plants raised from the old roots. There can be no doubt that if we want large bushy plants and hundreds of flowers, the way to secure both quickly and easily is to grow on the roots of the previous year. This will look like absolute heresy to "professional" growers, but, with due deference to their opinions, I may state that they have not yet proved that either better specimens or better flowers can be procured from cuttings than from roots, while there is no comparison as regards time and trouble in the two cases, for a root, if potted in April, will beat a cutting struck in January or sooner, as regards size and earliness, and equal it, I have no doubt, in vigour. I have often grown our plants, or a portion of them, in this way, and many gardeners who have seen them have taken them for cutting plants. One gardener who takes an interest in their cultivation for exhibition purposes called here in June one year, and was much puzzled at the size and vigour of our plants, until I told him they were all old plants potted in spring. He acknowledged they were "the best plants he had seen for the time." According to the instructions laid down by professional Chrysanthemum growers, their plan is something as follows: Their aim being to secure good sized and early specimens, strong shoots and good flowers, they begin to strike cuttings any time between September and January, potting on, pinching, and training well on till midsummer, when the plants are allowed to grow on till budding time, by which time they are nearly a year old. When propagated by division of the root, or by repotting the roots whole, the plants are cut down after they have done flowering and set away in a cold frame till March or April, when they are shaken out, potted, and allowed to grow into bushes at once, as they need no pinching nor pegging out to increase their size, and the result is the plants are every way as good as those raised from cuttings. The shoots are equally strong and tall, and equally floriferous, and in the hands of good growers could no doubt be made to produce as fine flowers as plants from cuttings; hence I take it the extra four or five months devoted to the rearing and nursing of the latter is labour lost.

The notion is held by growers, I suppose, that a plant propagated from a cutting possesses more vigour than one propagated from the root, but one cannot see how this can be under equal conditions. Herbaceous plants of the same nature as the Chrysanthemum succeed best by division as a rule, and the Chrysanthemum is probably no exception. There is more in this than some may think at first in the case of a plant grown so extensively as the Chrysanthemum. If it can be grown equally well by simpler, cheaper, and easier means, and just as successfully as it can by the plan usually practised, I daresay no gardener would care to waste his time or resources on the latter. It must be obvious to the simplest comprehension that what vigour a Chrysanthemum cutting possesses must be derived from the root from which it sprang, and the question is, Is additional vigour infused into the plant by being detached and rooted on its own account? In other words, Is a herbaceous plant cutting stronger than the root, and why? We know that seedlings are more vigorous than cuttings, but between a cutting and a root there is not the same difference. By cutting is simply another way of propagation by division. These are questions for Chrysanthemum growers to answer who tell us to devote nearly a whole year to the culture of plants which can, some think, be grown equally well in half the time.

In propagating a Chrysanthemum by the root it might be necessary and better to divide the latter. Old and broad stools have not the same chance of

making vigorous and new roots as smaller pieces have; hence it would no doubt be better to split the stools up, so as to allow all the roots proceeding from the various shoots ready access to the compost. J. S. W.

PAPWORTH HALL, HUNTS.

THIS, the residence of E. Cheere, Esq., stands on a gentle eminence in the midst of a pleasantly undulated well-timbered park and grounds. It was built in the early part of the present century, and is a massive square Grecian structure, eminently suggestive of comfort. The entrance is beneath a portico of noble proportions, which adds greatly to the appearance and character of the building. The chief approach from the public road, which winds along the valley below, passes through an avenue of young Limes. On the southern side of the hall is a wide, open stretch of green lawn, which, starting close up to the windows, trends away up the rising ground till it becomes merged in a series of glades or avenues, with wide belts of trees and shrubs intervening, Apple trees being in some instances planted amid the other trees with good effect. The view from the windows is very pretty, almost unique in character. Several of the vistas or glades lead the eye into the open country beyond, but in most of them the terminating object is a gnarled old Oak or other forest giant, the growth of centuries. At the end of one of these broad avenues is a pretty circular flower garden surrounded by a moat, the latter being enclosed by a miniature forest of Filbert bushes. To the north-east the ground falls away till the fields are reached in the distance, though it does not lose its park-like character, in consequence of the number of trees which are scattered about in a picturesque manner. Amid the undulations of the lawn on this side is a small lake connected by a channel with the moat round the flower garden. The conservatory, a long narrow span-roofed structure on the eastern side of the mansion, is now gay with forced bulbs, Primulas, Spiraes, zonal Pelargoniums, Roses, Bouvardias, &c. The back wall is covered with various kinds of creepers, and the bed in the centre contains several handsome Tree Ferns.

The kitchen garden lies on the south side of the mansion and grounds, and is hid from view by plantations. It is in two divisions, and contains about 3 acres. The soil, a heavy adhesive loam, produces excellent crops, Strawberries especially doing well in it. The pyramid Pears which line the central walk and the trees on the walls showed signs of vigorous health and fertility, and the espalier Apples had abundance of blossom-buds on them in embryo. The glass erections are in two places, and comprise a useful lot of smallish houses, including two vineries with the buds just starting, an early Peach house, in which the trees were in blossom, the Royal George Peach and Elruge Nectarine still being reckoned among the reliable early forcing varieties. Mr. Smith, the gardener, has been for some years past a successful exhibitor at the local horticultural shows, and neat specimens of the usual kind of exhibition plants are scattered about freely in all the houses. *Bougainvillea glabra*, *Polygala Dalmaisiana*, *Rhynchospermum jasminoides*, *Statice Holfordii* and profusa, with some good specimen Roses were in the vineries. In another house were a few hard-wooded plants in very good condition, including *Hedera tulipifera*, *Aphelexis macrantha purpurea*, *Boronia alata*, *Lapageria rosea*, and a nice little flowering specimen of the white variety. In the Pelargonium house besides the Pelargoniums was a collection of double Primulas very well grown. The varieties included Gilbert's sorts, but the colours of these were hardly so distinct as when first sent out. It appears as if the striped varieties had a tendency to hark back. In this house were some well grown pots of Miles' Spiral Mignonette. In the stove I noticed several nicely coloured Crotons, including Queen Victoria, Weismanni, and majesticum. Allamandas and Dipladenias were represented by nice

little specimens, and I noticed also a good plant of the useful old *Rondeletia speciosa* and one of the finest specimens of *Eucharis amazonica* I have ever seen. The pot, a No. 1 size, was literally crammed full of strong bulbs, which might be made to flower any time by the proper resting treatment. There was also a fine potful of the beautiful *Pancratium fragrans*. In one of the warm houses were a number of trained specimen Ivy-leaf Pelargoniums, Mr. Smith having obtained the collection figured in THE GARDEN some time ago, and had brought his cultural skill to bear upon them with satisfactory results. One especially, a double pink flowered variety, named Annie Pfitzer, Mr. Smith recommended as a winter bloomer. The plant had several handsome trusses on it at the time of my visit, about a fortnight ago, and more buds were showing. In a light glazed frame was a named collection of Carnations and Picotees in pots, and in another part of the garden was a range of low span-roofed houses and a range of forcing pits in front. In the former was a healthy

Collection of Orchids. Though the plants are small for the most part as yet, they are in all respects in excellent condition, and most of the best families are well represented. I am pleased to find that in many out-of-the-way country gardens small, but thriving, collections of Orchids are being established. There is no class of plants more beautiful, or I might add more useful, where a supply of the choicest flowers is required in winter, and most of the best families for this purpose can be grown in a moderate temperature. The kitchen gardens are well protected by sheltering woods from cold winds. There being a difficulty in obtaining gravel on the estate, the kitchen garden paths are made of asphalt with such materials as can be obtained, including a proportion of ashes and gravel mixed with gas tar. They wear well and look clean. There are some thriving young specimens of Conifers about the grounds, including *Picea Pinsapo*, *Cedrus atlantica*, *C. Deodara*, *Wellingtonia gigantea*, *Thujaopsis dolabrata*, &c. From the high ground to the west of the hall, the church of Papworth, St. Everard, forms a pretty and interesting feature among the trees in the distant landscape. E. HOBDAY.

Polyanthus Narcissi.—These are excellent for pot culture and early blooming at this season. When in London last autumn I procured a number of varieties, and for the past month they have outvalued my Hyacinths, at least in their holding their blooms longer, if not in sweetness. *Gloriosa* was the first to open in the last days of February. It was potted in October in a 6-inch pot and put in a cold frame. It has twelve expanded blooms now on it with two to open, each two-thirds of an inch across—a very fine truss. Equally fine is *Her Majesty*, and *Gloriosa* and *Bathurst splendit* too. Dwarfier are *nobilissimum* and *Etoile d'Or*. I would never force them by heat at all.—W. J. M., *Clonmel*.

Polyanthuses and Primroses from seed.—These beautiful spring flowers should be raised from seed annually, but not treated as annuals beyond the annual sowing of seed. There is absolutely no difficulty about the matter, because the Polyanthus always seeds pretty freely, and the Primroses will do so from the later blooms in the case of strong plants. By sowing seed as soon as it can be well ripened, and pricking out the seedlings in frames shaded from hot suns, so that they may be strong for planting out into beds in the autumn, I get a good bloom from nearly all the plants the first spring, and a truly grand bloom the second year, when the plants seem to have reached their best; and from that time, whether lifted, divided, and replanted, or left untouched, they almost always begin to decay. Very much depends upon the summer. If hot and parching, then the leaves are eaten up by thrips, and the crowns rarely recover; but if cool, the plants may stand fairly well. More plants, when they get a few years old die, however, from root rot than from any other cause; and it is not possible to

counteract this decay except by lifting the clumps entire, pulling off each crown singly, clean from the old root, and then dibbling these out into fresh soil, where they may get a new lease of life. Still, the plan of raising a fresh batch from seed is simplest and best. My batch of Primroses of the second year's blooming were, just prior to the recent sharp frosts, beautiful indeed, flowering marvellously, and giving scores of diverse hues and markings. Not a few have the long-looked-for blue tint in a far more marked degree than I have seen previously, and I do not despair of getting ere long a Primrose as blue as a blue Pansy. It is unfortunate, however, that this coveted colour is the first to suffer under white frosts.—A. D.

GARDEN FLORA.

PLATE CCCLXXXI.

CATHERINE MERMET TEA ROSE.

THIS is at once one of the most chaste, beautiful, and useful of all the Teas. At first blush it somewhat suggests a likeness to La France, so recently illustrated and described in THE GARDEN. It has, however, a deeper tinge of flesh colour in its rich and delicate petals than that variety, and there is a dash of green in the shading of its petals in the place of the pale lilac, almost running into French white, that adds so much to the softness and refinement of La France. Both Roses are globular in form, as may be seen from the illustrations, but Catherine Mermet is less pointed in the centre, hardly so high, more round and open, with the petals more imbricated than La France. Catherine Mermet is light rose or delicate flesh-coloured, large, perfect in form, globular, with centre open (I do not mean by that showing the eye, but full and imbricated). It is a free rather than a vigorous grower, though several Rose authorities call it vigorous, the wood and leaves in a young state being highly coloured—nearly purple, the spines strong, hooking downwards, large, and very sharp. It blooms freely, and the bloom is one of the most beautiful in all stages, from the opening bud of deep rose colour, just peeping forth from its large, enfolding, green calyx, to the last. Having plenty of material and good form, this is one of the Roses not by any means too numerous of good staying properties, thus proving as useful and reliable for exhibition as for general purposes. The fulness of Roses as a means of adding to the durability of single blooms is one of those qualities that has not yet received the measure of attention it deserves. The Roses, as a matter of course, soon expand all their petals, and so reveal their poverty by opening wide their eyes; whereas full Roses of the type of La France and Catherine Mermet have such a prodigal profusion of petals, that they seldom or ever unfold more than a moiety of them. This is a point well worth the attention of our hybridists and raisers of new Teas and other Roses; even the *Devoniensis*, matchless, as it may well be called in fragrance and form in budhood and early youth, cuts but a sorry figure as it expands its whole force of petals into the full-blown impotency of old age. It would be a feat worth living for to pack it doubly full of its inimitably soft and delicate compound of white, pink, and yellow petals, though for myself I never could detect any yellow in it

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



unless in the sere and yellow leaf of old age already adverted to, and I love *Devoniensis* too well ever to permit it to reach that state within reach of my knife or fingers. M. J. B. Guillot, the younger, the raiser of La France, has also the high honour of raising this Rose; the former was raised in 1867, and Catherine Mermet in 1869. Had there been a longer interval between them, one might have supposed they might have been partly cause and effect. But that is impossible, and it is more probable that both were prizes from some happy and successful endeavour to unite some of our older Teas or Chinas with our best Perpetual or other Roses. Few things could prove of more absorbing interest to rosarians than a chapter from this most successful raiser of Roses on the affinities and parentages of his large family of beautiful and indispensably useful children.

This Rose, like La France, has a great future before it. Such cruel weather as we have just had, and terrible slaughter as I now find the last fortnight's winds and frosts have inflicted on Tea and other Roses in the open, will but render such valuable sorts as Catherine Mermet more valuable than ever under glass. If my memory and note-book serve me aright, this was one of the best varieties among that charming collection of Tea Roses in pots, exhibited by Mr. George Paul at the great show at Manchester last year, that created so much interest and had such a stimulating effect in inducing many to grow Tea Roses in 8-inch or 10-inch pots. The splendid examples, several yards high and through, exhibited by Messrs. Veitch, Turner, and others, were simply magnificent. But their very grandeur discouraged general imitation while most useful in revealing the full power and capacity of the Rose as a pot plant. But when the public saw a large collection of most of the best Tea Roses, such as Catherine Mermet, in flower in 8-inch or 10-inch pots, in robust health and with foliage to the rim, and a capital head of buds and flowers for the third time within the year, the sight brought Rose growing in pots within reach of many possessors of a pit or frame. The tiniest greenhouse or window garden should have all these positions, and for forming beds and masses in the garden, on the lawn, and in sheltered, warm nooks and corners in woods, I prophesy a great future for this delicately soft and rich Rose, Catherine Mermet. Should these cruel, heart-breaking, Rose-slaying Marches repeat themselves, we must also have heated walls covered and uncovered with glass for these and other Roses, for our present modes of covering too often lead to failure, inasmuch as although it is easy enough to cover when we will and to any extent as we list, we are totally unable to so ascertain the coming weather as to know when and how to uncover with any degree of safety to our Roses.

D. T. FISH.

Fortune's yellow Rose.—Allow me to tell you in answer to your request (p. 236) how I treat Fortune's yellow, commonly called the Flame Rose. We have it planted in a span-roofed greenhouse that stands east and west. We have also Maréchal Niel planted in the same house, the two covering the north side, 29 feet long; they are worked on Brier stocks 3 feet high. The best results are to be had by pruning back annually to the top of the side lights as soon as the last bloom is cut, leading strong young growths away trained to the wires as before. Thus managed, strong young canes are made for the ensuing spring. Every care is taken to tie in the young growths and keep them clean from green fly, red

spider, and mildew. In the autumn I shorten and thin out where the wood is too thick. Maréchal Niel is just beginning to bloom.—T. McCURE, *Hartley Grange, Winchfield.*

ROSES AFTER THE FROST.

POSSIBLY as yet even it is too early to write after the frost, for though it has been thawing, it has also been snowing throughout the greater part of the day, but the wind has mellowed round to the west, and the snow on the ground has been in process of rapid dissolution. As the thaw progresses the effects of the cold become more vividly as well as painfully apparent. The results may be summed up in a single sentence thus—every forward bud wrecked and ruined, the Rose season pushed back a month, and the majority of Tea and tender Roses crippled or killed. Doubtless there may be exceptions to this state of things; but, as a rule, I fear this will prove an under rather than over-statement of the cruel results of this abnormally cold twelve days' frost from the 5th to the 17th of March. While the cold continued the frozen shoots looked far less severely injured than they were. The frost held them together, and preserved to a great extent alike their form and colour. But now they are black, drooping, or wholly withered up, and as every bud that had moved seems more or less severely injured, fresh breaks will have to be made before any prospect of bloom can be had. How long it will take the plants to break afresh will much depend on two points—the state of the weather and the degree of injury the plants have sustained. In the case of dwarfs that have escaped with their lives the loss of time may probably prove the greatest. They possess a sure source of recuperative power in their root-stocks or underground stems, and sooner or later this reserve of vital energy will be expended in fresh shoots. But with standards it is widely different. During such storms as we have just passed through the whole of the Rose is set in the teeth of the harsh, keen wind with the hard-biting jaws of the frost set at a penetrating power of 20° or more. Under such unfair conditions it is indeed but little surprising that the Roses have perished. We had

Planted several hundred standards in October. They were mostly our best varieties. Nothing could have taken better nor rooted more profusely. The top buds had also mostly broken or swollen to bursting point, and now the buds are either black or brown, and on many of them the wood, right up to the Brier, is of that sickly yellow hue that foretells death from jaundice, lack of circulating power, severe shock or check, or by exhaustion. The very tissues of the more succulent wood have been frozen into a decomposed mass, and have lost alike the structure and form of healthy Rose wood. Dormant buds in many cases now threaten to continue dormant evermore. A few more such frosts in March are likely to do more to bring Roses back to earth on their own roots than all the shafts of ridicule or forces of reason that have been brought to bear on standard Roses. My own standpoint still is that they are useful in elevating and undulating the sky-line of our Roses as well as in yielding some of the finest of our show flowers. But dwarfs have their own special merits, and among the latter this must be reckoned as one of the most valuable that when killed to the ground line by stress of weather they live again. More, the very slaying of the Roses not seldom renews their youth as well as their strength and their beauty. Assuredly the killing severities of this March will afford abundant opportunities for dwarf Roses to exhibit their rejuvenating powers during the coming summer. Observations might also be made to test the

Hardiness of Briers when placed in the open with little or no head but a dormant bud or a small Rose top. The Brier or Dog Rose in its natural hedgerow or ditch bank is practically frost-proof; but it is widely different in the open, bare ground, as the bitter experience of 1880–81 proved. The results then were not only thousands of Roses,

but tens of thousands of Briers killed outright. In many cases the Briers died before the Roses and it was one of the most painful as well as the most common incident of that terrible winter of the slaughter of Roses and other innocents to see the Rose buds and branches struggling for dear life on dead Briers. It is to be hoped that this feature may not be so prominent this year. This the Roses had to contend with first and several degrees to boot. But that was in mid-winter, when all Nature was in a partially dormant condition. And it is more than probable that 20° this March may work as dire destruction among Roses as, say in round numbers, 35° that December. Never could Roses have been taken at a more serious and fatal disadvantage than this year. Full of sap as well as life, the frost and wind cut up through them without bank or barrier, and the results are such as may well make rosarians weep without just cause of effeminacy, and it needs almost superhuman courage not to bate a jot of heart or hope under such depressing circumstances, but still push right onward in our favourite pursuit. No doubt this

Terrible slaughter of our Roses will give even greater force and urgency to the cry for more glass for our Teas. It is astonishing what glass alone will do for some of these. Since these frosts I have seen two fine Maréchal Niel Roses on the back wall of a cool vinery that had had no fire. Not a bit of the wood nor a started bud were injured. This, I confess, surprised me. Neither would I cite it as a case to be imitated. The frost had been so severe as to almost pull the pipes asunder at the joints formed of india-rubber rings, and so saved them from bursting. It would have been every way better to have put a little heat on as well for the safety of the pipes as the Roses. But this was not done; the grand plants of Maréchal Niel were nevertheless safe and sound from lowermost base to the topmost extremity, and not one broken shoot nor embryo bud were injured.

D. T. FISH.

WINTER AMONG THE ROSES.

SINCE my remarks were made on protecting and pruning Teas we have had a week of most wintery weather, beginning on the evening of the 5th of March, and still continuing on this, the 20th. The frost has ranged from 6° to 8°, and never did the north wind seem more stern and harsh as it dashed snow, hail, and sleet in the teeth of the tender Roses than during these few days. It seems marvellous that any of the young growths should have lived through this severe and long-continued storm—or rather incessant succession of storms—for no sooner has the sun infused a little more geniality into the air than clouds of snow, hail, and fresh hurricanes of wind have again arisen.

But, nevertheless, some of the young shoots of the Hybrid Perpetuals, and also those of Gloire de Dijon, have passed so far through the December-like weather unkilld. But many of the Teas, still under slight protection, are a sorrowful sight. The young leaves and shootlets look as if they had passed through fire. It seems less the severity of the frost, intense though that has been, than the harsh buffetings of the wind that have blasted the tender shootlets. Maréchal Niel on walls seems to have suffered most severely, and it is to be feared that standards in the open in exposed places may have perished. Such mild Februaries as we have had this year prove dangerous temptations to rosarians. The air seemed so soft and balmy, the birds began to sing and to build their nests, and the Roses grew so fast and furious, that I confess I was led into pruning Teas earlier than usual. We had almost finished by March 5, and now I wish our Roses had not yet been touched by the pruning knife, and that their winter protection had remained intact. One of the most curious phenomena of this abnormally wet and mild winter is the backwardness of fruit trees on walls and the forwardness of Roses. Neither Peaches nor Apricots show bloom on our warmest walls; whereas the Roses in the open have made several inches of growth.

A curious fact in reference to the effects of these cutting frosts has been noted. After the first frost and piercing wind on the 6th the Rose shoots drooped considerably, but did not seem permanently injured. During a lull and a more genial hour or so on the 7th they recovered and stood up. This process of drooping and reviving was repeated several times. But as the cold continued and became even more intense, the shoots lost their recuperative power, and now the majority of all the forwardest seem crippled for good or destroyed. All this is very trying, for never were the rosarian's prospects brighter probably than up to March 5 this year. The constant rains seemed to have done the Roses no harm, but rather good. They had washed the plants clear of dust and dirt, and of insects there were no trace. The buds were breaking with abnormal strength and regularity, the leaflets were most verdant, and the early ones unfolded were of good size, and had the robust character of health and vigour. The roots were also active, those of autumnal planted Roses being specially so and rising near to the surface.

And now—well, at the very best all growth of root and top has been roughly and rudely arrested and nothing is so fertile of attacks of mildew and other fungoid and other pests as these violent arrestments of growth. The effects will not be, all at once apparent. Not a few of the Roses may manage to even develop their flowers, though the latter are likely to be inferior through the effects of the storm. It is also well-nigh certain that not a few plants will die outright during the summer as the direct result of their severe freezing through this March. What the frosts have crippled the fire of June sunshine is likely to kill. Hence no means should be left untried, late though it be, to propagate more Tea and other Roses by budding, grafting, or cuttings where suitable material and means can be procured. Tea Roses may also be purchased and planted out in April or May. Those who have lost their plants may thus still have Roses during the summer.

D. T. FISH.

Bury St. Edmunds.

SEASONABLE WORK.

FLORAL DECORATIONS.

WITH a favourable change in the weather we shall doubtless soon again have an abundance of hardy flowers that will prove of great service for decorative purposes. Primroses and Violets associated well together, and for these any shallow, flat receptacle can be turned to good account, using either sand or water, but in either case some fresh green Moss will be useful; so also would a few small pieces of the finer-leaved kinds of Ivies. A few patches of Violets, taken up when in full flower, will keep for some time in a soup plate if a little soil can be got with them. In this way Violets look very well—better than in bunches, and they do not fade so soon. Wallflowers may now be had in abundance; they like plenty of water, and will keep in good condition longer if the ends of the stems be cut off once or twice. We shall shortly be cutting blooms of *Magnolia conspicua* from a large specimen. These will look exceedingly well arranged in a pale blue vase for side-board decoration. We find them to invariably open well when cut just as they are about to expand their ivory-white blossoms. Their fragrance is also agreeable, but perhaps rather too strong for a somewhat small room. Daffodils may now be had in profusion. A few flowers of one or more kinds of these look well arranged with their own foliage something like the way in which they grow, and not bunched up in huge masses, as is oftentimes done. Of forced flowers, neat sprays of *Deutzia gracilis*, somewhat drooping in habit, are very serviceable as a fringe to a trumpet vase, the centre of which would look well filled up with a few pieces of *Hoteia japonica* and *Dielytra spectabilis* or *Chionodoxa Lucilæ*. Clumps of the Lily of the Valley will be valuable now in vases, and

will be found more durable for this purpose than single crowns. Different coloured varieties of *Azalea mollis* look well together with a few pieces of their own foliage. From want of something better, a finger glass will suit very well in which to arrange them. Avoid placing vases of exotic or forced flowers or plants too close to an open window, the draught from which would soon spoil their beauty. When it is desired to prolong the perfection of choicer cut flowers as much as possible, it is an excellent plan to arrange them in a receptacle that can be placed under a bell-glass. In the case of scentless flowers this method is worthy of consideration.

FLOWER GARDEN

Cannas.—For outdoor summer decoration these cannot well be overrated; they are of easy culture, quickly increased, and wonderfully effective, both before and when they are in flower, and the variety and colour of both foliage and flowers are very great; though some are better than others, all the varieties grow and flower freely in the open air from June to October. They produce the best effects when planted in masses, the taller ones in the centre, and those that are dwarfer outside. They also look well alternated at wide distances apart with large plants of variegated *Abutilons* or *Acacia lophantha*. They attain the greatest perfection in deep, light, rich soil (a peaty loam with plenty of stable manure in it is best); they also do moderately well in stiffer soil provided the drainage is good. To get up a stock quickly the best way is to raise them from seeds, which, if sown in bottom-heat at once, will make useful plants for putting out in June next. Seedlings do not always come true; therefore when it is desired to retain any given variety, recourse must be had to division, an operation which may be performed any time before the roots start into growth; the portions separated should be potted in small pots and started into growth in heat. In dry soils in the south of England the roots winter safely in the beds if the surface be mulched with Bracken or Cocoa-nut fibre; but in less favoured districts and soils they should be lifted after the first severe frost occurs in autumn, and packed in dry soil in frost-proof sheds or cellars. The following are a few of the best varieties, viz., *aurantiaca*, *magnifica*, *peruviana*, *gigantea major*, *nigricans*, *Premices de Nice*, *iridiflora*, and *Warszewiczii*.

Hardy Ferns and rockery.—Most kinds of Ferns are now throwing up new fronds, and before they get so much advanced as to be injured by working amongst them, all old fronds, weeds, and new plantings, or rearrangements should be completed as early as possible. Remove the mulchings and give fresh soil to any plants needing that attention. This is the best season to plant out Ferns; therefore, any new additions to this department should be furnished forthwith. Plant carefully, well firming the soil about their roots with the hand; after that give them a good watering to further consolidate the soil, and unless the weather proves exceptionally dry, no further artificial watering will be necessary. An immediate furnished effect may be had by intermixing with the Ferns a few compact growing shrubs, such as *Thuja*s, *Retinosporas*, and Irish Junipers. A free use of mossy Saxifrages and Sedums as a carpeting for Ferns is both appropriate and desirable, as they furnish the ground until the Fern fronds have become fully developed. The rockery is now beginning to look gay; *Aubrietia Campbellsii*, *Phlox verna*, and *Lithospermum fruticosum* are one mass of blossoms, and others are fast unfolding. In the presence of so much beauty, weeds, decayed stems, or, indeed, anything of an untidy character, should have no place. Many kinds may still be planted, and if when the stock of plants has become exhausted there are still vacancies, these may be filled in by sowing *Mignonette*, *Silenes*, *Virginian Stocks*, or, in fact, any of the dwarfer spreading annuals.

General work.—Mowing must now begin in earnest. We began with the lawn mower a

month ago, for the Grass has grown the whole of the winter. Negligence as to mowing early in the season results in coarse Grasses and a sickly coloured sward throughout the summer. Plenty of rolling, a dressing of soot or wood ashes, and early mowing ensure a fine velvety turf at all times. It is high time that lawn Grass seeds were sown; level and rake the surface fine, sow on a still day, rake the seeds well in, and roll frequently, but particularly after a frost, which upheaves the ground. Edgings of turf not yet trimmed should be so without delay, as they will soon be too dry to be operated on neatly. Walks, too, should ere this have had all necessary repairs done, and have received surfacings of fresh gravel, and rolling should be repeated after each heavy rainfall till they are hard and firm to the tread. Walks under trees are apt to get Moss-grown and discoloured; in all such spots apply a sprinkling of salt; this will remove the discolouration, and add brightness to the gravel. Laurel and other shrub pruning should be completed forthwith, as should also any planting that yet remains to be done. Vacant beds and borders should be dug or trenched, and with the view of lessening the pressure of work at the general planting-out time all kinds of plants that can now be put out with safety should be planted.

INDOOR PLANTS.

Achimenes and Gloxinias.—As soon as *Achimenes* started early have made an inch or two of growth they should be placed in their blooming pots or baskets, whichever are used. A few more ought now to be started, reserving a portion to be brought on later, for if it is deemed desirable to have them in bloom for a lengthened period they must be started at different times. Some of the old bulbs of *Gloxinias* should now be potted and placed in a brisk heat, but as soon as the tops begin to move they must be put as near the glass as possible. Few things are so much influenced by the treatment they receive in this respect as *Gloxinias*, which, if grown in a way that causes them to be at all drawn up, are rendered almost useless. If not already sown, a little seed should be put in. Few plants have been so much improved in recent times as these. If a good strain of seeds is obtained they will yield flowers equal to the best named kinds.

Eucharis.—Now that the season is coming on when the sun may be expected to have a good deal of power, see that these plants are not too much under its direct influence. Easy as *Eucharises* are to manage, many fail with them through an inability to keep their leaves in a healthy state. The most frequent cause of this is allowing them to be exposed to the sun to which, unlike almost all other cultivated bulbs, they have the greatest dislike unless far from the roof. Plenty of pot room is essential to quick growth and free flowering, and if small specimens are deemed the most desirable they should be divided, and the bulbs placed three or four together instead of letting them remain crowded. If by any chance the plants are strong and do not flower so freely as they ought to do, the shaking out and separation needful for their being put in small pots is almost sure to have the effect of throwing them into bloom. See that they are free from worms, as where bottom-heat is used the soil is often liable to contain them, and their presence for any length of time generally results in the plants getting into bad condition. Soot water made moderately strong will usually free the soil from worms. If the plants are at all affected with scale or mealy bug the sponge ought to be well used before the higher temperature, consequent on warmer weather, causes them to increase faster than they otherwise would do.

Shrubby Calceolarias.—Comparatively few soft-wooded subjects are more useful or effective for conservatory or greenhouse decoration in spring than these, and, considering the small amount of trouble they give to have them in good condition, it seems strange that they are so little grown. By cutting them back each summer when

the flowering is over, like *Pelargoniums*, but not shortening the shoots so close as in their case, they will last for a number of years, attaining a large size and blooming so profusely as to all but hide the leaves. Old examples fairly well wintered if given a shift now into rich soil and kept in a temperature of from 40° to 45° in the night, and quite free from aphides, will form strong bushes full of flower by the beginning of May. Amongst yellows the old bedding variety *aureo-floribunda* is one of the best; the darker coloured kinds succeed equally well. Young plants now in their blooming pots should be kept a little warmer than ordinary cool greenhouse stock if they are wanted in bloom early.

Hydrangeas and Neriums.—Where *Hydrangeas* are grown in small pots from cuttings struck annually they force well, and where the pots are full of roots they must be treated to manure water every week, as on this depends the size and strength of the flowers. If a portion of the stock is kept cool a succession of bloom can be maintained for several months. Small plants of *Neriums* are most useful; where well ripened by full exposure to the sun in the open air during the latter part of summer they rarely fail to flower. Care must be taken that they are plentifully supplied with water, for although the plants will bear drought without injury in the autumn and winter, yet as soon as the bloom buds begin to move if too dry they will most likely fall off. An intermediate temperature is sufficient for such as are to be forced, as if subjected to too much heat they do not generally flower well.

Humea elegans.—This old-fashioned plant deserves a place wherever room can be found for it. It is not only elegant in growth, but it has the additional merit of being at its best at a time in summer when there is usually a scarcity of conservatory stock. To have plants of it in good condition they must now be moved into large pots, as if cramped for root space they will be deficient in size and the lower leaves will not keep fresh, after the loss of which half their beauty is destroyed. They are subject to aphides, which must be regularly sought for, as they lie concealed at the under side of the leaves, and if allowed to remain they soon do irreparable harm.

Lilium giganteum.—Although this stately plant will succeed out-of-doors over a good part of the kingdom, still it will flower in a pot, if well managed, much more profusely than in the open ground. Examples that have been wintered singly in 8-inch or 9-inch pots should at once be moved to others 16 inches or 18 inches in diameter, giving them good turfy loam, enriched with manure, pressing it moderately solid in the pots. As soon as the roots have got well hold of the new material, manure water will help them, but, like almost all other quick-growing subjects, if stimulants of this nature are to have their full effect, they must be applied at the time the plants are gathering strength to form their flowers.

Fuchsias and Cinerarias.—See that everything needful is done to keep last summer's struck *Fuchsias* moving freely, as any check as regards want of pot room, or keeping them too cold, will throw them into a premature flowering state, after which little progress in size is possible. Where *Cinerarias* are wanted in bloom by the end of the year, a bit of seed ought shortly to be sown.

FRUIT.

Pines.—Examine the first batch of suckers which were potted early in February and plunged in a strong bottom-heat of 90°; and if it is found that the young fleshy roots are beginning to coil round the outsides of the balls, give sufficient tepid water to keep them in a nice growing state. Ventilate more freely and dew them over with the syringe after closing with solar heat. If the young plants are kept close to the glass and have plenty of room, the top-heat may now range from 65° at night to 75° by day; and to prevent the

newly formed roots from receiving injury, the heat about the pots may be allowed to descend to 80°, at which it must remain until they are potted. Where very strong suckers are obtained to start with, and the one-shift system is to be followed, make the usual preparations for carrying out the work with dispatch when the plants are in a fit state and the weather is favourable. Let the beds be made up of tan or leaves some time beforehand to ensure a steady bottom-heat of 85° to 90°, as getting into a newly-plunged bed to rock and lift the plants is very objectionable. Err on the side of small pots—say 10 inches to 12 inches for *Queens*, and 12 inches to 14 inches for *Cayennes*; use pure, rough, fibry loam—bone dust and charcoal if inclined to become adhesive—ram very firm to prevent all possibility of water being held in suspension, and while maintaining a moist, growing atmosphere by a judicious use of the syringe, carefully avoid saturating the soil until the roots begin to work freely through the new compost. Keep a close watch upon newly-potted plants, and place some very light shading over the glass for an hour or two on bright days. Let the heat in fruiting pits range from 70° at night to 80° by day; close with sun-heat at 85° and run up a few degrees with atmospheric moisture well charged with ammonia. See that plants in flower have a brisk circulation of heated air to insure perfect fertilisation, and to prevent the crowns from becoming too large, as is often the case in close, dank, ill-ventilated pits.

Vines.—Disbud, tie down, and stop succession houses as the *Vines* advance, and remove all surplus bunches from free setting kinds as soon as the most promising for the crop can be decided upon. Early *Muscats* having plenty of fresh, active roots working in inside borders may also be divested of ill-formed bunches, provided a fair percentage of the best are left to choose from after the *Grapes* are set. Draw the points of the bunches up to the light when in flower, fertilise with *Hamburgh* pollen, and let the heat range from 70° at night to 85° by day, and 90° when solar heat is available. *Grapes* now swelling must have a liberal supply of moisture charged with ammonia, and as keen easterly winds with bright sunshine frequently prevail in March, guard against checks from draught by shutting off fire-heat early on fine mornings, by timely ventilation, and by early closing with sun-heat at a temperature of 85° to 90°. As the stoning process approaches, allow a free and easy growth of laterals, stimulate the roots with warm diluted liquid, and aim at a steady night temperature of 65° to 68° with a little air. When this strain upon the *Vines* is over, sharper forcing may be indulged in if it is really necessary, but the figures I have just named are quite high enough for all *Grapes* which do not come under *Muscat* treatment.

Late houses.—Endeavour to give the *Vines* as long a growing season as possible by shutting up with strong sun heat; syringe the rods several times a day, and maintain a moist atmosphere by damping the mulching material every evening. Vigorous young rods which have never borne fruit will require dexterous handling to get them to break evenly, particularly where the young beginner has been led or misled into leaving his canes long enough to carry a crop which his *Vines* cannot finish; but much may be done by tying down the points and elevating the dormant buds over heaps of fermenting material placed on the borders.

Hardy fruit.—All arrears of winter work, if any, must now be gathered up, as spring operations will now require attention. As many of the recently planted fruit trees have not received a thorough soaking of rain water since the roots were disturbed, see that all mulching is well done before they suffer from the effects of drying winds and bright sunshine. Tread the soil firmly now it is dry before the manure is put on, and give all doubtful trees a moderate watering to keep them going until the sap finds its way back into the usual channel. Young stone fruit trees intended for training as supernumeraries must be treated as the above, and if

cutting back is still a portion of the grower's creed, all buds must be pretty well advanced, or, better still, the work may be delayed for a year before they are subjected to a second shock. Where, in low damp gardens the topping of *Raspberries* is put off till spring, cutting back may be performed in March, and if well mulched early in the autumn a hand-weeding of the stools will complete this part of the garden for a long time, as digging amongst the roots is simply barbarous. Look over *Strawberry* beds, remove all weeds, spread down the mulching and rake off before the crowns become too prominent. On our cold damp soil we make it a rule to lay the autumn mulching in ridges between the rows, and after dressing the beds with soot, the manure is levelled down early in the spring—the advantages being freedom from slugs, more complete rest to the crowns, and a later and better bloom in the spring. With the exception of *Pears*, which bore heavily last year, fruit trees of all kinds in this locality are laden with blossoms, which promise to be bold, vigorous, and perfect, and so far the season is highly favourable, provided the advice to protect, which teems in every journal, is not carried to excess. It is of course well to be prepared for an emergency, but covering which excludes light and air checks and weakens the vital energy of the trees, and does more harm than well coped, but otherwise exposed, trees would receive from several degrees of dry frost.

KITCHEN GARDEN.

POTATOES should now be planted. Our sets have been kept on shelves in a well-aired room and are in fine condition, having small, but stout sprouts. The varieties are *Early Frame*, *Early Hammersmith*, and *Empress Eugénie*, but the bulk consists of *Myatt's* and *Old Ashtop*. We merely draw the drills and lay in the sets, but leave a slight ridge above each row. Other operations consist in filling up blanks in *Cabbage* and *Lettuce* quarters, and keeping the soil well cultivated between the rows, which is the very life of vegetation, and which should receive attention on all favourable opportunities. Now is about the very best time to make a selection of *Broccoli* for seed; take only one, but let it be the king among them. When in flower sulphur it to keep off insects. We have been busy cutting up all old stumps of *Brussels Sprouts*, *Savoys*, &c. What a useful vegetable sprouting *Broccoli* is! Some few years back Mr. Dancer supplied us with a stock of it, and capital it is. We also grow the white variety. Our opinion is that it is not so sweet in flavour as the purple. Our early spring *Cabbages* will be in time to succeed the above; therefore, no blanks, but all prizes, are the order of the day. *French Beans* are the only vegetables which occupy much space under glass just now; they are very unprofitable, but cannot be dispensed with; therefore, keep up a stock of them in accordance with the demand. Early *Peas* in boxes in cool houses are just now little pets, *Laxton's Minimum* being dwarf, prolific, and good in flavour. When the flowering period is over mulch the boxes with rotten manure and give plenty of water, attentions which the *Peas* fully repay. Early *Potatoes* in boxes now in the *Peach* house should be kept short of water; only just enough should be given to keep them from flagging. We sowed our main crop of *Celery* to-day, the varieties being *Major Clarke's*, *Sandringham White*, and *Carter's Incomparable Crimson*.

Late-flowering Chrysanthemums.—Although some varieties flower much earlier in the season than others, even under the same conditions, yet the great point in obtaining late blooms is to treat the plants according to the time they are required to flower. That a great deal depends on their mode of treatment is shown by blooms of *Elaine* and *M. Lemoine* being even yet in good condition, though neither of them would be selected for late flowering, the first being one of the earliest *Japanese*, and the latter comes in with the bulk of *Chrysanthemums*. The flowers

in question came from side shoots developed after the removal of the terminal flower or flowers, as the case may be. A great deal may be done by late striking of the cuttings; but, at the same time, the latest flowered kinds should be selected. A Japanese variety called splendens I find to be one of the latest of the whole. It does not grow so tall as many of the Japanese kinds, but is quite a medium height. The flowers are of a deep yellow colour, and composed of broad strap-like petals, the inner ones of which are partially incurved. This variety should certainly be noted for its late-blooming qualities.—H. P.

NOTES.

Little bits of "true blue" are but rarely represented amongst spring blossoms. We are always very pleased to see *Scilla bifolia* pushing up the dry clods towards the end of February, that is supposing that February is dry and east-windy, as it was this year, and not the "fill-dyke" month of rain which our forefathers made it out to be. As I said, we welcome the two-leaved Squill and fondly imagine it to be blue until *S. sibirica* makes its appearance a little later, and then we find that it is almost purple by comparison (I mean modern purple, not the ancient purple, which was nigh on scarlet). This reminds me that comparisons by memory and comparisons in fact (as when two plants supposed to be the same are seen side by side) often give very, very different results. Another bit of "true blue" is *Omphalodes verna*, a Forget-me-not of the earliest, and surpassed by no other hardy flower, except perhaps some *Gentian* and *Eutoca viscida*.

Anemone apennina is of all seasonable flowers one of the most exquisitely beautiful. To enjoy its freshness of colour it must be plucked in the bud stage and opened indoors or they may be pricked into a saucer of wet Hyphnum Moss. If you want to emphasise the colour, arrange a few flowers of *Narcissus* with it, say *N. odorus*, or, failing that, *N. minor*, one of the earliest of our outdoor kinds. We have had a clump of *A. apennina* here for some time from which roots are dug every season for exchange or for dibbling into the sparse grassy spaces under trees, and yet, like the widow's cruse of oil, that clump seems inexhaustible, and every year they come up seemingly as thick as ever. This is one of the good points in many species of *Anemone*, they are so easily increased by breaking up the roots either intentionally or otherwise. In the case of *A. apennina* this is especially the case. We have a few other plants which seem to increase the faster for having bits stolen away from them. *Anemone japonica* and its white variety do this, and so also the Caucasian Comfrey (*Symphytum caucasicum*), which now bears its blue bells dangling among its hoary leaves and is a perfect weed with us.

Primula rosea and seedlings of *P. cashmeriana* are now flowering quite freely outside, the first-named pushing its vivid rosy buds and blossoms up through the thick coat of leaf mould, with which we always like to protect its netted mat of surface roots during the frosts of winter. Of all modern introductions from Northern India, *P. rosea* is one of the best in the Primrose way; but I must remember Dr. Watt's illustrated paper in a recent number of the Linnean Society's *Journal*, and not be too proud of my favourite lest one or more of these new beauties should surpass her and take up the pride of place before what I now call the rosy queen of all the Primroses. Here having many forms from seed we find *P. rosea* very variable, some deep rose, like the first glint of the Almond buds as they push through their hoary bracts, others as pale as the palest Almond or Peach blossom can well be; but all are beautiful, and I think the shades of colouring more satisfactory than if all were exactly alike, as is the case when division of old clumps is trusted to as the only means of increase.

Garrya elliptica foemina.—In reply to my allusion to this rare shrub, a friend writes to say that a specimen of the female *Garrya* has existed in a garden near Bristol for the last twenty or more years, and has fruited every year since 1867. For all this information I am most grateful, but I could have found it for myself in *THE GARDEN*, Vol. X., p. 254. What I particularly wished to know was, not where the plant existed, but from whence, by purchase or otherwise, it might be procured. Now that we have a "general index" to the first twenty vols. of *THE GARDEN*, I imagine but few of us need other references than that affords. Nevertheless, original information is ever more welcome than references to the pages of a paper we know pretty well already. Again, I repeat my question: where may a plant of *arrya elliptica foemina* be obtained? for "*Veronica*" much and truly desireth to have the same.

A good hardy foliage plant is *Heuchera americana*, or what I have named as such, with leaves like a zonal *Pelargonium* in size, but of a silky texture, and a bronze or brownish red tint. They are very fresh and clean all winter time, defying both frost, snow, and biting east winds, and as seen under artificial light no tropical leaves could well be more attractive. As seen on the dinner table, people wonder what lovely leaves they are; indeed they have done so when we employed the red autumnal leaves of the common Mahonia, so nigh akin are they in real beauty to tropical kinds. This *Heuchera* would be most useful to all who have to furnish dinner-table decorations in great variety. If pale green plants of the same form are desired, the old *Tellima grandiflora* will afford them in any quantity. A very pretty arrangement just now for a hall table is Ivy leaves, green and golden, in an old brown jug, among which are placed long twigs of "pussy" Willows and sprays of the young leaves, and magenta blossoms of the flowering Raspberry, *Rubus spectabilis*. Another arrangement of Wallflowers and Daffodils in the same brown jug is always admired.

Golden Daffodils and Pæony leaves form just now a very pretty combination on our borders here, and I never see a large bed of herbaceous Pæonies about a place without longing to drop a few hundred roots of the common double Daffodil in amongst them. Just when the Daffodils flower the Pæony leaves and stems are of a rich glossy purple, a colour which contrasts most effectively with that of the nodding Daffodils.

Dendrochilum glumaceum is one of the most elegant of all Orchids now blooming. We are not as yet able to cut over a hundred of its elegant spikes in one day, as Mr. Thomson now and then does at Drumlanrig, but its drooping Rye Grass-like spikes are here with us very much admired, and this as much for their Meadow Sweet-like fragrance as for their beauty. Suspended in shallow pans of peat and Sphagnum quite near the roof of a warm stove, this Orchid grows and flowers quite freely, and is to us quite as welcome as are the more showy blossoms of its associates, the Cattleyas and Vandas.

Among the Dendrobates now in bloom shall I give first place to the dainty wreaths of *D. Devonianum*, with its ethereal magenta-tipped petals and the pure orange blotches on the lip, which remind me of blotches on the wings of a little native butterfly, which I remember quite well as a child, although I now forget its name (a friend tells me that this butterfly is the "orange tip" or "wood lady," *Euchloe cardamines*). One visitor who breathed its peculiar fragrance for the first time here always calls it the "spring morning Orchid"—so rich and fresh and full of sweetness is its odour in the early sunshine. *D. Wardianum* is ever lovely and wax-like; so also *D. crassinode* and "old nobile" comes as an old and well-tried friend. *D. Ainsworthi* is also very pure and distinct, but one of the gems of our tiny collection is

a remarkably fine variety of Freeman's collecting (I think in Assam) of the now rarely seen *D. lituiflorum*, so named because its labellum reminds one of the long curved horns or clarions used in ancient times for signalling purposes. Nearly all *Dendrobates* are beautiful when well grown, but of all the above *D. Devonianum* is and has ever been a great favourite with me, so delicate and fairy-like is its floral texture and sweetness.

The old Red-stalked Rhubarb.—Of all the varieties of Rhubarb grown in our gardens for culinary uses, how rarely do we meet with a dwarf and early kind which I remember grew in our home garden when I was quite young. Is it the kind now called Early Crimson? The petioles of the small rhomboidal leaves were only 10 inches or 12 inches in length and not thicker than one's finger, and yet for tarts it was a great favourite on account of its fine colour, and also for its early growth. If I remember aright, the stems were red throughout and not greenish when peeled, as are those of most other varieties, especially the giant seedling kinds now so much grown.

Good King Henry as a substitute for Spinach is not so generally grown as I think it ought to be. In the farm-house gardens of Lincolnshire it is quite common as a successional crop to their winter Sprouts and Kales of various kinds. Really, it is a native plant—*Chenopodium Bonus Henricus*—and so is, of course, quite hardy in all soils and localities; it is now throwing up its succulent leafy shoots from among a rather liberal top-dressing of rough leaf mould, with which we protect it during winter. Its flavour is quite distinct from that of any other vegetable, and so it deserves culture on its own merits; although we think it very good, yet we long for the fresh inviting flavour of Asparagus which it suggests.

The song birds are already nesting with us, and I yesterday found a thrush's nest with eggs in a Holly bush quite near to my door. It is a little too late now, perhaps, to give advice, but here we take every care of our birds, *i.e.*, those which naturally make our old garden their home for breeding. During the winter we find old meat bones especially acceptable to the worm or grub-hunting kinds, while bread-crumbs and fat suit others better. We find that during hard frosts they often suffer for want of water, and so break holes in the pond for them, to which they at once repair in flocks, and almost fight for a drink, so eager are they for moisture. Having but little fruit here, I am sure we are amply repaid for caring for the wants of the birds during winter-time. We generally have a meat bone hung up in a tree near the window for the blue-tits, who delight to creep around it; and so while feeding they afford us endless amusement, so quaint are their antics. I remember once calling upon Sir Joseph Hooker at Kew, when he showed me two or three blue-tits clambering and twittering on a nutmeg bone on his verandah, and I was so pleased at the sight that I have ever since offered these sprightly little birds a similar attraction, I presume, much to their benefit, but, I am at any rate sure, much to my own amusement.

In protecting the birds, which we here find quite as necessary as the feeding of them, we find that the hawks, magpies, and prowling cats do more damage even than boys' bird's nesting, which is absolutely forbidden. The dogs keep the cats at bay pretty well during the daytime, but during the night and early morning the cats do some little damage. Hawks and magpies are simply shot or shot at whenever they appear, and one result is that our old garden, although near the town, is quite a refuge for song birds of all kinds, and during early morning and in the evenings the trees and shrubberies are alive with them, and the air full of bird music. As I have said, we grow but little fruit, and that little is so easily netted that we favour the birds; even the bud-picking bullfinch is not forbidden, and we have some rather rare visitors,

to wit, a gold-crested wren generally builds with us, as also goldfinches in our Apple trees. Last year a blackbird built her nest and reared her young safely in a large New Holland shrub in our greenhouse. A robin always selects the Orchid house for its nest, and a little wren built herself a pretty nest in an Orchid basket, and did not mind us at work or walking about underneath.

Euonymus albiatus, a Japanese species, is rather uncommon, albeit it is an effective and cheerful evergreen shrub when in fruit. The leaves are glossy, broadly lance-shaped, finely serrated, and 3 inches to 5 inches in length. Fruits



Euonymus fimbriatus. Japan.

in lax axillary clusters of a pale pea-green tint, but showing bright scarlet-coated seeds as they attain maturity, and burst open, as is the fashion in this genus. Our engraving shows leaves and fruits natural size. It is hardy in Ireland, and makes a good pot plant in a cold house.

Double Daffodils of the common kind are now very gay in clumps and masses, and but few kinds, if any, are so hardy or so satisfactory for distant effects on the Grass. Of the rarer kinds, one of the most distinct is *N. eystettensis* (*N. capax* fl.-pl.), of which the perianth segments only are duplicated, and superposed as those in a Lady Hume's Blush Camellia apparently are. It is a slender-growing plant, bearing delicate straw or sulphur-coloured flowers on stalks 9 inches in height. The dwarf *N. Tradescanti*, or "*Tradescant's double Daffodil*," is also in bloom, with the true double English kind said to be wild in the Isle of Wight, but very rare in gardens. It is much smaller and paler in colour than the common double. One of the finest and certainly one of the most distinct of all double kinds now flowering is one sent me some years ago from Haarlem by Messrs. Barnaart & Sons. It is like what a double bicolor might be expected to be, the perianth segments being whitish and the coronal segments

golden. It is figured in Hale's (Hill's) "*Eden*" a century or more ago, and is therein described as the "*silver and gold*" Daffodil with double flowers. The two distinct shades in the flower render it unique among double Daffodils, and it is a pity such a beautiful variety is at present so rare.

Irises on the Grass.—How comes it, among all the bulbs and flowers hitherto recommended and planted on lawns here and there, that we so seldom see the many varieties of German or Flag Iris so used? We find them most successful so planted; indeed as our soil is deep, light, and sandy, it follows that while almost all Xiphions or bulbous Irises succeed well, the Flag Irises, if they do not actually fail, do not luxuriate so well as they do on stronger soils. Seeing this, we made a trial of planting them here and there on the turf, and the result surpasses our expectations, and we anticipate some pretty effects in this way. Being evergreen, they are not likely to be so unsightly as deciduous plants on Grass must sometimes prove, and it is quite easy to mow round good bold clumps and masses of these Irises (as of other plants) when it is not so easy when things are dribbled in in a scattered way. The common purple Iris germanica, as seen on a grassy lawn, is a noble object, but there are twenty varieties of it at least, some as fine as Brazilian Cattleyas in colour and as hardy as the Grass itself, and the effects to be obtained by the artistic grouping of these on sheltered, but sunny bits of lawn, are among things "not generally known."

VERONICA.

KITCHEN GARDEN.

TWO METHODS OF PEA CULTURE.

THAT Peas are both a source of worry and pleasure to many gardeners as well as amateurs not a few of your readers will readily admit. All must have them, but all are not equally well experienced in their culture, and others have exceptional difficulties to encounter as regards their growth. One thing is certain, and that is that Peas of our own growing are the most delicious; at any rate it is rare that we can procure any from the markets or shops to equal those fresh picked from our own rows. Probably in the case of some it may be cheaper to buy what green Peas may be required than to grow them, as where space is limited or manure and stakes have to be bought the crop proves expensive. At the same time I hope to convince many who at present grow few or no Peas that they are not altogether wise in the matter. Peas are really easily grown, and stakes though preferable, are not absolutely necessary. Witness the enormous quantities annually sent to the London markets. Few if any of these are grown other than in the open fields and

Without stakes. It is true the conditions under which they are grown are different from those belonging to garden culture, but they may be imitated, as I have proved, in private gardens, and with most satisfactory results. The market crops are grown on land into which a fairly good dressing of good stable or London manure, as the case may be, has been ploughed, and this land soon becomes comparatively firm. This induces the growth of a sturdy short haulm, which, as a rule, is literally crowded with pods. It is therefore evident a deeply dug and heavily manured yet loose soil is not suitable for unstaked Peas, and I am of opinion that a loose soil is not the best root-run for those to be staked. Prior to sowing, the ground should be heavily trodden, and single drills about 30 inches or 3 feet apart and 2 inches deep may be drawn and the seed sown thinly. When about 4 inches high the plants should be moulded up and care taken to destroy all weeds between the rows before the haulm covers the ground, as this will be a difficult matter afterwards. Early varieties can be cleared off in time to admit of the ground being planted with such crops as Broccoli, Savoys, or greens, while in the case of the later sorts the haulm may be carefully laid along the rows, and this will admit of the

spaces between being filled with more of the same kinds of plants. Here, then, is a good bit of double cropping, and the extra firmness created for and further increased by the Peas renders the ground more suitable for the Broccoli and other winter material, as these grow more sturdily, and, as a consequence, are much more hardy than if grown on loose, rich land. Much, however, depends upon having

Suitab'e varieties. Some of those preferred by the growers for market are scarcely good enough in quality to suit the private grower. Round-seeded sorts only can be relied upon for the earliest sowings, as the wrinkled Marrows, unless the season is exceptionally favourable, are apt to rot in the ground. Sangster's Improved No. 1 still finds many admirers among both market and private growers, but I am inclined to think cheapness of the seed unduly influences the choice, as there are more superior early sorts. Caractacus, of a similar type, is decidedly preferable, while Kentish Invicta and William I. are much better in every respect, and will invariably command higher prices in the markets; in fact, I have seen good samples of these find buyers at a fair price when wretched, yet average, samples of Sangster's had to be nearly given away. Taber's Perfection, again, is not worth growing. Day's Sunrise, being a wrinkle-seeded variety, and as such comparatively early, is deserving of and doubtless will be extensively grown in the future. It is well adapted for small gardens, whether stakes are available or not. Laxton's Supreme is still a popular second early market variety, but, although it produces an abundance of long, well-filled pods, the quality is somewhat poor, and the earlier Sunrise should supersede it. Dr. McLean has no equal, whether for small gardens or the fields, unless the soil happens to be extremely cold and heavy. Last season, although unfavourable to the Pea crops, we inspected several acres of this variety, and the crop for weight, size of well-filled pods, and quality was by far the best I have yet seen of any sort. The soil in this case was a deep and somewhat strong loam, and had received a liberal dressing of fish manure; and this powerful and lasting fertiliser I should strongly recommend to the notice of farmers within easy distance of London. Unfortunately it is too highly perfumed for private gardens, and would, if used, be at once voted a nuisance. For the main crop Yorkshire Hero, or, as it is now generally termed, Veitch's Perfection, is the best yet grown in the fields, and either this, Omega, or the good old Hair's Dwarf Mammoth may well be grown in private gardens for both main and late crops. I do not greatly value the much lauded Stratagem and Pride of the Market Peas, and am of the opinion that neither will ever be extensively grown for market purposes, nor will be found particularly profitable in private gardens. Both these and the taller growing, but in other respects very similar, varieties, Telegraph and Telephone, are very robust and good second earlies, but in the markets thick fleshy pods, however well filled, do not long find favour, simply because they do not yield a proportionate quantity of Peas. This I have proved even in a country town where buyers are seldom so cute as your thoroughbred cockney. In the case of the more

General methods of growing Peas, we find a great diversity of opinion. As regards time of sowing, suitable positions, soil, and manure, but more especially as to the merits of certain varieties, much depends upon the locality, nature of soil and subsoil, the amount of labour at command, and last, but not least, upon the tastes of those most concerned. In warm soils, these being necessarily of a light texture, it may be a good plan to sow seeds during November for the earliest crops the following year. For my part I have long since become disgusted with this practice, or at all events with the results of my efforts in that way, and now invariably sow seeds about the middle of February in ordinary Pelargonium boxes filled with light mould. This sowing usually consists of two round-seeded varieties, with, perhaps, a third added by way of experiment, and an early dwarf wrinkled sort. Wil-

liam I., Laxton's First Early, and Veitch's Extra Early are grown this season, the latter only for the first time, and the American Wonder is the dwarf variety. They were started into growth on a light hotbed, given air freely when weather permitted, and eventually transferred to a cool Peach house to harden off, care being taken to prevent them becoming drawn and weakly. Weather and state of ground permitting, these will be planted out about the middle of March, the American Wonder at the base of a warm garden wall, and the taller sorts on a sheltered border and in lines 3 feet apart. When planting a deep drill is cut out with a spade, the Peas are shaken clear of the soil, and bunches of about four plants are put in at a time, the tops touching each other, and the roots, going down to their full length, are covered with some good light soil. More of the ordinary soil is drawn up to the rows; next small branches of Spruce Fir are disposed on each side of them, so as to afford protection and support. This being completed, the soil is loosened between the rows with a fork, and a row of Spinach sown between each. In this manner we have at once good even rows of Peas, which will not even flag in ordinary bright weather, but will quickly become established, and will generally yield good crops available by the end of May. Pots, turves, and troughs have all been tried for raising Peas, but I much prefer the boxes. I ought to state that a layer of crocks is placed in the bottom of each box in order to prevent the roots clinging to the wood, and we always use sifted soil composed largely of leaf-mould, our aim being to preserve intact the long tap roots bristling with fibres, otherwise the Peas must experience a check. It is by this method they most quickly root into the surrounding soil after planting. To succeed those transplanted it is advisable to sow late in February, or as early in March as weather permits, one or more long rows, according to the demand, of first early varieties, and in the case of cold soils, as with us, to make yet another sowing. This time we give the preference to a good wrinkled variety, such as Telephone, and, as with the earlier sorts, sowing rather thickly, and about two-thirds of the quantity of seed as would have been required for a row or rows if sown in the open ground. More of this second early variety and also Criterion and Huntingdonian are sown on the first favourable opportunity in March. Should there be any gaps in the rows of these, caused either by the seed rotting—a by no means unfrequent occurrence with us—or injury by mice, birds, or slugs, as soon as this is discovered sufficient seed to make good the rows is sown at once in boxes and placed in gentle heat, the plants thus obtained being hardened off and planted where necessary. In this way good rows are insured and the supply maintained. The ground being very wet and cold this season, many seeds may fail to germinate, and my practice of sowing in boxes or a somewhat similar one should be adopted if creditable rows of Peas are desired, and it is also necessary in the case of

Growers for exhibition who may wish to have large podded sorts of the Telegraph type early in the season, say about the middle of June. That immense podded variety, Culverwell's Giant Marrow, again will in all probability be in great request this season for exhibition purposes, and sowing the seed under glass, though not necessarily in heat, will be found both economical (the seed being scarce) and advantageous as the variety is extremely vigorous and branching, and transplanting thinly tends to make it more prolific as well as earlier. The inexperienced are frequently at a loss to know exactly when to make different sowings so as to maintain a succession and avoid gluts; but if they adopt the simple plan of waiting till one sowing is pushing through the ground before the next is made, taking care, however, not to defer it any longer, other conditions being favourable, no break will occur. If several varieties are grown, two or three, according to the extent of the demand and space available, may be sown each time. For instance, to succeed our planted

out Telephone, as before stated, we, early in March, sow a row each of Telephone, Huntingdonian, an early and improved form of Champion of England, and Criterion, this being an early and most excellent form of Ne Plus Ultra. When these, which will be fit for use in the order named, are through the ground, we sow the two latter varieties, and with these a planted-out row of Culverwell's Giant Marrow will be in full bearing say about the end of June or early in July. Our next sowing will consist of Duchess of Edinburgh, Reading Giant, and Ne Plus Ultra, and the following a repetition of these varieties, while to succeed this sowing the two last named and King of the Marrows will be selected. The next will consist of Ne Plus Ultra, King of the Marrows, and Sutton's Latest of All, and as this will bring us to near the end of May, the final sowing in all probability will consist of Latest of All and three rows of Ne Plus Ultra. Well manured and deeply dug ground is particularly necessary for the latest crops, and the highest point in the garden, especially if the garden be situated near water, should be selected. In this manner we gathered Peas last season up to the middle of November, but all the rows in the middle and lowest part of the garden had long previously been destroyed by frost. By the foregoing it will be seen I depend almost exclusively upon tall-growing varieties, the exceptions being the early sorts and Latest of All. These tall varieties, according to my experience, are, provided stakes are to be had and there is sufficient room, the most profitable, as they are of better constitution and therefore not so liable to be injured by excessive rains or drought. At the same time I am well aware the majority of growers have to rely principally upon medium height varieties on account of a difficulty in procuring suitable stakes or other causes. With many there is no choice in the matter, simply because they grow such sorts as are supplied in collections of vegetable seeds. For their benefit I may state that I have found Stratagem and Pride of the Market good dwarf substitutes for Telephone and Telegraph, and Advancer a good second early. Dr. McLean and Sharpe's Invincible good for successional crops. The latter, Challenger, Veitch's Perfection, and G. F. Wilson good for the main crops and for later sowings. I can recommend Veitch's Perfection, Omega, and Hair's Dwarf Mammoth. When

Preparing the ground, if we could rely upon having certain weather, we might shape our course accordingly, but unfortunately we have or ought to be careful to avoid the risk of preparing for a dry season only, and thereby be unprepared for a very wet one. If we were in a position to double-dig much of our garden, we would annually devote a quarter thus dug to a Potato crop, well knowing what splendid crops of the "noble tuber" are produced on deeply dug land. The next season this quarter would be selected for Peas, as it would afford the desirable deep root run without being unduly loose and maybe prejudicially saturated with wet. I do not believe in sowing Peas directly over the old Celery trenches, as I consider the Celery completely exhausts the ground. Our practice is to mark out the ground in widths of 6 feet, alternated with 3-foot widths; the former being lightly manured and dug, while the latter are more heavily manured, giving the preference to semi-rotten farmyard manure and double digging. This is managed by first wheeling about two barrowloads of the top spit of soil from the commencement to the end of the intended trench. The manure is then spread over the second spit and dug in, on this being disposed the next width of surface soil, and so on to the end of the trench, the bottom or sub-soil still remaining at the bottom, but well mixed with the manure. The trenches or widths prepared for the latest sowings have the top spit distributed on each side, the manure being then dug in and part of the top soil returned. Later on the remainder is banked up to the stakes, and this forms a trench which facilitates waterings. This trenching is particularly necessary in the case of shallow, gravelly, or sandy soils,

and cow-yard or pig's manure should, where available, be freely employed. Narrow trenches as we frequently see formed for Peas are unsatisfactory, especially in somewhat heavy soils, as in this case the soil in the trench is apt to shrink from the sides, and the ill effects attending either drought or excessive wet are liable to be aggravated rather than mitigated. Our wider trenches are much less liable to be injuriously affected, and by disposing the rows 9 feet apart we greatly improve the cropping capabilities of the Peas. Between the rows there is ample room for two rows either of early Potatoes or Broccoli, and Coleworts can take the place of the Peas as these are cleared off. If liquid manure is employed with us, it is immediately after rain or after administering a good soaking of pond water. Absence of lime in the soil is most detrimental, and where this is thought necessary, a good dressing of it should be slaked and forked into the surface. Blood obtained from the butcher's, and spread thinly on the surface and washed in either by rains or by softened water, is very stimulating to the crop, and much may also be done by surface dressings with guano or artificial manures. We tread the ground firmly prior to sowing; a single wide drill about 2 inches deep is then drawn and the seed sown evenly and thinly. If mice are troublesome, the seed is steeped in paraffin for a short time, and they do not then interfere with it. Ducks, soot, and lime are employed to check the slugs, and the two last and a cat or two are the best remedies against birds' attacks. Peas intended to be staked are not allowed to fall about, but are supported with spray as well as stakes. Hazel stakes are the most common, but the best we have yet employed was the undergrowth or branches of large Spruce Firs. The stakes should not be disposed very widely at the bottom and run in too sharply at the top, or they fail to support the haulm in the earlier stages, and do not confine it sufficiently near the top. All main and late crops should be mulched with rough manure, or failing this with Grass from the mowing machine. Driblets of water are quite thrown away on Peas; if watering is commenced, liberal quantities should be given and be repeated at short intervals according to the weather experienced. In conclusion, let me advise all those who are in the habit of or intend disposing the rows somewhat thickly with perhaps a row of Spinach between to at least have the rows as far apart as the varieties usually attain in height. Better a few good rows than many crowded and poor ones.—*Grower and Exhibitor.*

SAGE CULTURE.

It may, I think, almost be stated as a fact that in nine gardens out of ten Sage is grown and treated as a perennial (which it is) and propagated by cuttings, *i.e.*, when a fresh stock of young plants is wanted; in addition to this, it is no uncommon thing to see it growing in some out-of-the-way place, and the year's requirements depending entirely on a few old scraggy plants of it may be half a dozen or a dozen years old. Instead of this old practice and rough-and-ready system of growing Sage I would recommend those who are desirous of obtaining the best results to treat it henceforth as an annual, and thereby ensure success as a certainty. Sow seed at once in pans filled with a compost consisting of finely sifted soil, leaf-mould, and sand, place them in a brisk heat, and when the young plants are large enough to handle prick them out in shallow boxes or in frames 2 inches or 3 inches apart each way. There they may remain till the end of April, and after being duly hardened off, planted out in the open ground in rows a foot apart, and the same distance plant from plant in the rows. Previous to planting, the ground should be dug and well manured with newly-collected horse droppings, and be raked over afterwards with a fine-toothed rake. Should the weather prove dry at the time of planting, give a good soaking of water through a rosed watering-pot, and at intervals subsequently till the young plants get established.

Nothing further is required except an occasional hoeing to keep down weeds. Towards the end of August, when the plants have attained their full size, the crop should be harvested, and may be cut either by scythe, sickle, or knife. After being thoroughly dried in the sun, tie the whole up in bunches and store them in some dry place. By adopting this mode of culture and growing sufficient plants to fill a bed from 12 yards to 20 yards long and 4 feet wide, a supply of Sage for nearly every day in the year may be had for a very large establishment. H.

Early Peas.—If the nomenclature of early kinds of Peas goes on in its present form, we shall soon be landed in inextricable perplexity. We have now First and Best, Earliest of the Early, Earliest of All, and Earlier than the Earliest, and we have but to wait a season or two and then there will be announced Earlier Still, Even Earlier, the Very Earliest, and so on *ad infinitum*, making confusion in Pea names worse confounded. Perhaps a protest against this sort of thing may prevent raisers from perpetrating further absurdities in this direction. "W. J. M." asks what is the best test of what constitutes an early Pea? The best answer is, "Grow the various kinds yourself under exactly similar conditions, and the earliest will soon be apparent." The exhibition of dishes of pods of various kinds at shows is entirely misleading when the dishes are grown in diverse localities and under diverse conditions, some, perhaps, being raised and fruited in pots, others in frames, others again raised in turf or in pots, and turned out to fruit on a warm border, and yet others sown on a warm border and needing no transplanting. The finest pods, or rather those best filled, would doubtless gain prizes, and yet may not be of such early sorts as others grown out in the open ground from the first. No fair test of the relative earliness of kinds of Peas can be had if sown too early, because some may suffer more or less from frost, or winds, or vermin. If sown now the surest test will be obtained. A good trial of Peas will again take place at Chiswick this year, when some definite information as regards earliness may be obtained.—A. D.

Live edgings best.—Where dead edgings are employed, both for wear and appearance I have found nothing better than the Staffordshire tiles, with a plain rolled top. They are hard, and therefore not liable to become broken by frost or a knock in digging or kicking against them, and they are not so conspicuous as the notched patterns, which will not bear rough usage. There is, however, to my mind, something objectionable in all dead edgings, and I should, therefore, advise all who use tiles to make the earth well up at the back, and plant there either Thrift, Gentians, Sedums, Sempervivums, Cerastium tomentosum, Violets, or other suitable plants that will partly or entirely hide them, and make long lines of beauty. Gentiana acaulis is lovely at this season, and there is no place where it looks more at home than by the side of garden walks; and a dead edging forms a capital support for it, as it likes moisture, and can drive its roots down the side of the tiles and find what it wants. Large pebble stones, however, or flints do nearly as well as the tiles, and in many places may be got for next to nothing; the former are found in gravelly soil, and the latter in chalk. The ground that suits Gentians best is that which is somewhat stiff and close, in which they flourish and flower in the greatest profusion. If old plants can be got, now is the time to set to work with them, as at this season they are just starting into growth, and may be divided by being pulled apart, and so increased to almost any extent. The quickest and best way of planting is to dibble the pieces in, and when doing so, the soil should be pressed close, and a good watering given immediately afterwards, so as to settle the soil about the roots, in order that they may get hold at once and have a fair start. If Violets are made use of, the Czar is the most suitable kind; it is a strong grower, carries plenty of foliage, and is one of the freest of bloomers.

Runners, dibbled in now, will soon make fine plants that will get together during the summer, and become crowded with flowers next spring. Thrift prefers light land; it is a native of the sea shore, where it is found growing freely in sand; *Armeria grandiflora*, a seedling from *A. maritima*, is the finest, but as yet plants of it are not over plentiful. *A. maritima* may be had cheap, and if the tufts are pulled apart, many pieces may be made and long rows formed in very quick time. Daisies also make pretty edgings, especially when the red and white are mixed, a blending of colours both chaste and effective.—S. D.

TOP HEATING.

SOME of your correspondents appear to be unable to realise the advantages derivable from the employment of hot-water pipes fixed near the roof in plant structures, but as more than one of our leading plant growers either have or intend to adopt this method of heating, we may feel assured that it has some advantages. I feel convinced that "roof pipes" are a step onwards, and that as time wears on they will be more or less generally adopted throughout this country. There is one point in connection with this system of warming plant houses which does not appear to have presented itself to those who have written against it, but which constitutes one of if not its greatest advantage. When, as must be the case in the ordinary way of heating, some of the pipes are taken round the house, and either lie upon the bed of soil which forms the stages, or, where these latter are built of open woodwork, are underneath them, a great portion of the plants are either in close proximity to them, or are so directly within the influence of the arid air engendered thereby, as to be banefully affected during periods of frosty weather when high pressure has to be resorted to. Mr. Warhurst, who is, however, careful to state that he is not a grower, evidently considers the open woodwork stage with the pipes under it all that can be desired, but I would direct his attention to the fact that whilst we often find it needful to dry the atmosphere, and consequently the foliage and flowers of plants in glasshouses, we do not wish to unnecessarily dry the roots, watering during the winter time being a necessary evil, and to be avoided as much as possible.

The woodwork stages once, indeed even now, so much in vogue are a hindrance to good culture and a snare for the inexperienced. What with the current of air under them by day and the heated air arising through them when the house is warmed, the soil in the pots dries so rapidly as to increase the labour of watering to an unnecessary extent, and it often happens that when fire is applied in the morning to dry up damp, the greater portion of the plants require to be watered in the course of the day, thus creating the very evil it is desired to prevent. Very often, too, when the firing is gently done the lowermost roots are quite dry whilst the surface soil is yet damp, and many plants are ruined from this cause alone. I remember, in earlier days, having the charge of watering a large house of Pelargoniums of the show type. Along the front of the house ran a wooden stage, and I was often puzzled to know which to water in winter when the flue was heated daily. I have often turned a plant out of the pot, and found the bottom roots far too dry when the surface soil gave no signs of there being any lack of moisture. In Mr. Cannell's houses this danger is cleverly avoided, as two 4-inch flows run up the house on each side of the path, and 1-inch or 2-inch returns fixed near the roof complete the arrangement. The plants stand on a cool ash or earth bed, and it is easy to see that the house may be quickly and efficiently heated, and yet not a single pot is brought into proximity with the pipes, which, moreover, do not in any way take up space which might be better occupied. For such plants as are to be in fine bloom in the darkest and dampest days of the year, the value of this system of heating must be great, as the warmth from the roof pipes quickly dissi-

pates condensed moisture, dries and warms the cold, damp air entering by the laps, and, radiating downwards, clears off stagnant moisture from flowers and foliage, creating a buoyant atmosphere around the plants, the roots the while remaining moist and cool. Surely this is the more natural way of heating plant houses, and one cannot but feel astonished when a correspondent writes that the placing of all the pipes at the bottom of the house is an imitation of Nature's method of creating warmth. Perhaps in the case of

Frames one can better appreciate the value of roof pipes, and "W. C. T.," who insinuates that Mr. Cannell preaches one thing and practises another, would find himself undeceived by a visit to Swanley, for there may be seen range after range of frames all heated by roof pipes alone, which in practice are found all sufficient to drive out damp and keep out frost, a fact which is fatal to Mr. Warhurst's theory that top heat alone will not suffice to create a buoyant atmosphere. Mr. Cannell's theory is—keep frost and damp out; do not allow the enemy to gain foothold. The fact is, one may just as well doubt the power of the sun to render our atmosphere light and wholesome as to suppose that pipes at the bottom of a glass structure are indispensable to effect a similar purpose. Facts are stubborn things, and they are here arranged in a fashion which must dispel many old ideas about heating and ventilating. With much of what Mr. Warhurst has to say upon this subject I agree, but I cannot follow him when he asserts that the roof pipes cannot be termed returns because they are fixed so high up in the house. Theoretically they may be regarded as an elongation of the flow, but practically they conduct the water back to the boiler, and are, therefore, to all intents and purposes return pipes. Mr. W. endeavours to clinch his argument by adding that the roof pipes must be hotter than those which lie at the bottom of the house, which is the same as saying that the point of a flow pipe farthest removed from the boiler is the hottest, a fact which, if true, is new to me, and which does not in the least accord with my experience. I fancy that Mr. Cannell's plant growers would tell us that the coolest portion of the piping was that part of the roof pipes nearest the boiler; but here I am open to conviction, and shall be pleased to hear all that may be said upon the subject. We have run so long in the old grooves in the matter of heating and ventilating, that with many it costs a pang to take a new departure; and although a vast amount of progress has been made in the last twenty years, a very great deal remains to be done, and I am pleased to see our horticultural builders and engineers discussing such matters in gardening papers, and in due time it may have for results that the badly heated, wrongly constructed, and unnecessarily expensive glasshouses which are so often seen in private gardens, and which are a sharp thorn in the gardener's side, will be things of the past. We have cheap glass and wood; all that we need now is that the heating and building shall be done in such a manner as to facilitate the labour of the grower.

J. CORNHILL.

WEATHER TRIALS AND TROUBLES.

WEATHER, the common subject of casual remark amongst all classes, relating as it does to personal comfort, health, and convenience, is to the gardener with a varied and extensive charge a consideration of almost vital importance in connection with the many delicate and dependent objects gathered from every country under the sun, and its severity and fluctuations a source of great anxiety and a tax on his skill and resources. The inopportune arrival of weather of unexampled severity early in March has, amongst other evil consequences, exposed shrubs prone to early excitement and plants employed in spring gardening to an amount of injury which will blight the promise of a display from some of the very early and interesting plants and shrubs which are of so much value in early spring decoration. The record of disaster often conveys a lesson and explains consequences that may accrue ultimately in garden affairs, and

therefore is worth making. Frosty weather commenced on the 4th, and on this and the following morning 5° of frost were registered. The wind N.W. and N. at these dates; on the 6th a bitterly cold and violent gale swept over the country, bringing showers of snow. The gale abated somewhat on the 7th, but was still severe with snow-storms. Frost was keen on the same night and 8° were registered; snow 3 inches in depth. On the morning of the 9th there were 12° of frost, on the 10th 22° or 9° Fahr., on the 11th 12°, 12th and 13th 7°, and the 14th 3° of frost. This is really a very painful story of the weather, and as far as my recollection extends perfectly unexampled in the month of March. Snow still lingers on the ground, and scarcely a day has passed without driving showers of sleet or snow, and it is not until this time of trial is over that we shall be able to recount all the evil effects of its severity. The early Rhododendrons (*dahuricum*, *præcox*, *superbiens*, *Nobleanum*) have had their blossoms entirely destroyed. The exposed blossoms of *Saxifraga ligulata* have been killed. *Forsythia suspensa* has had its beauty marred, and the beautiful *Myosotis dissitiflora*, fully in bloom in sheltered spots, shows only brown, drooping, and decaying heads of what were blossoms of brightest blue on the first three days of March. *Iris reticulata*, hardy as it is, has drooped its lovely heads of bloom, and the bright coloured Primroses have suffered a degree of cold beyond their power to bear. The lovely, but not less beautiful, flowers, *Saxifraga oppositifolia*, *Anemone blanda*, *Scilla sibirica*, and *Chionodoxa Luciliae*, have successfully braved the blast, and *Erica carnea* appears uninjured. The full list of the maimed in this elemental battle has yet to be told; it is premature to speak with any degree of confidence, as the frost still holds the ground and snow covers the hills. W. INGRAM.

Belvoir.

FLOWER GARDEN.

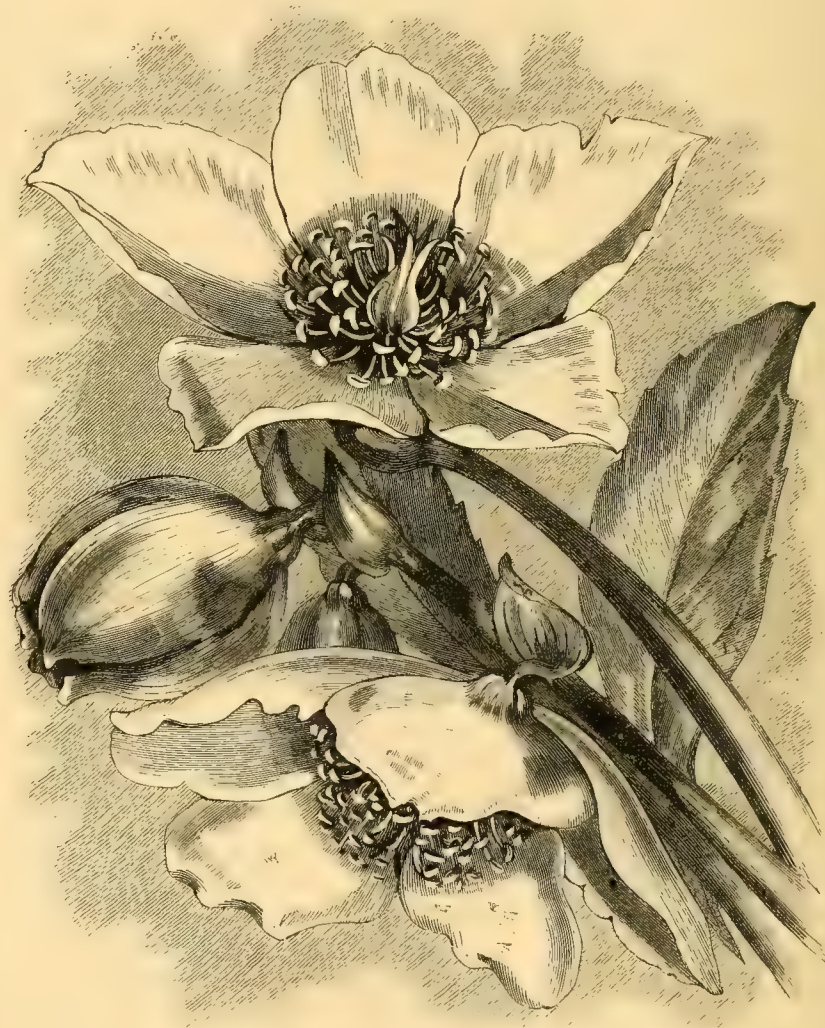
ST. BRIGID'S CHRISTMAS ROSE. (*HELLEBORUS NIGER ANGUSTIFOLIUS*.)

THE varieties of that old favourite in all good gardens, the Christmas Rose, are just a little perplexing. So far as we at present know their history seems unwritten, and traditional lore but too often lands us far out into the misty and chartless obscurity of times past. We may never know how or by whom all the many beautiful old Daffodils, Primroses, Pæonies, or Christmas Roses were originated, but one thing is left to us; we at any rate take the opportunity of collecting them together, and of watching their distinctive traits of habit and blossoming in our gardens of to-day. In this comparative observation among garden plants good work has already been done by Mr. Elwes and Mr. Baker, who both "considered the Lilies," and by Mr. Geo. Maw, whose "labour of love" among the Croci we are glad to know approaches completion. Then Mr. Peter Barr did much in clearing up the garden history of Daffodils, Irises; and last, but by no means least, he has with Mr. Moore devoted some thought to the species and varieties of *Helleborus*. We must remember, however, that the perplexities and interruptions of business too often interfere with thoughtful plant study, and so we must hope for Mr. Archer-Hind, the Rev. Mr. Wolley Dod, Mr. Brockbank, or other amateurs who love and cultivate all the known forms to give us a monograph on this interesting family. In speaking of the known forms or varieties of *H. niger*, Mr. Barr uses the following list of them as a synopsis or standard. I had written to Mr. Barr, sending him specimens of leafage and blossoms of a large pure white variety grown in a neighbouring garden, and which I have always spoken of as *H. niger angustifolius*, and the following is his reply. "I suppose your plant is *H. niger angustifolius* of Miss Hope and *H. niger intermedius* of the Aberdeen people, but I offer you my standard and you can judge which member of the family you possess: *H. niger*, well known; *H. n. minor*, dwarf, and pure white; *H. n. de Graaff*, pure white when first open, then a

pale primrose after; *H. n. intermedius*, flowers full face, not campanulate like the other members of the family, pure white; *H. n. maximus*, dull green, large foliage, dark, almost black, marbled stem, flowers large, and pinkish when fully exposed; *H. n. major*, a doubtful variety; *niger* with variegated foliage. I have all the foregoing except *de Graaff* var. I returned my specimen to the raiser, he having lost his stock." As this practical synopsis is likely to be of real service to many other growers besides myself, I am sure Mr. Barr will forgive my publishing it in THE GARDEN.

The idiosyncrasies of *Helleborus niger* are very perplexing. Here in our garden it rarely seeds

flowers and buds within an encircling whorl of its stout thick leaves. The present plant is quite different, and mainly (as has before been pointed out by "Veronica") in having no trace of red colouring either in stems, leaves, or flowers. I have a theory, founded on some years of close observation, that varieties of a species having a modicum of red colouring among their chlorophyll granules are hardier and more robust than those which are merely green. If this theory be a true one, red Celery and red-stalked Chinese Primroses ought to be stronger in habit, and so hardier than the pale-stalked varieties. On this principle *H. niger maximus* ought to be the most robust



Helleborus niger angustifolius.

naturally, and I never could find out the cause of its not doing so, for if we fertilise artificially by shaking a handful of cut flowers (just as the pollen bursts from the anthers) over the clumps in bloom, seed is produced in plenty. I believe in Miss Hope's garden (and am I not right in saying at Bitton also?) many kinds of *Helleborus* seeds grow up spontaneously, but I know for a certainty that in many other gardens seemingly as favourable they absolutely refuse to do so. It is the same with Daffodils, Snowdrops, Crocus, and Iris to my own knowledge, and doubtless with many other cultivated plants also. But to our present plant, I know how lovely *H. niger maximus* (*H. altifolius*) can be, having recently seen a plant at Straffan nigh upon a yard in diameter, and bearing fully two hundred open

and hardy of all Hellebores of the *H. niger* race, and this may account for its succeeding in some gardens better than our present plants and some other green-stalked kinds. I think I shall give in to Mr. Archer-Hind that *H. niger maximus* (or as some ever prefer to call it *H. altifolius*) is really and truly "king of all the Hellebores," but if this is true, I may, I think, fairly claim that St. Bridgid's variety is the queen of Christmas Roses. Mr. Brockbank told a friend of mine that it grew abundantly with him in the cold, wet Lancashire climate, and I understood him to say that Mr. Brockbank considered it if not the best at least one of the very finest of all the Christmas Roses he had seen or grown. Mr. Archer-Hind did not appear to know this variety until "Veronica's" notes called his attention to it, but if it

succeeds in South Devon as well as it does on the wind-swept hill of Howth, near Dublin, all I can say is that he will soon succumb to its snowdrift-like whiteness of blossom and its noble habit of leafage. The leaves of this variety are 5-9 lobed, and now quite fresh and dark green in colour, being borne on erect stalks. Here with me *H. niger maximus* has the leaf-stalks deflected near the ground level, and the leaves themselves are turning yellowish, as is their wont soon after the blossoms fade.

The annexed engraving gives a good idea of the flowers of the plant now under notice, although rather below the average natural size. As I first saw this variety in an Irish garden, and at once recognised it as a little known form by its noble port and leafage alone, and as I am now penning this account of it on this 17th day of March, the feast of St. Patrick, I have ventured (seeing that its real name in Latin is a matter of some doubt) to call it St. Bridgid's Christmas Rose (a name as pretty, I feel quite sure, and as accurate for its purpose as is that of St. Bruno's Lily) in memory of a remarkable woman of early times who did much to carry forward the good work St. Patrick himself had begun.

I may mention that the plant here has been seen by many cultivators of hardy plants, and I have sent flowers and leaves to friends and others interested, all of whom will, I am quite sure, be glad of a good popular name for this the queen of Christmas Roses. F. W. B.

THE TENBY DAFFODIL.

MR. BROCKBANK thinks I have sent him the wrong Daffodil as the Tenby Daffodil. Mr. Peter Barr, whom I consider the best living authority in the world on the varieties of Daffodil, is responsible for giving it the name of *obvallaris*, a name with which I know he is not quite satisfied, but I am responsible for the name "Tenby," by which I always call it and distribute it. The whole stock, now very large, in my garden has been obtained from three bulbs sent when in flower to me by post from Tenby by my sister about twenty years ago. She dug them up herself, and told me that there were three meadows full of them, and that she thought they seemed different from the common wild Daffodil. In the old series of Curtis's *Botanical Magazine* are several coloured drawings of *Narcissus*, made between seventy and ninety years ago. The characters and colouring are admirable, and the plants can all be identified at a glance. I know no representations equal to them, and it is much to be regretted that the author did not give us more of them. In Sowerby's "English Botany" it is described under the name of *N. Bromfieldi*, and it is said there that the same variety is found in the Isle of Wight, but I have never been able to trace it to or obtain bulbs from this habitat, and I should be grateful to any one who would help me to do so. The writer in Sowerby seems to think it identical with the *N. lobularis* of Haworth, but Mr. Peter Barr assigns this name to a variety of *N. minor*, with the mouth of the trumpet deeply cut into six prominent lobes, a variety which seems to correspond much better to the name. "Tenby" is marked by characters as distinct as any Daffodil I know, and I could easily pick out all the Tenbies from a thousand flowers of single yellow Daffodil.

Mr. Barr told me that until recently, when he introduced it, the variety was quite unknown in Dutch bulb gardens. I think Mr. Brockbank places too much faith in the older writers on Daffodils; but if he compares the names and descriptions of the single varieties, as given by Parkinson, Haworth, and Herbert, and adopted from them by other writers who took little or no trouble to verify them, he will find inconsistencies and variations which cannot be reconciled. What Parkinson says in his introduction to his Daffodils is true in these days. It is to the effect that "one catalogue calleth a species by one name, another by another, so that you may never know what they mean." Mr. Peter Barr has done more than anyone else to reduce these names to order; he found them in such hopeless confusion, as to present truly a *nodus deo*

vindice dignus, and he is quite aware that he has not entirely succeeded in clearing away the difficulties, which are greatly increased by the large number of garden hybrids and varieties yearly appearing. The whole subject wants handling by some central committee whose authority would be recognised. I enclose flowers of Tenby from my garden at Edge, where it came out by the dozen last week in spite of frost and snow.—C. WOLLEY DOD, *Llandudno*.

—Mr. Brockbank has opened up an interesting question, and one not at all likely to be settled in a satisfactory way unless some kind friend sends us veritable specimens from the Tenby district, where it seems to be abundantly naturalised. If we can obtain fresh flowers of the Tenby Daffodil direct from the Welsh locality, we can then soon decide as to whether it is *N. obvallaris* or not. I may as well point out that one observer ("W. D. F.," Isle of Wight) on the spot thought at the time that the Tenby Daffodil was *N. major*, and he writes as follows concerning it in the *Gardeners' Chronicle* for the year 1875, p. 471. This account is so full of interest, that I venture to quote it in full:—

"As you have of late been writing on the Daffodil, I enclose specimens of *Narcissus major*, which is commonly called 'the Daffodil' near Tenby. I do not think it is generally known that this species is abundant within a radius of some miles round Tenby, South Wales. Some years since I happened to be in that neighbourhood just as the plants were going out of flower, and was much struck by the metamorphosis of *Narcissus Pseudo-Narcissus* there. I brought some bulbs away, and was much pleased to find in the following spring that they were *Narcissus major*, a native of Spain, and a very great addition to my spring garden. They grow very luxuriantly on the road from Tenby to Penally in several places, and also beyond Penally on the Pembroke road, and (as I was informed by the late Archdeacon Clark) in several other distant localities, from which he kindly sent me specimens. As I was collecting bulbs from the first place and wondering in my mind how a Spanish plant got there, I caught sight of a very fine ruined round-tower chimney, peculiar to the neighbourhood of Tenby, and which are said to have been built by the Flemings, of whom a large colony lived formerly in and round Tenby, driven from their homes by the persecution of their Spanish masters on account of their religion. This seemed at once to account for these beds of *Narcissus major*. Flanders had so much intercourse with Spain, that nothing would be more natural than for this showy *Narcissus* to be a favourite with the Flemings; and it is equally natural that they should bring some of these easily carried bulbs with their penates to South Wales when they migrated. Probably I am telling an old story, well known to many, but I do so because I have never met with any who did so, and because all whom I met at Tenby thought that their plant was the *Narcissus Pseudo-Narcissus*, which I did not see there. The *Narcissus major* is a great addition to the spring flower garden, its golden flowers coming out very early and with great luxuriance. Everyone admires my Tenby clumps. It also lasts a long while; it has now been in beauty all this month, and will go on some weeks yet. I cannot understand the various opinions about *Narcissus Pseudo-Narcissus* becoming so frequently double; it has been a favourite in my garden for forty years, and I never saw the slightest tendency to its becoming so. We have acres of it in great beauty in many localities in this island, but the late Dr. Bromfield, who knew almost each individual plant in this island, says of this *Narcissus*, 'One solitary clump in St. Urian's Copse among thousands of the single kind, unquestionably wild, and perfectly similar to the double garden Daffodil.' 'Also a very double, but certainly wild specimen on a bank at Yaverland.' One would not have supposed that this pale flower would have produced a double one of the bright golden tint of our garden Daffodil. I have always supposed that the *Narcissus major* was the original of the garden Daffodil, and

I see Dr. Bromfield says further on, 'I cannot distinguish the wild double variety from the common great yellow Daffodil of the gardens, though that is supposed to be a different species—the *N. major* of *Botanical Magazine*, and a native of Spain.' My *Narcissus major* bulbs have a tendency to become double, and are of a very beautiful golden yellow, as one would suppose from the single one. I have never seen a locality for the common Daffodil that did not make one doubt its being brought there, and the same with *Narcissus biflorus* and *poeticus*. They all seem to grow round old abbeys, or where cottages have been. In this island our largest bed is St. Urian's Copse (now written in all our maps "Centurian's Copse"), where a church or chapel once stood, of which St. Urian was the head. All our other stations of it are suspicious, as I have observed, in all other parts of England where any of the three species of *Narcissus* grow."—F. W. B.

NARCISSUS TORTUOSUS.

THIS appears to be a rare Daffodil, as it is not offered either in Barr & Son's, or Ware's, or Backhouse's catalogues for 1882. I have fortunately met with a plentiful supply of it from an old garden where it has grown from the commencement of the present century. The descriptions in the handbooks of gardening fail to give a correct idea of the flower, leading one to expect it of a bicolor variety, whereas it comes of a pure greenish white, without a shade of difference between crown and perianth divisions. When grown under glass its flowers are of exquisite purity. I used a good many last week in a bride's bouquet with excellent effect associated with *Eucharis*, *Azaleas*, and other usual flowers of pure white, and of all these the white Daffodils were most admired. A single bulb produces two or three flowers, a pot of four having ten forming a most lovely table plant. The tube, or crown, is about one-third longer than the outer divisions of the perianth, and these are twisted, giving the flower a very jaunty appearance. The flower is carried firmly, without the excessively drooping habit which so spoils the other white Daffodils—*cernuus* and *moschatus*. Haworth's description is by far the best, and, freely translated, it is as follows: "N. *tortuosus*, the great tortuous white Daffodil.—The divisions of the corolla twisted, sulphur white, much shorter than the crown, which is crenated and of citron colour, merging into white." In "Hardy Flowers" it is described as "crown lemon colour fading into sulphur-white, and that in other respects it does not differ much from *N. bicolor*," which is certainly an error. Burbidge only mentions it casually in his monograph of the *Narcissi* in the following paragraph: "Some forms introduced from Spain, about 1600, are nearly all white, or white with lemon or sulphur coloured cups. Haworth speaks of four kinds *N. cernuus*, *N. moschatus*, *N. tortuosus*, and *N. albicans*. They are, however, but slightly dissimilar, being simply pale flowered Continental forms of the common Daffodil." This might hold good of the other three, but it certainly does not fittingly describe *N. tortuosus*, which differs from all other Daffodils with which I am acquainted. It holds the same place in the whites which *N. obvallaris* holds in the golden section, coming earliest, and having the same shortened corolla, and sturdy habit, and in its own prettier way of equal beauty and value. When it becomes better known *N. tortuosus* will be one of the most popular of all the Daffodils.

Brockhurst, *Didshury*. WM. BROCKBANK.

Gerarde and Parkinson (p. 222).—If Colonel Lockwood will refer to the volume on whose authority he questions the accuracy of Mr. Wolley Dod's assertion, that Gerarde's work preceded that of Parkinson, he will find that he has quoted not from Gerarde, but from Johnson: Chapter 86, comprehending the three species of Hoop Petticoat *Narcissus*, was written by Johnson, not by Gerarde, whose work does not contain any of them. As a matter of fact, Gerarde had been in his grave twenty-two years before the issue of

Parkinson's "Paradisus," and twenty-six years before Johnson's book was written. The date of Gerard's "Herbal" is 1597; of Parkinson's "Paradisus," 1629; of Thomas Johnson's "Gerarde," with additions of his own, 1633.—T. H. ARCHER-HIND, *South Devon*.

PLANTS IN FLOWER.

LACHENALIA NELSONI.—A spike of this extremely beautiful new hybrid variety raised by the late Mr. Nelson, of Aldborough, comes from Sir William Marriott, Down House, Blandford. The flowers differ from those of all other *Lachenalias* by their rich, warm yellow tint. They are about an inch long, and densely arranged on a spike about 5 inches or 6 inches in length, the whole flower-stem being about 9 inches high. When so well grown as this specimen is, this *Lachenalia* is as pretty a plant as one could wish for at this season of the year.

BIGNONIA UNGUIS, now profusely laden with blossom in the Palm house at Kew, is a beautiful and most desirable stove climbing plant, but not half known enough. It has tubular open-mouthed flowers, some $2\frac{1}{2}$ inches long, of a pale mauve, prettily veined and netted with purple. These are borne in clusters, and as they hang gracefully on the long slender shoots have a pretty effect. It is a rampant grower under ordinary stove treatment, and never fails to produce a good crop of bloom during early spring. It is also named at Kew *B. speciosa*.

BEGONIA VALIDA.—This, in Mr. Bull's nursery, Chelsea, is the prettiest of all the kinds now in flower, yet it does not seem to be much known. It is of dwarf growth, and has ample leaves deeply cleft into lobes. The flowers are a clear rosy pink, and though small are produced abundantly even on small plants, rendering them extremely attractive. It is of easy culture in a warm greenhouse, and may be always depended upon for producing a good supply of bloom at this season.

CLIANthus PUNICEUS.—Under the name of *C. magnificus* some uncommonly fine clusters of flowers have reached us from Mr. Wadds, Bird-sall Gardens, York. As a showy greenhouse climber for early spring it has but few equals, particularly when flowered so profusely as the plant is from which the specimens sent have been cut. The flowers in shape are somewhat like the claws of a lobster. They are bright crimson, and are produced in clusters from the lips of the branches. The pinnate foliage is elegant, and gives the plant a light, graceful appearance. It is a New Zealand plant, and though almost hardy against an open wall, it does not flower satisfactorily except in an airy greenhouse.

A GATHERING OF NARCISSI from Mr. Burbidge, of the Trinity College Botanic Garden, shows the richness of the collection there, and also the earliness of the Dublin climate compared with that of London. Amongst the kinds sent are some worthy of special note. The finest is *maximus*, the largest of all Daffodils. It is indeed a noble flower; its stem is upwards of 2 feet high and stout in proportion. The blossom itself does not differ materially from that of the major variety, figured so long ago as 1790, but perhaps it is a little larger. The divisions are broad and as long as the crown, the rim of which spreads widely, and is deeply lobed and crenulated. The colour of the crown is a rich warm yellow, and that of the divisions a shade or so brighter. What makes the flower so beautiful is the absence of any stiffness of any part thereof, a fault belonging to some of the finer Daffodils. With this noble variety alone one could have a fine bit of colour in the spring garden by growing a good clump of it as Mr. Burbidge does. It is a plant practically unknown in gardens generally, but after seeing it once who would not desire to possess it. The stiff-twisted glaucous foliage, as tall as the flower-stems, is a well-marked character of this variety. The Tenby Daffodil (*N. obvallaris*) is also sent in fine condition; likewise a handsome one which we consider to be the *Telemonius* variety, the single

form of the common double Daffodil in gardens. A smaller flower than this agrees with Haworth's *cambricus*, a superior form to our common *N. Pseudo-narcissus* both in size and colour. Mr. Burbidge has sent, we imagine, his first bloom of *N. Horsfieldi*, the handsome relative of *The Empress*, with white divisions and a rich golden crown. About London the flower-buds of this are as yet scarcely showing. We are surprised, too, to see *N. biflorus*, which is a late kind, but probably it comes from a warm corner. The flowers are good, being as fine as those of a Grand Monarque *Polyanthus* *Narciss*, but not so the varieties of *N. Tazetta* sent, which look as if they opened too early, and so caught the brunt of the late storm. The singular *N. eystettensis*, with its primrose-yellow rosettes and petals arranged one above the other so as to form a five-pointed star, is also in this collection.

STAUNTONIA LATIFOLIA.—Of this handsome greenhouse evergreen climber, some very fine flowering sprays have been sent to us by Mr. B. Wadds, Bird-sall Gardens, York, who grows it in a cool house trained to a pillar. The powerful and sweet odour of the flowers, which are borne in loose clusters from the leaf axils, amply compensates for their dull, livid purple tint. Even for its handsome evergreen foliage it is worth growing, and it is of easy culture if planted out in a bed of free soil in a greenhouse and kept clean. In some parts of the country it is almost hardy. Mr. Wadds adds that the flowers are much prized for vases, wreaths, &c., their sweet scent pervading the whole room in which they are placed.

HENFREYA SCANDENS.—This is one of those beautiful tropical plants that one seldom sees or hears of outside a botanical collection, though it possesses merit enough to rank as a beautiful stove plant for general culture. We have seen it in flower in one of the stoves at Kew for the past six weeks, a proof of its continuous flowering tendency. It is naturally of a climbing habit of growth, as its name implies, but it is grown admirably at Kew as dwarf bushes in pots to adorn the plant stages, and even when so small it bears a quantity of flowers. The large plant of it trained to a rafter is now bearing clusters of its pure white blossoms, which are 2 inches long and trumpet-shaped like those of a *Bignonia*. It is, in short, a desirable plant, and one that people ought to be able to obtain readily from nurseries. Being a native of Sierra Leone, it thrives best in a warm, moist stove. The species is the only one in the genus which commemorates the name of the late Professor Henfrey.

OPEN-AIR FLOWERS.—After such a stormy fortnight we scarcely expected such a boxful of flowers as that Mr. Burbidge sends us from the College Botanic Garden, Dublin. It contains amongst other things such little gems as *Iris reticulata*, *Sisyrinchium grandiflorum* album, *Chionodoxa Luciliae*, *Anemone apennina*, and the Chilean *Triteleia uniflora*, none of which look the worse for the taste of wintry weather to which they have been subjected. The garden *Anemones* are uncommonly fine, as are also *Primroses*, *Polyanthuses*, *Wallflowers*, *Hellebores*, and yellow and striped Dutch *Crocuses*. Among shrubs the bright little *Erica carnea* predominates, and the old double *Kerria japonica* has already begun to flower at Dublin as well as *Cydonia japonica*. A bright crimson Himalayan *Rhododendron* has seemingly done its best to flower, but its half-opened buds have been overtaken by frost. The finest contents of Mr. Burbidge's box, however, were the *Narcissi*, which he grows so well, and which are deserving of a separate note.

SPRING FLOWERS FROM GOREY.—A charming gathering of spring flowers from Miss Owen's richly stocked garden at Gorey are the freshest and finest we have yet received this season, and shows how favourable the east coast of Ireland is for open-air flowers. The list sent is a long one, but some of the most conspicuous are Dog's-tooth Violets, including the pale pink or nearly white variety, *Adonis vernalis*, *Anemone coronaria*, fulgens, the yellow *ranunculoides*, *apennina*, and *memorosa*, the latter with a stalk a foot or more

long. Among *Primulas* are the sweetly pretty *P. rosea*, with its bright carmine flowers; *P. denticulata*, *Polyanthuses*, and the double white and purple *Primroses*, both beautiful sorts. Among *Narcissi* are *N. moschatus*, minor, and the golden Tenby Daffodil (*N. obvallaris*), *Myosotis dissitiflora*, single and double *Periwinkles*, *Hellebores*, blue and white *Grape Hyacinths*, *Siberian Squill*, *Sisyrinchium grandiflorum*, *Erica carnea*, *Pulmonaria angustifolia*, *Chionodoxa Luciliae*, *Aubrietias* in variety, double white and crimson *Daisies*, double and single *Hepaticas*, and Dutch spring *Crocuses*. The handsome foliage of *Arum italicum*, the claret-purple leaves of *Anemones*, the young shoots of a large variegated leaved *Sedum* were also sent along with the flowers.

QUESTIONS.

Bleeding Walnut trees.—Can anyone tell me what will stop Walnut trees from bleeding?—G. C.

Rootery.—I have a number of old roots of trees, with which I should like to form a rootery. Will some of your readers kindly give me a few hints as to how to make it, and what plants to put on it?—BAGATELLE.

Time water.—Our main supply of water for the garden is drawn from a spring well, which has a large percentage of lime in it. Will some of your readers kindly say if it is fit for horticultural purposes? and, if not, how can it be made so?—MAC.

Shrubs for undergrowth.—Will some of your correspondents kindly give a list of shrubs for growing under trees in a peat soil which has too much lime in it to suit the common kinds of *Rhododendron*? and also the names of a few herbaceous plants suited to a lime and peat soil?—C. M. O.

Grass-destroying grubs.—I should feel much obliged if any of your readers could tell me the best way to get rid of a brown worm, or rather grub, that is eating away the roots of the Grass on a lawn. On turning up the sod the grubs are found at the roots of the Grass in great numbers. The soil is sandy, but the Grass is, as a rule, very green and good during the summer months. Any information as to how to get rid of the troublesome intruders will greatly oblige.—R.

Pruning Banksian Roses.—I find it difficult to prune a yellow Banksian Rose growing in a greenhouse, so as to ensure flowering. Can anyone give me a hint on the subject? Should it be left unpruned, or the weak shoots cleared out? Mine flowers well some seasons and not at all in others. If correspondents would only add to their often useful information in names and lists of plants the height above the sea or the climate in which the things mentioned grow it would indeed be a boon to those living in Scotland and cold parts of the east coast.—B.

Chrysanthemums out of doors.—Will any of your contributors kindly give those who have neither glass houses nor conservatories to help them a few hints as to the cultivation and management of *Chrysanthemums* out of doors in sheltered borders, and not in pots? For instance, what is the best soil? the names of some of the hardest sorts? whether one or all the shoots should be allowed to grow up? when and how to stop them, and at what height from the ground? whether the plants should be moved annually and divided, or allowed to grow on undisturbed for a season or two? with any other hints as to outdoor cultivation and propagation.—PRO BONO PUBLICO.

Room plants.—Will any readers of THE GARDEN who have had experience of what evergreen plants will thrive and grow all the year round in a drawing-room kindly give me a list of various sorts suitable for forming groups? I have had *Chamaecyparis humilis* for three years in one room where it has grown immensely, but the atmosphere is not moist enough for Ferns; and the winter before last, when fires were needed to keep the frost out at night, I lost all my Ferns. Will *Bambusa Metake* and *Aralia Sieboldi* flourish perpetually indoors? I should be very grateful for names of any tropical-looking plants that would be suitable.—WEST HIGHLANDS.

* * * Our readers will greatly oblige by replying, so far as their knowledge and observation permit, to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

FERNS.

ASPLENIUMS.

(Continued from p. 219.)

A. hemipterum.—A very elegant small growing evergreen species from Tropical America, and very well adapted for small hanging baskets. The fronds are produced in great abundance from a short, thin, erect stem. They are of almost horizontal growth, about 10 inches to 12 inches long, pinnate with pinnae deeply cut on the superior edge, whereas the inferior edge is quite smooth, as in *Lindsaya Lowi*, or in *Hymenophyllum pectinatum* and *Pteris semipinnata*. This peculiar form of the pinnae gives the plant a very striking appearance. It is of a pleasing light green, and its graceful fronds are prolific at their extremity, where they root freely. Stove.

A. laxum pumilum.—Although of unknown origin, this is most likely one of the many forms of the New Zealand *A. laxum*, which under cultivation varies very much. The present form, however, is one of the most handsome of the variations, inasmuch as the fronds, which are produced from a thick fleshy rhizome, are plentiful, and of a dark shining green colour; they are tripinnatifid, with pinnae as finely cut as in *A. fabianum*, but the most distinct character is the closeness of the crown, which is always well filled up with fronds falling outwardly and yet forming a most compact and symmetrical plant. Greenhouse.

A. longissimum.—This noble-growing pendulous species from Penang is the best adapted of all the *Aspleniums* for growing in a basket of large dimensions. Its beautiful pinnate fronds of a dark glossy green reach from 6 feet to 7 feet in length, and are produced in great abundance from a thick and slightly creeping rhizome, so that, being an evergreen species, the plant is well furnished at all seasons. The pinnae, which are sessile and alternate, deeply serrate and acuminate, are of a more leathery texture than those of most basket Ferns, and thus the duration of the fronds is greatly prolonged. Stove.

A. lucidum.—A fine, large free growing New Zealand species, whose fronds, of a very graceful habit and of a beautiful shining green colour, are produced in great quantities from a creeping scaly rhizome; they are pinnate, and, according to the treatment received and the allowance of room, vary from 2 feet to 4 feet in length, with pinnae large, oblong, and coriaceous. It is a most distinct species, which ought to be found in every collection if only on account of its special appearance when seen among other Ferns. Although doing very well in the mixture recommended for *Aspleniums* in general, it will be found of a brighter colour, and the fronds will also be more pendulous if potted or planted in a mixture of peat and sand only. Greenhouse.

A. monanthemum.—This, one of the prettiest of the small-growing evergreen Ferns, is found in great abundance in Madeira, South Africa, and even in temperate parts of America. The fronds, of a lively green colour, are erect, and borne on slender black, shining stalks; they grow to about a foot long and about an inch wide; they are pinnate, with pinnae so closely set as to be in some cases almost overlapping, and instead of being proliferous at their extremity, as most *Aspleniums* are, they possess the peculiarity of producing young bulbils at the axils of the basal pair of pinnae only, being in that respect different from any other kind of *Asplenium* in cultivation. Greenhouse.

A. myriophyllum.—This very elegant Fern from Mexico might be described as a most gracefully cut form of *A. cicutarium*, which it resembles as to its mode of growth; but its fronds, of a darker green colour, are much more feathery and more graceful in outline, although produced in the same way from an upright, short stem. They are from 12 inches to 18 inches long, tripinnate, lanceolate, and proliferous at their extremity; the numerous pinnules are very minute and closely set. This handsome plant can

hardly be described so as to do justice to its exquisite beauty. Stove.

A. Nidus (*Thamnopteris Nidus*, *Neottopteris Nidus*).—This East Indian interesting species, which is popularly known as the Bird's-nest Fern, from the remarkably peculiar manner of its growth, produces entire fronds about 30 inches in length and 4 inches in breadth, which rise up from the crown, leaving quite a hollow centre at their base, formed by the fronds of equal breadth throughout growing horizontally at first before taking up their upright course, thus leaving a large, open centre. This plant dislikes loam. Rough fibrous peat with chopped Sphagnum Moss suits it best, as it requires but very little soil, most of its nourishment being derived from aerial roots, which are produced freely on the surface if the atmosphere is kept in proper condition. Stove.

A. Nidus var. australasicum.—Although a native of New South Wales, this fine evergreen plant may possibly be only a variety of the preceding species, from which it differs greatly by its fronds being of larger dimensions altogether and of an elliptic lanceolate shape, instead of being of a uniform breadth. Besides the above characters there is one point essentially distinct; the fronds, instead of growing horizontally at first, are produced all round the rhizome and take an upright direction at the first start, so as to leave the crown elevated and exposed, thus making the hollow centre more funnel-shaped. Both this plant and the above species are wonderfully well adapted for vases, in which they make splendid objects. To do well this plant requires a mixture of fibrous peat and chopped Sphagnum only, like the preceding species and for the same reasons. Although requiring stove heat to grow and develop properly in during the best part of the year, *A. Nidus australasicum* will stand very well outdoors in the summer time if not exposed to the full sun. Great care should be taken to keep away slugs and woodlice, which are exceedingly fond of the young fronds; the best way to prevent these pests getting at the plants is by placing the latter over a pan of water on three inverted pots so as to prevent the bottom of the pot touching the water, but at the same time leaving a liquid barrier of 2 inches all round to keep off all intruders.

A. nobile.—A very handsome and most elegant species from New Guinea, with beautiful plumose fronds of a bright shining green, produced from a thick fleshy rhizome. They are quadripinnate, with pinnae narrow, but very symmetrically set along the rachis; they are when fully grown beautifully arched and attain a length of 16 inches, and their feathery appearance is rendered still more striking by the quantity of young plants which literally cover the upper surface of the mature fronds. As the first fronds of these young plants are very broad indeed, one may almost say the entire, the contrast is very effective. It is a very easy plant to grow. Stove.

A. Novæ-Caledoniæ.—As its name indicates, this evergreen species comes from New Caledonia, and is one of the most striking, possessing as it does well marked characters. The fronds, produced from a thick, stout, fleshy rhizome, are remarkable for the leathery texture of their long narrow divisions, which are not much wider than the rachis to which they are attached. They are of a dark shining green and triangular in shape, sometimes reaching 15 inches in length; they are tripinnate with rigid segments of about half an inch long or more, distant from each other, and as the pinnules are also distant from the main rachis, the centre of the frond appears peculiarly open, while the long interlacing segments of the adjacent pinnae give quite a crowded appearance to the circumference. It requires a moist heat. Stove.

A. obtusatum.—A free growing New Zealand Fern perfectly evergreen. Its fronds, which are thick and fleshy, are produced from a creeping rhizome, and average about 10 inches in height; they are pinnately divided; pinnae obtuse, the surface of which is ornamented with bold and conspicuous sori. Although not altogether a deco-

orative plant when grown in pots, it is of a very distinct character, and as such is very valuable for planting in the rockery. Greenhouse.

A. palmatum (*A. Hemionitis*).—This very handsome and distinct evergreen dwarf-growing Fern, from Madeira and Teneriffe, must not be taken for the West Indian *Hemionitis palmata*, for although there is a great similarity in names, and a certain amount of confusion in regard to them, there does not exist the slightest analogy between the two subjects. The true *Asplenium palmatum* has fronds very distinct in shape and of a coriaceous texture; they rise from a creeping rhizome, and are from 5 inches to 8 inches high, of a light green colour, palmate in form, and cordate at the base. There is also a garden variety, named *A. palmatum cristatum*, in every respect resembling the former species with the addition of a large crest at the extremity of the frond. Greenhouse.

A. præmorsum.—This very remarkable Fern seems to be very widely distributed, as it has been found in the Mauritius, in Tropical Asia, and also in Madeira. From its good constitution, as well as on account of its general appearance, it is a general favourite, and well deserves the care bestowed upon it; its beautifully arching fronds, sometimes 3 feet long, are among the most decorative of those of all *Aspleniums*; they are produced from a slightly creeping rhizome, bipinnate in shape, with long erose pinnae, in some varieties much broader than others. The stalks and rachis are very scaly; besides being gracefully pendulous the fronds are of a rich dark green. Greenhouse.

A. rhizophorum.—A highly decorative pendulous species from Jamaica, remarkably well adapted for suspending from the roof in a basket of good dimensions. It is an evergreen species, with fronds light green in colour, almost triangular in shape, and whose extremity is lengthened out into a tail bearing a young plant on the end, which roots very freely when brought in contact with either the soil or the Moss of the basket; they are bipinnatifid, and of about 18 inches in length, exclusive of the tail-like process. Stove.

A. Sandersoni.—A charming dwarf-growing tufted evergreen species from Natal and of comparatively recent introduction. The fronds, which are proliferous at their extremity, and bear a solitary proliferous bud on each of the small peculiarly formed pinnae, are from 8 inches to 10 inches long, narrow linear in form, pinnate, with the rachis slightly winged; pinnae about half an inch long, shortly stalked, the posterior side straight or entire, curved backwards, the anterior side divided into a few blunt rounded teeth; they are also set obliquely and somewhat deflexed. The small size and well-marked forms of the pinnae give this Fern a very elegant aspect, and make it a very useful plant for baskets of small size. Stove.

A. Serra.—A very fine evergreen Brazilian Fern, undoubtedly the noblest growing species of this group. The fronds, which grow upwards of 2 feet in length, rise from a stout, creeping rhizome; they are dark green in colour, pinnate in form, and beautifully arched; pinnae large and deeply serrated on the margins; the sori linear, lying at an acute angle with the mid-rib. It is a highly ornamental Fern either for pot culture or for planting in the rock fernery. Stove.

A. viviparum.—This very distinct, well known, and elegant species is a native of the Mauritius. It is greatly admired on account of its fronds, which grow to about a foot in length, being very finely cut and of a beautiful dark glossy green colour; they are tripinnate, and their upper surface is densely covered with young plants, which should be pegged down up on the soil, where they will root very freely. It is one of the few *Aspleniums* which do best in a mixture of peat and sand without any addition of loam. Stove. PELLEA.

Oenothera eximia.—The Rev. Mr. Nelson, of Aldborough, gave me a few pieces of this Evening Primrose several years ago. They were planted in a light, loamy soil in a rather damp situation,

They grew and flowered most beautifully for two or three years, when they began to die away. I removed part of them to a very dry situation where the soil was light loam; here they also grew most beautifully. Some were planted in a damp situation in a mixed soil, in which they grew well for a year or two, but these last wet seasons have killed them completely in the last-named situation. My experience is that this Evening Primrose likes a dry situation with a sandy or chalky subsoil and light loam to grow in, and to be fresh planted at least every year or two. I consider it to be quite distinct from taraxacifolia and much more handsome. The flowers are longer and very sweet scented, their perfume in a summer evening being delightful.—E. SENDALL, *Thorpe Hamlet, Norwich.*

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

March 27.—South Kensington.—Committee Meetings and Spring Show of Royal Horticultural Society.

23.—Regent's Park.—Spring Show of Royal Botanic Society.

INTERNATIONAL EXHIBITION AT MARSEILLES.—We learn from the Science and Art Department that an international horticultural exhibition will take place at Marseilles on the 19th of May next.

GARDEN CHANGES.—We regret to hear that Mr. David Wilson, of Castle Hill, the noted Pine and fruit grower generally, is obliged to leave Devonshire and his much-esteemed employer on account of his wife's health. We feel sure such a good gardener will not be long out of a suitable situation.

—An address, writing cabinet, and a purse containing £10 were given by way of a testimonial to Mr. H. A. Mann on his removal from St. Vincent's, Grantham, to take charge of the gardens at Denton Hall, Grantham.

THE THAMES EMBANKMENT.—The Metropolitan Board of Works has deposited a petition in the Private Bill Office of the House of Commons, praying that the standing orders of the House may be dispensed with in order that a bill may be introduced for the repeal of the clauses under which the Metropolitan District Railway are empowered to erect ventilators on the Thames Embankment and other public thoroughfares.

A NEW ROSE AND PANSY society has this season been started at Hawick, at the first show of which numerous prizes, though small, are offered in both departments. It is to be held on July 12. Amongst the rules, we observe, it is stated that "All Pansy blooms must be shown upon green painted stands without paper. Any stand containing show Pansies under 1½ inches diameter or fancy blooms under 1½ inches diameter will be disqualified." Prize lists may be had of Mr. Turnbull, 51, High Street, Hawick.

PERNETTYA MUCRONATA.—A huge branch of this evergreen shrub literally smothered with purplish red berries about the size of Peas comes from Mr. Rawson's garden at Windermere, where evidently the Pernettya thrives to perfection, for we have seldom seen such a finely berried bush. We have frequently written in praise of this neat little shrub which ought to be in every country garden, for there is nothing among shrubs so ornamental when in berry during winter and spring. We should like to know on what soil the bush is growing from which Mr. Rawson's specimen was cut.

THE FUTURE OF ALEXANDRA PARK.—A notice was published the other day asking the people of Hornsey, Highgate, Finchley, Wood Green, and Tottenham to meet in conference to discuss the best means to adopt to preserve Alexandra Park from the invasion of the speculative builder. The agitation is being commenced owing to a bill that is being presented in Parliament by the London Financial Association for power to sell portions of the park for building purposes. The inhabitants complain that there is no public recreation ground

in the northern suburbs, and it is suggested whether the Government ought not to be appealed to to secure the Alexandra Park as a recreation ground for the people. The subject has occupied the attention of the Hornsey Local Board, but only a portion of the park is within their jurisdiction, and whilst they recognise the desirability of obtaining the beautiful grounds for a public park, they feel as a public body they cannot petition Parliament to throw out the bill.

SADLER TESTIMONIAL.—Some of the friends of the late Mr. John Sadler, curator, Botanic Garden, Edinburgh, have opened a subscription list with the view of providing some memorial to show the regard and esteem in which he was held. It has been resolved that this should take the form of a fund applicable to the maintenance of Mr. Sadler's widow and family of seven children who, in consequence of his sadly premature decease (at the age of forty-five), are left altogether inadequately provided for. Already nearly £200 have been subscribed, but further donations are greatly wanted. Post-office orders should be made payable to the treasurer, Dr. William Craig, 7, Lothian Road, Edinburgh.

THE LATE STORM.—The area over which the late snowstorm extended must have been very wide. The Riviera in parts seems to have suffered severely, and several gardens, as Cauneo, to be severely injured. In a letter from Algiers of March 13 the writer says: "Yesterday there was a fall of snow, and it was quite curious to see Palms and Bananas bending under the weight of it. Surprising to say, it has done no harm except to some Geraniums, which are broken. But the effect was very singular—a bright blue sky, a brilliant sun, snow on the ground, with Maréchal Niel, delicate Roses, and red Geraniums in full bloom." One thing is clear, not only are English gardens liable to the effect of sudden and unusual winter, but even those nestled on the shores of the Mediterranean or bathed in the sun of Africa.—BRINSLEY MARLAY.

SLAG SAND AND ITS USES.

THIS, for some purposes, I believe to be invaluable. Its colour is difficult to describe; perhaps I may call it a dirty grey. The granules have very sharp, irregular edges, are about the size of split Peas, and porous. This sand is light in weight. I induced a friend of mine to make an analysis of it, which is as follows: Silica, 31.00; alumina, 19.00; lime, 42.00; magnesia, protoxide of iron, and phosphoric acid a trace; sulphide of calcium, 3.00. We should say it consists chiefly of a double silicate of lime and alumina. I need not describe it further than to say that it is one of the products of the iron blast furnaces. Its cost is nominal. Obviously there is some nutrition in it for some plants, but whether or not in a very acceptable form I leave others to judge. A capital crop of Clover was produced last year in a yellow clay lightened with this sand. Neither grit nor sand approach it in keeping soils open. It disintegrates more quickly than Derbyshire spar, an advantage in more ways than one. We all vainly try to keep

Slugs at bay. Well, here is the antidote. I do not say it is slug-proof, but nearly so. As a fact, exposure breaks down the very sharp edges, but it is easy enough to give a fresh sprinkling once or twice during the slug season to the surface around the plants on which they feed. When a slug has been placed on the sand and begins to move, the slime acts as an adhesive in attracting the sand to its body. Moreover, sharp, gritty surfaces are inimicable to slugs. Last season not a plant on my rockery which had an environment of slag sand was molested by them. Worms are a desperate trouble among tiny plants, but they are few and far between in a mixture of soil and this sand. We rarely see them in soils charged with granite grit. Many alpine, North American, Himalayan, and other plants require protection from excessive evaporation during the summer months; for such, I think, this material is more suitable than pebbles, broken freestone, &c., but

I would prefer Fir leaves if I could get them. Rockery men quarrel about what is best for

Plunging purposes in the open and in frames. I am sorely against river sand, which becomes very sodden. Coal-ashes, too, have their drawbacks. Try slag sand. In cold frames it absorbs moisture, and thus is of much use in winter. It is perfectly clean and looks well. One can work amongst it more easily than in ashes. It is damp here, and the winds are probably more chilly than in any other part of England, so that whilst some Saxifrages and Primulas "went off" in ashes and river sand their comrades are all right in slag sand. My frames and open plunging beds are only small, as I am a beginner, and therefore I have so far abjured extremely difficult plants. The presence of worms in pots vexed me until I commenced to put a 1-inch layer of this sand over the Moss covering the drainage, thus keeping that right. Of course they were still in the pot, but a single dusting of soot washed in caused them to disappear. This is still the most satisfactory way I know. I discontinued growing

Orchids last year. It cannot be healthily spending much time in their culture, although pleasurable. Previous to so doing I grew for two seasons Cattleya Loddigesi, C. Mendelli, and Lælia autumnalis in slag sand covered with an inch of peat fibre. Orchidists may express surprise, but they grew wonderfully well in it. No roots appeared over and beyond the pots; the ends and sides of them were never gnawed by slugs and woodlice. I believe the advantage of the sand lies in its mechanical condition, for the degree of moisture could be regulated with the greatest nicety. Be as assiduous as one can, still the hygrometric state of the Orchid house cannot always be just right. The keystone of successful Orchid growing is healthy roots; anyhow this applies to most Orchids; and for a major portion of the year, when pots, particularly the perforated ones, are full of corks, it is impossible with a blazing sun to maintain the moisture at one point. Some will say the chemical properties of the sand will be inimical to Orchids. I reply when an Orchid root clings to a substance, that substance cannot be harmful to it, and I have seen Cattleya and Lælia roots dotted over with the sand (in presumable preference to the pot) which cannot be separated without breakage. We all know how tenaciously Lælia roots will adhere to pot and cork. I induced a small nurseryman to strike his autumn cuttings in soil mixed with one-fourth slag sand. He told me the other day he did not think he had lost a cutting from worms pulling them into the ground, slugs eating them off, and few from damp. Cost of railway carriage is the only thing that militates against its use. R. C.

Beverly.

CATALOGUES RECEIVED.

J. R. Pearson's (Nottingham) Agricultural Seeds.
R. H. Haines's (Burlington County, N. J.) Wholesale Catalogue of Fruit Trees, Strawberries, &c.
V. Lemoine's (Nancy) General Plant Catalogue.
Vilmorin-Andrieux et Cie.'s (Paris) Catalogues of Tree and Shrub Seeds.
W. Pontey's (Huddersfield) Nursery Tree List.
W. Pfitzer's (Stuttgart) Seed Catalogue.
C. Turner's (Slough) General Spring Catalogue.
Thibaut & Keteleer's (Paris) General Plant Catalogue.
Neighbour's (High Holborn) Improved Bee-hives.
E. Gillett's (Southwick, Mass., North America) Perennial Plants.
J. Forbes's (Hawick) Descriptive List of Florists' Flowers.
Names of plants.—E. B. K.—Anemone fulgens (ordinary garden soil; loamy for pots).—Mrs. S.—Fuchsia procumbens.—R. T.—1, Narcissus obvallaris, a variety of N. pseudo-narcissus; 2, N. bulbocodium; 3, N. Tazetta variety.—S. A. R.—1, Dendrobium Freemannii, allied to D. nobile; 2, D. limbratum.—Thirsk.—Erica colonodens.—A. B. C.—1, Andromeda floribunda; 2, Forsythia suspensa.

COMMUNICATIONS RECEIVED.

H. E.—H. H. C.—A. R.—C. W. D.—F. W. B.—J. G.—A. B. C.—E. H.—R. I. C.—A. F. B.—T. H.—O. L.—H. P.—Brookhurst.—S. D.—J. W. S.—A. B. K.—J. D.—J. V.—W. I. M.—J. A. A.—T. W. C.—R. T.—C. M. O.—C. B. T.—F. F.—A. V.—J. D.—J. B.—W. A.—G. S. S.—J. H. W.—B.—W. E. G.—J. R.—H. B.—W. E. B.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

WINTER COLOURING IN THE ALPINE GARDEN.

It is interesting to observe the colour effect produced by a grouping of rather large patches of the dwarfest plants at the present season just before the fresh spring growth begins. As bright green colouring is the rule in spring, so now, when they have only the natural foliage that has clothed them through the winter, many of these little plants appear to assume a colouring as far from positive green as their nature allows. In planting carpets of dwarf growths in the alpine garden (a nearly level space with only a few large stones partly rising out of the earth) no effort was made to avoid green, yet the present effect of the whole is a mass of rich red, purple-bronze, and deepest olive broken with mysterious greys and velvety gleams of golden olive, with jewels of brilliant colour flashing here and there in the mass of sombre richness. On looking closer these are some of the details: *Sedum* *Lydium*, bright bronze-red; *Gaultheria procumbens*, dull and bright crimson; various *Houseleeks*, deep bronzy red; varieties of *Phlox setacea*, deep greens heavily tinged with warm bronze; many of the mossy *Saxifrages*, bright red, but some of the larger-leaved, such as *Wallacei*, bright green; *Saxifraga muscoides* green beneath, but red-tinged above by the tips of the rising flower-shoots; *Androsace carnea*, some tufts dark green, some red, both with lovely rose-coloured flowers; *Phlox verna*, with cheerful sunny colouring, approaching red and yellow; *Acena microphylla*, hardly distinguishable from the bronzy Moss-covered ground; *Linnæa borealis*, deep dull red-bronze; *Thymus lanuginosus*, ashy grey with shadows inclining to purple; silvery *Saxifrages*, a greener grey, *rosularis* and some of the kinds near it tinged with a delicate pink like pink-madder; *Sedum glaucum*, bluish beneath with warm-tinged tips; *Antennaria tomentosa*, with foliage daily whitening; *Veronica saxatilis*, lapping round a large stone, deepest bronze-olive approaching black; groups of *Heaths*, all manner of deep red and green-bronze, and *Ledums* of rich golden-olives and crimsons; *Menziesias*, darkest purple-bronze, the white variety dark green. Where the ground shows in some parts of the garden it has a natural carpet of the short velvet-like Moss that grows in dry peaty soil, rusty in shade, golden in sunlight; it is carefully preserved, the surface of the ground never being disturbed in weeding, and adds greatly to the harmonious colouring of the whole.

This rich mass of "subdued splendour" is jewelled with bright points and patches. The bright rosy *Erica carnea* fringes a sombre mass of later-blooming *Heaths*; *Draba cuspidata*, sown in place, and therefore falling into little natural groups such as can never be purposely planted, shows off its bright closely-tufted lemon-coloured flowers to great advantage on the dark mossy earth. Close by is another sown group of some scores of *Draba boeotica*, soon to flower, but as yet only showing the pale yellow buds on its neat, darkest, red-bronze rosettes. *Scilla bifolia taurica* is a pool of brilliant blue on a carpet of pale green *Arenaria balearica*; stars of a still stronger blue, though of quite a different quality, are the first flowers of *Gentiana verna*. Thickly-flowered tufts of *Saxifraga oppositifolia* are beautiful against a wide, even carpet of *Spergula*. *Sisyrinchium grandiflorum*, white and purple, with graceful nodding flowers, rises in rush-like tufts towards the centre of the garden; the little arching stalk that joins the flower to the flower-stalk is so frail that one wonders the wind does not twist it off. The last flowers of *Iris reticulata* show well above a green ground of mossy *Saxifrage*. The effects of colouring were noted in strong sunlight,

G. J.
Surrey.

NARCISSI AND PSEUDO-NARCISSI.

So much interest is shown in this tribe that I need scarcely apologise for making a few remarks upon some specimens I send. 1. Garden Daffodil with full double flower. 2. Garden Daffodil with trumpet double. 3. *N. obvallaris*, perhaps with as much claim as *Telemonius* to be the single of the preceding. Garden doubles vary so much that their parentage is probably not always the same; they are as old as the time of Gerard, in fact named Gerard's Narcissi; he found the plant in Wiltshire growing in the garden of a poor old woman, in which place formerly a cunning man, as they vulgarly term him, had dwelt. That these should be the double of the Tenby Daffodil seems impossible. 4. The Tenby Daffodil (Mr. Wolley Dod's), of which Mr. Burbidge has given us the probable history, is evidently neither *obvallaris* nor *lobularis*, but seems to answer well to *Narcissus major* (var. *c. flore minore*), *Botanical Magazine*, 1301; not to *N. major* nor to *N. major b*, whose corolla is different. 5. Wild Devon Pseudo-Narcissus. Single. 6. Wild Devon Pseudo-Narcissus with trumpet only double. 7. The same full double; both doubles are scarce, but the full double much more so than the other. 8. A variety of wild Devon Pseudo-Narcissus, approaching the Tenby Narcissus in shape, but not in colour. 9. Capax, Queen Anne's Daffodil which after being lost for many years was recovered in an old cottage garden; such at any rate was the source from which mine came. "Veronica" speaks of the duplication of its perianth only, and certainly the regularity of the corolla segments is very striking; nothing is known of its single form, but we may conclude that it was a one-coloured species from the fact that the small central divisions of the trumpet present no contrast to those of the corolla. In Queen Anne's Jonquil (*N. odoratus fl.-pl.*), which is, I fancy, intended by Gerard's Pseudo-Narcissus *luteus multiplex*, and also in the common double Jonquil the trumpet appears to be not less obliterated than in Queen Anne's Daffodil.

South Devon.

J. H. ARCHER-HIND.

THE TENBY DAFFODIL.

MR. WOLLEY DOD tells us, firstly, that Mr. Peter Barr is responsible for the name *N. obvallaris*, and that he himself originated the popular name the "Tenby Daffodil" some twenty years ago on receiving a few bulbs of it from a meadow at Tenby. We could not have better authorities than these, and I at once acknowledged the name bestowed upon this favourite Daffodil by so worthy a godfather, and shall adopt it in future as our reverend friend's own Tenby Daffodil. Never mind if Haworth fifty years ago confirmed and corrected a previous writer, in the same name, as belonging to *N. lobularis*, "which grows wild near Tenby." Nobody cares for *lobularis*, and as the name thus appropriated to it has become obsolete, let it so remain, and let it belong instead in all the future to Mr. Dod's Daffodil. The interesting quotation given by "F. W. B." may well apply to this Daffodil, which in all probability was brought originally from Spain. I would, however, rather attribute its introduction directly to the Spaniards and not by them through the Flemings, who are stated to have settled at Gower in the reign of Henry I., at which date there were no Spaniards in Flanders. There is a popular belief that one of the ships of the unfortunate Spanish Armada was wrecked off the Welsh coast, and I have heard it stated that the traces of Spanish blood are to be seen in the inhabitants of the peninsula of Gower, which is only across Carmarthen Bay from Tenby. There are traditions of Orange trees which were imported into the peninsula of Gower by Spaniards who had settled there, and who brought over from Spain their garden favourites, and why not Daffodils? This is the most probable solution of the question, and possibly some of your antiquarian readers may follow up the clue and throw some light upon it. Certain it is that in the reign of Queen Elizabeth Daffodils became popular in England, and they were called originally Spanish Daffodils, and probably enough the Tenby Daffodil was one of these.

Two years ago the subject of self and bicolor Narcissi was introduced by me in your columns, and led to a pretty warm discussion with Mr. Burbidge, who maintained that all Daffodils were bicolor. The matter was summed up by Mr. Burbidge in *THE GARDEN* for July 16, 1881 (p. 57) when he offered a copper kettle to whoever first sent him a Daffodil in which the perianth segments and the crown should be of exactly the same tint of yellow. Now the Tenby Daffodil is in my opinion a self, and especially when flowered under glass its colours in the crown and in the perianth division are precisely the same. I therefore sent to Mr. Burbidge on the 16th instant a Tenby Daffodil bloom which fulfilled his conditions, and claimed the kettle accordingly. Two similar flowers were sent to the editor of *THE GARDEN*, and before sending these away they were judged by very competent parties here, and it was held that viewed from the stalk, so that transmitted light and shadow did not come into play, the shades of yellow were the same, and the flowers were true selfs. Mr. Burbidge could not deny this, but he claims a much more crucial test, which I demur to, as "twas not in the bond." He says, take scissors and cut a piece half-an-inch square out of one of the perianth segments, and a similar piece from the crown; lay them in a strong light upon purple silk, and then judge if they are precisely of the same shade. Of course they will not, because the crown is thicker in substance than the outer segments, and the shades must vary accordingly. However, I have not got my kettle, and this is the plea. I hold that there are self Daffodils, and that the Tenby is one of them, especially if grown under glass, when its colour is of the richest and deepest golden.

Brookhurst, Didsbury. WM. BROCKBANK.

Narcissus monophyllus.—"Veronica" must be relieved from responsibility for the statement (p. 130) that the name *cantabrica* had reference to Cambridge, or for the erroneous use of "Gerard" in the same paragraph, as the whole matter—including the quotation from Mrs. Loudon—is found in Mr. Burbidge's work on the *Narcissus* (p. 22). Did Mr. Burbidge take Mrs. Loudon's authority for the whole? It seems likely since the reference to "Gerard" in Mr. Burbidge's paragraph is also incorrect, i.e., p. 34, fig. 5. There is nothing on the subject in either edition of "Gerard" on p. 34, but on p. 134 of Johnson's "Gerard," fig. 5, there is figured and described (by Johnson) Pseudo-Narcissus also *flore in* the same chapter, and a few lines preceding the reference to Master Nicolas Belson. Now neither "Veronica" nor Mr. Burbidge could confound a white variety of *N. Pseudo-Narcissus* with *N. monophyllus*. As has been pointed out in your pages, if *N. monophyllus* is figured by Johnson, it is figured as *N. omnium minimus montanus albus*, and this on p. 137, fig. 8. Who first used *cantabrica* as the specific name of this *Narcissus*?—RHO.

THE CHRISTMAS ROSE.

(*HELLEBORUS NIGER ANGUSTIFOLIUS*.)

WILL you allow me space to protest against "F. W. B.'s" proposal to call this beautiful Christmas Rose after the name of a saint. I, for one, see no fitness whatever, and neither charm nor beauty in the proposed name of Saint Bridgid's Christmas Rose, and most certainly I shall never associate the flower with such a long-winded and far-fetched appellation. There is no reason whatever for it beyond the fact of a few plants of it growing on the Hill of Howth, and "F. W. B." has no right whatever to christen it that I can see. We must give Miss Hope the credit of first bringing this variety before this generation of florists. Even if it be Mr. Barr's *H. intermedius*, he tells us he had it from Aberdeen. I trust it may simply retain its own name, "The Christmas Rose." Its greater rival, *H. niger maximus*, is the great *Hel-lebore*. It is not a true Christmas Rose. It flowers in October, and is over by Christmas; whereas the true Christmas Rose (*H. niger angus-*

tifolius) comes with the holidays, and adorns all our Christmas festivals and feasts. I do hope, therefore, that we shall not adopt "F. W. B.'s" suggestion, but adopt the simpler title of the Christmas Rose for our favourite.

WILLIAM BROCKBANK.

Brockhurst, Didsbury.

[We consider the best name for *H. niger* maximus to be *H. altifolius*, a name given long ago by Heyne, and its popular name should be the Great Christmas Rose, inasmuch as it flowers in many localities at Christmas time. Our correspondent has, we think, misapprehended "F. W. B." The name St. Bridgid's Christmas Rose is applied on account of its having been found in an Irish garden, the owner of which writes under the *nom de plume* of St. Bridgid.]

St. Bridgid's Christmas Rose.—I am very pleased indeed to see this plant brought into notice so prominently, although but scant justice is done in the illustration to its unsurpassable merits. Some blooms I saw about Christmas time with Mr. Burbidge were very much larger than those shown in the woodcut. I was impressed at the time that they were by far the finest hardy winter flowers I had ever seen, and their large size, fine form, and snowy whiteness have haunted me ever since; moreover, the new name it receives is the first occasion on which I have ever had an inclination to even lean towards an English name. This is a good one; the Latin one is bad, and not at all characteristic of the plant, which is entirely distinct in various ways from all forms of *H. niger*; the erect compact mass of noble foliage entirely hides the blossoms not alone from cruel storms and from dust and dirt, but from the gaze of all who will not stoop and push the leaves aside, a characteristic of the plant which ought to have been recognised at the christening.—T. SMITH, *Newry*.

QUESTIONS

Kæmpferia Roscoeana.—How am I to manage this pretty little plant so as to get a good specimen of it? It starts well into growth, but never fails to damp off after making a couple of leaves. Do I keep it too wet and warm?—H. H. C.

Iris Kæmpferi.—Will some of your readers kindly inform me of the best way to rear purchased roots of this choice kind of Iris? What is the best time for planting, what soil, and if they require much moisture whilst "settling"?—W. T.

Space for Vine roots.—I have sunk a pit in the chalk and put in hot-water pipes. I want to put in some Vines; what sized pits must I dig out in the chalk to take soil enough for the Vine roots? In other words, the bottom drainage being good, what number of cubic feet of soil is necessary for Vine roots to ensure a vigorous growth of the canes?—W. E. M.

Single-handed lawn mowers.—Will some practical persons give us the benefit of their experience as regards these handy little machines? My own experience is that two men, each using a 14-inch "Archimedean" or "Climax" will do as much as three men (two pulling and one guiding) with a 28-inch machine; and further, the two men do their work with comparative ease. All the small (14-inch) machines, however, have not reversible cutters (i.e., cylinders on which the knives are fixed), so that they are not self-sharpening, as are the larger kinds. This drawback may be remedied to some extent, however, with a good file or knife sharpener of American manufacture. Wanting just now to purchase a couple of new 14-inch machines, I am anxious to hear of the most approved kind from a *bona-fide* observer.—J. D. B.

Tar varnish.—My gardener, having unfortunately blacked some hot-water pipes in a conservatory with some black varnish obtained from a neighbouring ironmonger, and said to be harmless, finds to his chagrin that the scent arising from it kills the blossom of everything that is put into the place, and Azaleas, Camellias, Roses, and such like, after being in a day or two, present a withered, or rather scorched, appearance and drop off. The scent is as of creosote or some preparation of tar, and the ironmonger calls it tar varnish. Can any of your readers tell me how to get it off or kill it? We have tried soft soap and soda, oil and grease, and have scoured it with sand, &c., but all to no avail. I should be glad of any suggestion or advice.—SUBSCRIBER.

FRUIT GARDEN.

HYBRIDISING VINES.

THOSE of your readers who have read my remarks on this subject in "Vines and Vine Culture" do not require to be told that "Grower" (p. 259 of THE GARDEN) has deliberately misrepresented what I have there stated. It would be scarcely necessary to reply to it further were it not for the prominence given to the article in THE GARDEN which lends to it a certain importance which it would not otherwise possess. To fair criticism I have no objection. "Grower," after fortifying himself with the reflection that he has never read or been told before that Grapes usually reproduce themselves from seed, goes on to state that he has reproduced Mr. Barron's full statement, although actually using the marks thus (. . .) to show that something is omitted, that something being the qualifying sentence, and other words are put into my mouth which I never used, as when he speaks of Venn's Muscat and Bowood Muscat reverting to the original type, and white berried seedlings turning black, an idea that I should think never entered any other head but that of "Grower." It is a useless and a hopeless task, however, to point out all the mis-statements and misrepresentations that are contained in "Grower's" letter. Let the following suffice. In "Vines and Vine Culture" the *modus operandi* of preparing the flower of a Grape Vine for the purposes of hybridisation or cross-fertilisation so as to make certain that you are attaining your purpose is minutely described, and this preparation is stated to be "rather a ticklish operation, requiring the greatest care and patience, all the parts being so small and difficult to get at." "Grower" very cunningly alters this to "he (Mr. B.) states that cross-fertilisation is a ticklish operation," which is a deliberate misrepresentation. I state nothing of the sort. Every intelligent grower knows that cross-fertilisation may and often does take place by natural agencies, and is the work of an instant. Many Grapes are probably cross-fertilised without our knowledge. "Grower" does not consider in hybridising Grapes that any precaution is required against this, or any care in securing the result aimed at. He prefers the haphazard system of "suspending or shaking a bunch of another variety over the bunch to be fertilised." This is a mode of setting certain Grapes recommended in "Vines and Vine Culture," and the berries are most likely cross-fertilised. That certain Grapes were so produced may be perfectly true; but there is no security that a certain cross has been effected, or what is the true parentage of any Grape raised in this slipshod manner.

"Grower" is certainly less well informed than we would be inclined to have given him credit for when he states that he cannot remember any variety reproducing itself except the Black Hamburgh. What of Venn's Muscat and Bowood Muscat cited as "reverting"? What of Josling's St. Albans, Cranford Muscat, Horsforth's Seedling, the Abercainey Seedling, &c., and scores of others we have seen, many of which never lived to get a reputation? "Grower" may perhaps answer that none of these originated with him; but still they are evidences that Grapes do reproduce themselves from seed. "Grower" deserves credit for the adroit manner in which he makes quotations to suit his purpose and the ingenious way in which they are manipulated.

A. F. BARRON

Early Strawberries.—There was quite a handsome sight of these to be seen on the 3rd of this month at Cuerden Hall, near Preston, the seat of Mr. T. Townley Parker. They stood in a row in the Pine stove, 63 feet long. The colouring of the fruit was excellent. The sorts, I was informed by Mr. Roberts, the gardener, were Keen's Seedling, Vicomtesse Héricart de Thury, and La Grosse. The largest fruit was borne by the last named, some of which measured $4\frac{1}{2}$ inches in circumference; each pot had from eight to a dozen fruits.—COR.

Cropping fruit tree borders.—The annual cropping of fruit tree borders with vegetables is a great evil, and some of the diseases of wall trees are due to this cause. Not only is the nutrient taken out of the border, but the spade drives the roots down beyond the reach of solar warmth, which is so essential to the proper ripening of the wood. Moreover, all fruit trees thrive and bear best in a firm soil (I do not mean an unworked soil), and especially is this firmness necessary for the Peach and the Apricot. If the whole border cannot be given up to the trees, at least 5 feet running along the back should be left uncropped, and, beyond surface culture, undug.—E. HOBDAY.

INDOOR GARDEN.

CONSERVATORIES AS THEY SHOULD BE.

HIGH as the present state of gardening undoubtedly is in this country, it cannot surely be said that much, if any, real progress has been made as regards the arrangement of our conservatories, though a subject, it must be admitted, of great importance. When we consider how few are the examples of correct taste in this matter, and how abundant the examples of what plant houses should not be, we see at a glance how deplorably behindhand we are in a matter that is really one of the cardinal points of true gardening. What is meant by a picturesque arrangement of plants is more clearly explained by the accompanying illustration than by words. Contrast such an arrangement with that to be seen in conservatories of the ordinary stamp and their inferiority as regards tasteful arrangement will be at once apparent. In the one every plant is effective, and in the whole the expression of beauty is unique both as regards colour and form. In the other we have ugly stages and still uglier pots and tubs to contend with, rendering the very name of greenhouse a misnomer; and, moreover, plants seldom develop themselves so freely and fully when their roots are restricted as when planted out. There is no reason whatever why every greenhouse, or rather conservatory, in the country should not present such a charming appearance as that represented in the annexed engraving, but in order to effect such an arrangement there must be a radical change from the old stage-and-pot system of culture. Some seem to misapprehend the meaning and character of naturally arranged conservatories. They are under the impression that such houses must necessarily be monotonous in appearance. They think that such an arrangement excludes gay spring and other greenhouse flowering plants such as usually enliven the stages of ordinary houses. But that is a mistake. In a properly arranged conservatory, such as that here represented, there should be places set apart where groups of flowers in pots could be placed at convenient distances from the eye so as to be fully enjoyed. And how much more beautiful do masses of bright flowers appear when their pots are hid from view, and their surroundings the greenery of fine foliaged plants. Under such an arrangement they could be exchanged for others just as in the case of plants on an ordinary stage. In order to maintain a bright display there should of course be supplementary, or what may be termed growing, houses from which seasonable flowering plants could be brought to the conservatory when required. It is a pity that examples of naturally planted conservatories are not more frequent in our large public and private gardens. If good examples existed in these of properly arranged conservatories they would have much influence for good among smaller gardens, and if the natural style were more practised there would be a use for hosts of plants which, under the pot system, do not find a place, simply because they are unfitted for it. A glance through the houses at Kew reveals a wealth of plant life unknown in private gardens, but which could be readily obtained if there was a demand. Aroids, Ferns, Marantads are particularly valuable for the purpose, and a long list could easily be furnished of suitable subjects. W. G.

TOP-HEATING.

THE system of top-heating at Swanley has been so misrepresented, as Mr. Cannell, jun., says, that it is difficult for one who has not actually seen the houses to speak at all correctly about them. I have proposed seeing for myself, but am not able to do so before writing, being anxious to remove at once a wrong impression given by Mr. Cornhill (p. 275), quite unintentionally, as to what he is pleased to call my theory. I have not said that "top-heat alone will not create a buoyant atmosphere," but that if all the heating pipes were above

the plants raised on a stage, then the lower cold air would be drawn across the foliage from lower inlets (such as doors) by the very buoyancy created above, and so the plants would suffer. From the corrected accounts now given of the position of the pipes, it seems there is very little difference between the arrangement there and one that was often carried out years ago by my late firm of putting one pipe above the open stage next the wall and one or two below, or near the path if a bed was used instead of stages, and which is and was regularly carried out in pit frames. As to stages, too, I must disclaim a recommendation of the common practice of using 2-inch laths and 1-inch spaces between. With such stages the bottom soil must get dried up, as the holes of the pots are right over the spaces between laths, and so the lower roots get all the dry heat while the tops are steaming with the escaping moisture, causing, as Mr. Cannell says, "more injury to horticulture than all other erroneous notions put together that have from time to time been published." The open stages, in my mind, were boards 5 inches to 9 inches wide with half-inch spaces, so that the heat can percolate through the leaves while the

tops of boards are moist under the pots. The faults of most plant houses are narrow laths, large spaces, and pipes close down to the damp earth below, which most people will have in preference to using concrete slabs 3 feet by 2 feet on iron bearers with (or without) small spaces between, and a 2-inch space next the outer wall for heat to rise through. One great advantage of solid beds at the sides (as advised by Sir Joseph Paxton) to stand plants on is (irrespective of cheapness) that there is 20 per cent. less cubical contents than with stages, and as there is nothing to absorb the heat but the plants and soil, some spare moist heat can be allowed to escape above and keep up a better circulation of the internal air.

Whether the top pipe is called a flow or return does not much matter; the question is whether it is a hot or a cool pipe. If it is not hot, it will have no effect on the plants or the necessary movement of the warm dry air and might as well be omitted. If it is hot (which is admitted) it will be found in practice to be as hot in the middle of its length as the bottom pipes at the same point. The far end of an ordinary flow is always cooler than its commencement, but when everything is in full swing, say at midnight, the iron pipes hot, the air warm, and the fire at its fiercest, the difference in tem-

Put three 2-inch pipes below for flows, and one 4-inch as an upper rising return, and the difficulty in getting up heat in 200 feet long houses will be immense as a rule, and yet there is only the same heat-radiating surface and less water to heat.

Because the sun gives heat from above it does not follow that hot-water pipes act similarly, and yet this would seem to be implied in some remarks that have been made. To test the so-called radiation from a hot-water pipe, the following figures are taken as I write. The room is at 49° only near the centre, the iron about 140°; at three

inches below the pipe the thermometer will not rise above 47°, or 1° above the floor temperature; at 2 feet away on the same level as the pipe it is 49°, while at 6 inches above the pipe the thermometer rises to 80° in a few minutes. What, then, is the value of the heat radiating downwards? What takes place in these houses is something like this: The air is set in motion as the pipes become hot; from the path it rolls up the pit walls and is drawn across the surface of the soil towards the new current created at the side by the upper pipe, after which it rises along the roof, partially escaping, and being there cooled and mixed with cold air entering by some of the laps, falls down again in the centre to take the place of hot air rising from the large heated surface of bottom pipes. This movement is varied somewhat according to pressure of external air. The heat radiated from the bottom pipes into the pit walls also warms the earth slightly on which the pots are standing. Mr. Cannell's theory is mine too as to keeping out frost and damp, but air must come in somewhere to replace that continually escaping; the question all of us should ask ourselves, therefore, is how best to take off its rawness, and



A naturally arranged conservatory.

perature between the two pipes will be inappreciable, if it should not happen that the top one is the hottest. The quantity of water in top 2-inch pipe being only one-sixteenth that contained in two lower 4-inch pipes, it follows that only the hottest or lightest water ascends into it and back to the boiler as an ordinary return, the heavier cooler water in the 4-inch flow falling into the lowermost pipe and converting it into a return pipe back to its junction near the boiler, where it partially mixes with the freshly heated water and re-circulates in the flow. This may seem incomprehensible, but one 4-inch pipe can itself be made to act as both flow and return if divided at each end, the hot water along the top surface and cooler water below.

I admit that his system is about the best with his long and narrow houses protecting one another by their juxtaposition. With an isolated house of another construction, 20 feet by 15 feet, such an arrangement would not answer well. For many years I have been fighting against the "grooves" that Mr. Cornhill wishes to see a thing of the past, both in building and heating, but gardeners themselves are often against me by running out of one groove into another. Four years ago in a large lean-to greenhouse I wished to place two pipes near the front and two at the back of the path, but the gardener insisted on two close to the back wall and two at the path 5 feet from the front. The following severe winter the gentleman sent for me, as

the plants on the front stage were killed by frost, though the registered minimum in the centre was 45°; the pipes were then altered to my first proposal, after which the average temperature increased because frost could not enter. It is possible that Mr. Cannell's experience some years ago as a hot-water engineer has served him well in his present houses. B. W. WARHURST.

FORCED FORGET-ME-NOTS.

I NOTE (p. 224) "J. S. W.'s" remarks on forcing Forget-me-nots in a cool greenhouse. When so grown they are very useful for conservatory or house decoration at this season of the year, when blue flowers are not over plentiful. The way in which I have found them to succeed best is as follows: We employ considerable numbers of *M. dissitiflora* in our spring beds. After they have finished blooming, say in May, they are taken up to make room for summer-flowering plants, and are laid in on a west border, where from the base of the plants they produce a quantity of cuttings. These are taken off and inserted in a cold frame any time during August, and if kept moist and shaded they soon make roots. When well rooted we pot them in whatever sized pot is most suitable for the purpose for which they are intended, say 4-inch ones, and return them to the cold frame until they have made fresh roots; after that they are set out-of-doors on an open piece of ground, where they grow strong and hardy. If housed early in October in a cool greenhouse they commence to bloom early in February, and continue to do so for about three months.—E. MOLYNEUX, *Seamore Park, Bishop's Waltham.*

—I send you flowers of Forget-me-not (*Myosotis dissitiflora*) gathered from plants growing in a greenhouse. Early in November we potted up into 6-inch pots about three dozen plants from the open border, placed them for a few weeks in a cool frame, and then removed them to the greenhouse, where they soon began to flower, and for the last six weeks they have been one mass of bloom. Anyone wishing to have their greenhouse gay with this pretty *Myosotis* can do so with very little trouble.—J. FIELD, *Stanley Hall, Bridge-north.*

BEDS IN A SPAN-ROOFED STOVE.

IN a narrow 12-feet wide house like that described by "W. K.," p. 256, I should not advise the formation of beds such as he speaks of, but a simple flat stage on each side the path running down the centre. The thin stone slabs he mentions are just as good as slate; if they can be had from 2 inches to 2½ inches thick, it will be ample. They should rest on light flat bars of iron, with one end let into the side walls of the house, the other supported on 9-inch brick piers next the path. This will admit of the flags being kept an inch or two away from the wall, so as to allow a cavity for some heat to rise up next the glass, without which in severe weather the plants are liable to be too cold. Presuming that the house is built with side flags from 2 feet to 2½ feet in depth, the slabs should be fixed so that the upper surface will be about 3 inches below the bottom of the wall plate; if there are no side lights, but simply a roof resting on the side walls, then, as a matter of course, the stage must be lower to allow head room for the plants. Strips of flat iron should be fixed lengthways back and front of the stages, standing an inch or two above the surface so as to hold some moisture-holding material for the pots to stand on, such as sand or finely sifted coal ashes, which are of great assistance to the plants through the moisture they give off to them, correcting the otherwise over-dry condition of the air immediately in contact with them. This damp standing medium is not only conducive to free growth, but it does much to discourage such insects as red spider and thrips by the moisture that it throws off to the underside of the leaves. The hot-water pipes will, of course, run under the stage on each side, resting on the floor. This arrangement will be found better and more economical than enclosing any portion of them within a

continuous wall, either covered with gravel or with the slabs above them, so as to form the bed in the way "W. K." speaks of. If a propagating bed is wanted, it is only necessary to put additional material sufficient to plunge the striking pots in on the required space at the warmest end of the house, either enclosing this with a glazed frame, or the more simple means of covering the cuttings with propagating glasses. T. B.

Mignonette.—I noticed the other day some good samples of this universal favourite at Cuerden Hall, near Preston. They were natural shaped bushes from 2 feet to 3 feet high, and the same in width, furnished with foliage to the pot. The flower-spikes were remarkably fine. Such plants are seldom seen in the north of England. We have, however, read of them sometimes being exhibited in London.—COR.

Candollea cuneiformis (X. Y. Z.).—This may be struck from cuttings in the same way as the *Rondeletia*, but as it is a greenhouse plant the cuttings will of course require correspondingly less heat, nor will they produce roots quite so readily as the *Rondeletia*. When the cuttings stand without rooting in a greenhouse temperature, or, better still, in one a few degrees higher, if callused shift them into the stove, which will at once induce the formation of roots, but if good cuttings are obtained they strike readily enough as a rule to render such a change unnecessary.—T.

Viburnum odoratissimum in fruit.—A plant of this, about a foot high, in the temperate house at Kew, is bearing a number of small, but highly coloured berries. They are arranged in the form of a somewhat open corymb, and in colour are a bright shining crimson like sealing-wax. If this free-fruited quality be maintained, a large bush would be a handsome object during the winter, for this plant has been some months in beauty. I never, however, remember this species fruiting so freely before, and possibly the fact of its being propagated from a cutting, and kept restricted to a pot, may have had something to do with its fertility. This kind of Guelder Rose is too tender to withstand severe winters around London.—ALPHA.

Primula verticillata.—This pretty little Primrose well deserves attention; for, although requiring the shelter of a greenhouse, it forms a very pretty object therein during the early spring months, when its tuft of meal-covered leaves is surmounted by a whorled spike of bright yellow blossoms. The perfume, though not strong, is sufficient to scent the surrounding air, when in flower, with a fragrance reminding one of that of the Cowslip. It is of easy culture, and will be found to flower very freely in small pots. If plunged out of doors during the summer, its growth is firmer, and the spring show of flowers greater than if kept in frames at that time. Like some of the others, I find that the seed of this *Primula* germinates freely if sown as soon as ripe, but when kept a little time its appearance above ground is very erratic, and sometimes it refuses to grow altogether.—H. G.

Steamheating.—Notwithstanding "P. G.'s" strictures on this subject (p. 166), steam heating is here a decided advance on the older methods of heating plant houses, especially where a strong heat is required for forcing winter flowers, and the fact that steam can be turned off and on the various structures at pleasure is a decided point in its favour, as this gives complete control of the heat, which in very changeable weather is a matter of first importance. We heat a range of five houses each averaging 21 feet wide by 132 feet long, with one 18 feet by 42 inches Lancashire boiler, and find that much better results (and more cheaply) can be secured than formerly with the best hot-water system. Thirty years ago steam was experimented with here, and owing to ignorance of what are now well-recognised principles it was a failure, and it is only recently that the prejudices then created have been removed.—JOHN R. MURDOCH, *Pittsburgh, Pennsylvania, U.S.A.*

Streptosolen Jamesoni.—This fine shrub, lately introduced from South America by M. Edouard André and now being sent out by M. Victor Lemoine, of Nancy, grows in its native country (the Cordilleras of the Andes) at a height of from 7000 feet to 9000 feet above the level of the sea. It grows about 4 feet to 6 feet high, and bears fine glossy leaves and flowers in trusses from March until July. In the South it can be cultivated in the open air, but here about Lyons and farther north it requires a greenhouse in winter. It will make a very handsome shrub for pot culture and for forcing. It was introduced about forty years ago by Hartweg, and was named *Browallia Jamesoni* by Benthams, who soon perceived that he was wrong, and that it belonged to the genus *Streptosolen*, established by Miers. Mr. Wm. Lobb sent seeds of it to Messrs. Veitch, but for many years it has been lost sight of.—JEAN SISLEY.

Propagating *Rondeletia* (X. Y. Z.).—Cuttings of *R. speciosa* will strike readily if young shoots are taken just as they lose their succulent character and become slightly woody. When removing them from the plant take none of the old wood to form the base of the cutting, but make it entirely of young growth, and remove no more leaves than is necessary for the purposes of insertion. About 4 inches or 5 inches is a good length, and with the removal of the bottom pair of leaves the cuttings are complete; they should then be put in pots of sandy soil—say half-a-dozen around the edge of a 4-inch pot—watered thoroughly, and kept close either in a propagating case or under a bell-glass in the same stove temperature in which they have been growing. If a gentle bottom heat can be given them they will root in much less time than without it. Of course when rooted, air must be gradually given till the glasses are removed altogether; then the cuttings may be potted off singly in small pots.—ALPHA.

NOTES AND READINGS.

ROYAL HORTICULTURAL SOCIETY.—According to the *Chronicle*, the Royal Horticultural Society proposes going back to first principles by "restoring the Society to its old position as a scientific body, by encouraging the reading of and publication of papers from practical horticulturists and men of science, and by undertaking comparative and experimental researches at Chiswick and other means." No doubt horticulturists will welcome this resolution, and if it is adhered to and carried out in the right spirit, probably the Society will again become the acknowledged institution it once was; but it will have to rise to the occasion if it means to take the lead it once did when horticulture was less understood. An acknowledged necessity to restore the Society to its old position is clearly a confession of failure of the present state of things, and we believe this is exactly how the matter stands.

SOUTH KENSINGTON v. CHISWICK.—When the centre of interest and work was transferred from Chiswick to South Kensington we all remember what great things the Society proposed to accomplish. Chiswick was simply put on one side, except in so far as it was still to be an "auxiliary" establishment, the principal duties of which were to consist in propagating bedding plants and the like for South Kensington. What has happened we all know. The real want of the society has never been an ornamental garden and chambers at the West End, but a garden for carrying on important horticultural work and experiments under the management of an able superintendent properly directed and assisted by an equally able executive. Once the society begins to do real work and take a leading part in horticulture it will become a source of interest to horticulturists, and will deserve and get support. When it has any "transactions" worth recording it should publish them, if not in a journal of its own, then in the horticultural papers, and in all of them. For a long time the society has been virtually inarticulate, and its doings have been a

sealed book to that portion of the community for whom the Society professes to exist. It must keep itself before the public if it is to create and sustain an interest among gardeners outside the "ring," the members of which meet periodically to gossip on current topics at South Kensington. Extinction would be preferable to the present condition of affairs. With horticulture in its present advanced and enterprising state, and so many good outside workers in the field, a horticultural society of the pretensions of the "Royal" will have to entertain higher aims and views of its duties and do work, else probably final disestablishment may result.

A SCIENTIFIC COMMITTEE, aided by practical workers, might do much; but people have ceased to believe in experts only. A good experimental garden would be an excellent adjunct to such a committee. Hitherto the scientific committee's duties have been frivolous and of little general interest, chiefly because it has always been short of materials to work with. With an experimental garden, whose aspirations rose occasionally a little higher than Peas, Radishes, and Chinese Primroses, &c., which the "trade" look after better, the committee should never be short of work, nor out of materials for study and lectures. Such a garden should provide quite a fund of interest of the most varied description for the "unemployed" scientists—having no other matters to care for—and a garden half the size of Chiswick would be sufficient for the purpose. Notwithstanding the faults and exclusiveness of Kew, one would almost wish to see Chiswick and the Royal Horticultural Society turned bodily over to it, brought under Her Majesty's Board of Works, and sharing in the Government grant, for it really does not look as if the Society would ever rise to the position to which it aspires as at present constituted. It is hard to understand why a national horticultural society and garden should not share in the privileges of our national botanical gardens, which, hitherto at least, have done but little for home gardening.

"VINES AND VINE CULTURE" has so many good points, that its author can afford to be questioned about doubtful ones, and Vine forcers are already asking why he recommends such a high night temperature as 60° at night at the starting period if 55° "is quite high enough" two or three months later when Vines are in flower, as stated at page 88. Surely Vines do not require a higher temperature to break their buds than to bring them into flower and set their fruit. This is one of the things in Mr. Barron's book that needs revision. Vineries are usually kept at an out-door temperature short of severe frost before starting, and 60° at night to begin with is a jump of from 20° to 50° at once according to the season. No Grape growers adopt such a practice at present. If, as the author of "Vines and Vine Culture" says, 55° or 60° is high enough at the setting period provided there is the desired rise during the day, why is not a proportionately lower temperature high enough at starting under the same conditions? Starting the big vinery at Chiswick at 60° at night in April or May may answer, but beginning at any date between November and April is another affair, and 60° at night at these seasons means sheer waste of fuel.

MANUALS v. CYCLOPÆDIAS.—An intelligent writer in one of the horticultural papers discussing this subject in an interesting manner does not represent the merits of "shilling manuals" in quite their true light. A young man, it is stated, "finds it best to spend a shilling or so on manuals detailing the routine of men exactly in his position. He finds he can learn more of the Vine in Barron's, Thomson's, or any other good manual; of Orchids in Williams' manual; of hybridising and propagating in Burbidge's 'Cultivated Plants,' and so on than he can otherwise." I acknowledge the value of all these works for young gardeners, and would really like to know where they are to be had for "1s. or so," or if any of them can be had for less than 5s., 10s.,

or 15s. "Cultivated Plants" is not a manual, but a cyclopædia, price 15s. Readers in these days perhaps believe more in the horticultural weeklies that keep them abreast of the times than in either cyclopædias or manuals; but probably for a learner a cyclopædia of garden practice, something like Thompson's "Gardener's Assistant," would be a better investment as the nucleus of a library than any number of manuals on special subjects. The latter are apt to reflect the prejudices as well as the opinions of the writer, and are often misleading.

HURRY IN FORCING.—At this season of the year gardeners are very apt to resort to high pressure means in the shape of artificial heat and moisture in forwarding crops. These means come readily to the gardener's hand, but they should be sparingly used, for nothing tends to impair the vitality of such subjects as Vines, Peaches, and plants as hard forcing. Besides, all hurried fruits are small as well as light proportionally. It does not matter whether it be a Strawberry or a Pine-apple, the fruit which is allowed the longest period of development, within the necessary limits of temperature of course, always makes the finest specimens in every way. Vegetable physiology and practice teach that the more leisurely the growth the solidier the tissues and the better the quality. It is better in forcing to begin soon and give longer time than to hurry.

ORCHID SALES.—"T. B." presumes it is imported stock "Peregrine" means, and proceeds to write a column on that presumption. I did not specify imported or other stock, but left that to the discretion of the salesman, who, no doubt, knows their business best, as "T. B." indicates; hence his opinion need not be regarded as final. There are many who think a judicious selection would sell well at some of the large towns during show weeks, and as the trade does already take collections of Orchids to provincial shows and sell them there, they could probably transport for other purposes as well.

NEW EUCHARIS.—For a long time gardeners have been familiar with the old *Eucharis amazonica*, to which somebody has recently appended "grandiflora," and collectors do not seem to have thought it worth while looking for other varieties, but the recent addition of two new varieties to the list, viz., *E. candida* and *Sanderi*, encourages us to expect still more and probably even finer kinds. We need not wonder if the *Eucharis* family turns out to be as varied as that of our common Daffodil, and if both double and single kinds be found. *Eucharis candida* is very distinct and pretty, blooms oftener and more freely than the old sort, and in some cases has shown a tendency towards the double form.

VARIETIES OF *CŒLOGYNE CRISTATA*.—This is another plant of which improved varieties have recently been introduced by the Colchester Bulb Company and others. Some of these have been distributed, and we hear of them being named as the exclusive possessions of certain cultivators. Hitherto only one typical variety has been in cultivation, but some of the new arrivals are a distinct advance on the old variety as regards the size and quantity of flowers, which, for the size of the bulbs, are more numerous than in the type, the spikes being also longer and of a more drooping habit.

MILTONIA SPECTABILIS.—We are so accustomed to see this usually ill-managed Orchid with yellow, unhealthy-looking leaves, that many people believe that to be their natural colour. That, however, is a mistake. When well grown its leaves are of a deep green hue, and when it is in this state of health the flowers are proportionally fine and high coloured. We lately saw a specimen plant of this Orchid 2 feet across, with leaves as green as Grass, and covered with flowers, many of them not much less in size than some forms of *Odontoglossum vexillarium*, which it resembles in shape, but beats in richness of colouring. Grown

in this way, it makes a remarkably fine specimen. It requires moderately cool treatment and shade.

WONDERFUL CROPS.—"W. C. T." no doubt means well, but should be accurate. The facts speak for themselves. The writer whom he defends grows his Vines 4 feet from the glass and 7 feet asunder, but says 10 feet would be better. His bunches are not more numerous than other people's, and run generally from 1 lb. to 4 lbs. in weight. These are what constitute one of "the most wonderful crops in the kingdom," according to the author's own showing. We had a photograph of the crop at its best, and it bore out these statements. The wonderful thing about this vinery is the space lost laterally and longitudinally. We doubt if anyone would care to test such a practice; it is known to be a wasteful one, and people are satisfied. To have to grow Vines 10 feet asunder does not look like "luminous rays," but speaks of the days of our forefathers and opaque roofs, for it has ever been recognised that the darker the roof the more need there is for room inside. We must say that we mistrust a writer's observations who dwells on the important differences between a "purple-black" and a "blue-black" in the colour of the Black Hamburgh, the latter being the mark of perfect finish and flavour.

PEREGRINE.

KITCHEN GARDEN.

EXHIBITION POTATOES AND THEIR CULTURE.

IT may occur to some of the readers of THE GARDEN that my remarks are offered somewhat late in the season, and to a certain extent they will be justified in forming that opinion, as no doubt there are many who have already made considerable progress with their Potato planting. At the same time I believe there is still much ground to be planted, and experienced growers especially do not commit valuable sorts of Potatoes to the ground very early in the season for fear of injury from late frosts, and neither should the novice. Again, it must not be thought that this paper is intended solely for the benefit of would-be prize winners; on the contrary, it is intended for Potato growers generally, and may be said to be also a

Plea for handsome varieties. My meaning will be plainer when I assert that those who grow really good exhibition tubers can, and oftentimes do, grow heavy and profitable crops—more so, in fact, than the majority of growers for ordinary purposes. At least this is my experience, as I invariably find we obtain much the heaviest crops, and of the best table quality too, where the ground is prepared and the sets are planted with the primary motive of securing abundance of tubers suitable for exhibition. It is a mistake to think that exhibitors of Potatoes, and indeed of any kind of vegetables, grow a few only of each sort, giving these abundance of room and otherwise unduly favouring them. An experienced exhibitor grows as many as he possibly can of each, in order to have abundance to select from, as now-a-days it is useless to show a dish or collection not perfect throughout. There is no denying the fact that the rage for exhibition varieties of Potatoes has to some extent interfered with the cultivation of a few superior, if uglier, older sorts, but for this the individual is to be blamed and not those generally who may be the means of promoting exhibitions. No gardener should neglect the proper precautions for supplying the dining table with the best eating Potatoes the garden is capable of producing, and in my opinion a few varieties only should be relied upon for this purpose. Where the evil lies is when the gardener grows as many varieties as he possibly can procure; and as varieties vary considerably in quality as well as in appearance, the frequent changes from good to bad and *vice versa* serve to irritate the employer, and eventually militate against the gardener. But if the gardener, by his perseverance and superior judgment, continues to grow suffi-

cient good Potatoes for the table as well as a quantity of exhibition varieties, then I hold the employer will best consult his own interests and encourage the gardener by at least abstaining from interfering. Again, by annually trying a few novelties the grower is enabled occasionally to select a very superior sort for growing in quantity for the table. We are told that no real progress has been made in the

Improvement of Potatoes, and that for ordinary purposes we must still rely exclusively on the older sorts. The sooner this notion is exploded the better, as I am convinced some of the latest introductions especially must eventually supersede many older sorts. Neither is it to America we must look for varieties suitable for our soils and climate, but to our own skilful and persevering raisers. Of the many of the latter none have been more painstaking or so successful as Mr. R. Fenn. It is true we have to thank him for the worst Potato, as far as quality is concerned, that was ever introduced, this being the famous prize-winner, International Kidney, and which, in common with Porter's Excelsior and a few American varieties, has more injuriously affected the prestige of exhibition Potatoes than all the rest put together. However, Mr. Fenn has amply condoned his offence, if I may so term it, as we have to thank him for such sturdy growing, heavy cropping, early maturing sorts now known as Sutton's Favourite, Lady Truscott, Sutton's Fiftyfold, Reading Russet, Standard, Sutton's Prizetaker, Sutton's Early Regent, the older and better known Rector of Woodstock and Woodstock Kidney, and others I have grown and proved to be both distinct and good in every respect, being valuable alike for the exhibition and dining table. Mr. Dean has also done good service in the way of raising new varieties, these including Bedford Prolific, Cosmopolitan, and Lord Mayor; and Mr. Ross has been successful in the same line, his productions including Dux, Sutton's Magnet, and Fidler's Victory. Mr. Clarke, fortunately for all of us, succeeded in raising the disease-resisting, heavy cropping Magnum Bonum and Reading Hero, both of which are available and should be grown for either exhibition or culinary purposes. Of those of American origin, the best with me, and I have grown the majority of them, are American Purple, Beauty of Hebron, Triumph, Snowflake, and the newer Matchless and Adirondack. In addition to the foregoing I grow and much like Veitch's Improved Ashleaf or Mona's Pride, Lapstone Kidney, Vicar of Laleham, Covent Garden Perfection, and Schoolmaster, and from the whole may be selected twelve or more varieties equal to, if not superior, in every respect to any varieties grown elsewhere. I have no doubt many who have planted a considerable quantity of Potatoes find they will not have sufficient sets to complete the breadths, and to them and to all who in any case have some ground yet unplanted I say add a few of the above newer sorts, notably Fenn's, by way of experiment. If it prove unadvisable to eventually retain all, the probability is they will be able to select a few sorts suitable for and otherwise well worthy of being extensively grown on their particular soil.

A change of seed is also of great advantage, and this noted exhibitors especially are constantly procuring. In this case it is a conclusive proof that it is conducive to the production of heavy crops, and is well worthy of imitation. Our best crops invariably result from seed obtained from a distant friend from a reliable firm of seedsmen, although this seed at the commencement is at a disadvantage, owing to having unavoidably sustained damage to the sprouts during transit. We never plant choice varieties unsprouted, and take great pains, especially when extra choice, in

Preparing the tubers for cutting and the sets for planting. When received (usually during March) they are placed in the shallow boxes previously used for storing and preparing for planting the home-grown seed of early sorts, covered with fine moist soil, and placed in a warm Peach house, vinery, or frame to commence growth. This they quickly do, and at once emit roots,

but before they are an inch long the tubers are cut into as many sets as there are eyes, which are returned to the boxes of soil, disposed about 3 inches apart, and covered. In the case of very choice sorts which cost say from 2s. 6d. to 4s. per pound, and which we naturally are extremely anxious to increase as much as possible, the eyes after starting are divided into as many sets as there are shoots and potted off singly into 3-inch pots. All are kept in warmth till established, when they are gradually hardened off, yet protected, so as to have them sturdy and fit to plant out say the second week in April or later, according to the time the seed has been in hand. Potatoes not previously sprouted much, cut up and at once planted, are apt to prove disappointing, but well-rooted shoots carefully planted are capable of producing crops equal in weight, if we except the Ashleaf type, as are growths which are attached to whole or large parts of tubers. Those sets of our own saving are always prepared for planting generally on their ends and thinly in shallow boxes, the end in view in all cases being to secure a single strong sprout. One strong stem invariably yields a heavier and handsomer crop than two or more weaker ones, and by first securing good sprouts and then planting after the danger of severe frosts may reasonably be considered past, we seldom fail to grow heavy crops if we do not preserve them. If it is necessary to carefully prepare the sets, it is equally imperative to

Well prepare the ground, and this should not be delayed till near planting time. On page 212 of the present volume of THE GARDEN reference is made to American experiments which proved conclusively that the Potato should have a deep root-run. Whether this is new to the Americans, I am unable say; but this I do know, our most successful Potato growers are frequently double-digging or trenching the ground for Potatoes, well knowing that the superior crops resulting amply repay the outlay. We have long found Potatoes do remarkably well on newly trenched ground, and that subsequently the same ground, owing to having become firmer, is in a better condition for producing good crops of Strawberries, Onions, Peas, and the Brassica tribe generally. We prefer to bastard trench whenever the weather permits after December, always leaving the surface as rough as possible. When trenching is impossible deep digging is resorted to. Autumn digging or ridging we do not practice, as we find the ground works best when dug after the usual soaking rains of November and December—any dry time in January, February, or March being preferred. Frost, wind, and rain soon make their pulverising influences felt, and this season especially recently dug ground is in splendid condition for seed sowing and planting. Rough stable manure is freely dug in, and at planting time a liberal dressing of either soot or malt dust, wood ashes, and leaf-soil is well forked into the intended rows. These are disposed 42 inches apart (this distance allowing of a row of Broccoli Sprouts or Kale being grown between), and are drawn out with heavy hoes, the sets being planted usually 12 inches asunder, and carefully covered with the hand. The soil is generally levelled over, but in the case of forward sprouts, these have soil lightly ridged over, or otherwise they may be injured by frost. The pot plants are put out with the trowel. By this it will be seen that our Potatoes have a deep root-run, are cheaply, yet well manured, and have the requisite light, open soil in which to form their crops of handsome tubers.

The after-treatment consists of keeping the ground clear of weeds and frequently stirred, and in moulding up as the haulm advances, the final moulding succeeding a heavy shower or showers of rain when the haulm is about 9 inches high. Jensen's method of moulding up one side considerably higher than the other, so as to throw the haulm on to one side as a preventive of disease, tried on a small scale, was most encouraging, and we intend to adopt the plan on a much larger scale this season. Early lifting, unless performed before the disease has shown itself, is merely a

waste of labour, and the same remarks apply to pulling the tops. If we anticipate the disease, all well and good, but when the germs have effected a lodgment on the haulm, this occurring during damp weather, we find it the least trouble to leave the tubers to sort themselves, not liking heaps of sound and rotten Potatoes in mixture. In the matter of selecting good dishes, many "beat themselves," that is to say, they leave better tubers at home than they take to the shows. It is not large sized ones we should prefer, even supposing they may otherwise be perfect; the present taste rightly inclines to medium sized tubers which should all be as even and perfect as possible. This evenness should extend through a collection. Polishing is not much in my line, and probably polished tubers are not awarded the premier prizes simply because they are so beautifully clean and even, but because the judges know them to be the best whether polished or not. No amount of polishing will transform one that is scarred into a clear skinned and faultless tuber. Ours are washed with a sponge before the soil has dried upon them, are wrapped in paper, and stored in a dark room till required, when from a large boxful of one variety, we perhaps are able to pick two or three good dishes.

GROWER AND EXHIBITOR.

POTATO DISEASE.

A SHORT report is given THE GARDEN of the 17th inst. (p. 257) of objections offered by Mr. George Murray at the Royal Horticultural Society to certain views of mine on the so-called sclerotia of *Peronospora infestans*. He says that "a microscopical examination of certain specimens did not clearly reveal any organic connection between the sclerotia and the *Peronospora mycelium*." But it has to be kept in view that generally the edges of the sclerotia plasmodiate before myceliation begins, so that in point of fact the granular plasm from which the *Peronospora mycelium* arises has lost all organic connection with the undissolved part of the sclerotia. On rare occasions, however, excessively delicate threads in considerable numbers can be distinctly seen to arise from a sclerotium. These sclerotia have been seen already by Mr. W. G. Smith and perhaps by others, and whether they are truly called sclerotia (as Mr. Murray denies) is a mere matter of classification. Mr. Murray says sclerotia are "a compact mycelium." But sclerotia are not going to be tied up in this narrow way. It is true that some sclerotia consist for the most part of compact mycelium; but in addition to the short anastomosing lines there is the hornified plasm which holds these lines together. If they are "caught young" something more may be made of them. It is then seen that the mycelic lines arise from exuded plasm around the mass already formed. But in the case of the best known of all sclerotia ergot the mass consists for the most part of agglutinated spores. If a white young ergot is squeezed out on the slide it is seen to consist of whole oceans of spores (variously named) arising from a spongy mycelic axis.

A. STEPHEN WILSON.

JERUSALEM ARTICHOKE.

No vegetable with which I am acquainted is more easily cultivated than this Artichoke. It will grow in almost any soil or situation. I know of no disease which affects it or insect which attacks it, and to these exceptional recommendations may be added the great value of the roots, which are both nutritious and wholesome. I am sure that if those who have neither grown it nor used it would take it in hand now, they would not regret doing so. It is at this time that its cultivation for the year should begin, and I hope many may be induced to try it. A bushel or so of seed roots will plant a large piece of ground and be enough for a fair trial. As has just been observed, they are not particularly dainty as to soil. I have, indeed, seen them growing and fairly remunerative even in waste corners; but the heaviest crops and the finest and best flowered tubers

are to be had from good ground. It is not throwing away labour or manure to prepare Artichoke ground in the same way as is generally done for Potatoes. The ground should be deeply dug and well manured, and the crop will undoubtedly be heavy. Where roots have been dug up for use throughout the winter the largest only of each should have been used, and the medium-sized ones put aside for seed. In this way a good deal of seed may be in store now; but if there are still some of last year's crop remaining in the ground, they should be lifted, the seed selected, and the large ones stored for use until the new ones are ready. Some cultivators do not replant annually, but leave them in the ground year after year, much to the detriment of the crop. This is an unprofitable way of treating them; we would have them all lifted and replanted every spring. Growing them too close together results in undersized roots; 3 feet from row to row and 18 inches set from set is a distance from which the finest roots may be had. In planting they should be placed about 3 inches below the surface, and after they are put into the ground hoeing to destroy weeds is all the attention required. From seed planted now there will be roots large enough for use in September, and after that the supply will be continuous. The roots are very accommodating; they may either be taken up and stored in a shed at the beginning of winter or they may be left in the ground and dug up as required. As Jerusalem Artichokes grow from 6 feet to 8 feet high, they may be planted to form profitable and effective summer screens, and they will also afford shelter or shade for more tender plants. J. MUIR.

FLOWER GARDEN.

THE PYGMY DAFFODIL.

Of all that section of the genus *Narcissus* popularly known as Daffodils, this little plant is certainly the smallest, a veritable Commodore Nutt, or let us say General Mite in its way compared with *N. Emperor*, *N. maximus*, *N. lobularis*, and other giants which represent the Changs, Daniel Lamberts, and Magraiths of Daffodildom. We used formerly to find this little plant offered for sale by Messrs. Backhouse, of York, and Mr. Barr once grew it at Tooting, but it is now a rarity for which many lovers of hardy bulbs must seek in vain. Even Mr. Ware, who has so many good things in stock, does not offer this dainty little plant in his lists. Now and then we find its name on labels here and there, but *N. minor* or *N. nanus* in reality generally represents it in most gardens.

Parkinson's description in his "Paradisus," p. 105, leaves but little doubt as to this plant having been grown in English gardens so long ago as 1629, but whence it came is not quite so apparent, unless, indeed, we take Parkinson's word for it that it is the smallest or least Spanish Daffodil. After his description of *N. Pseudonarcissus hispanicus*, *medius*, and *minor luteus*, he speaks as follows in reference to

***Narcissus minimus*:** "The leaves of this small kind are smaller and shorter than the former, seldom exceeding the length of 3 inches, and very narrow withal, but of the same greyish green colour with the former; every flower standeth upon a small and short foot-stalk, scarce rising above the ground, so that his nose for the most part doth lie or touch the ground, and is made after the same fashion and of the same colour with the former, but much smaller, as his root is so likewise." Seeing that but few cultivators of Daffodils seem to know this "little gem," we are glad to be able to give an illustration of it. Several times already this spring we have had *N. minor* sent to us with the question, "Is this the true *N. minimus*?" but at last we have received the true plant from Messrs. J. Dickson & Son's nursery at Chester, whence Mr. Shortt writes to ask if it is true to name. We are very glad to say it is, and could wish we oftener had the pleasure of seeing it, so rare is it nowadays. As the annexed sketch represents the full size of the plant, three-

fourths of it being naturally hidden below ground level, it will be seen to be extremely small and dwarf when growing naturally. Indeed, Parkinson's quaint sentence, "his nose for the most part doth lie or touch the ground," is almost photographic in its truthful portraiture of the living plant, which truly flowers almost before the little glaucous leaves peep through the earth.

When we remember how *N. cernuus* fl.-pl. has died out in most gardens (although tolerably abundant, I am told, with Mr. Elwes) and of the luxuriance of *N. cystettensis* (or *N. Capax*) with Miss White, of Charleville, or Mr. W. E. Gumbleton at Cork, we are tempted to ask the question whether this Daffodil, although rare generally, may



Narcissus minimus.

not exist plentifully even in some few gardens in Britain or on the Continent. What says Mr. Ewbank, of Ryde; M. Max Leichtlin, of Baden-Baden; or other lovers of rare bulbous plants? The specimens Mr. Shortt sends us are nearer to the *N. pumilus* of Herbert's "*Amarylhidaceæ*" than ever we saw this plant before, *N. pumilus* being synonymous with *N. minimus*. F. W. B.

CONSTRUCTING A ROOTERY.

"BAGATELLE" (p. 278) asks for information as to how tree roots can be used. Local circumstances alone determinable on the spot could enable anyone to advise as to the best way these could be employed, as almost every garden presents something different in position and existent arrangements, all of which need to be taken into account in any arrangement of roots in the way proposed. But it may be said *en passant* that there are few, if any, gardens where a well-placed and well-constructed rootery cannot be introduced with advantage, in many cases with much better effect than follows the use of rockwork, with the still further advantage of not costing more in the making than a fraction of that which the use of stone necessarily entails. I have done a good deal of this kind of work from time to time, varying much in its extent, as also in the time it was calculated to last consequent on the materials used. The best looking and most enduring are Bog Oak and Yew; where either of these are procurable they are all but imperishable; but ordinary tree roots if of good size will last very many years, as, if well put together, they will keep in position if not interfered with

for a long time after they are so rotten as not to bear disturbance. If "Bagatelle" has anything in or about his garden that he wants to mask or shut out from view, he may do this effectually by simply building up the roots in the form of a screen or mound in height and length sufficient to effect the purpose, wholly or partially covering them with Ivy, Clematis, climbing Roses, and other plants of like description. In many gardens an arch or two over a walk, or a rustic bridge thrown over a ravine or run of water, if constructed with taste and a due conception of suitability to position, would be pleasing additions. Where the natural surface is too flat, a mound composed in part or entirely of roots and nicely draped with plants, can be made so as to relieve the too even appearance if the site is well chosen. On this latter much depends; the simple piling up of root or rockwork, as it is often done, with no apparent object beyond a disposition to do something, not unfrequently ends in dissipation rather than improvement. I have thought it well to thus give a word of warning about the well-meant, but mischievous use of this kind of material in gardens. As to the

Putting together of the roots, some taste and forethought should be brought to bear on the construction; a little structural skill in tying the work together by so disposing of the materials that the pieces may bind the fabric together like the stones that compose a wall is needed; as a matter of course irregularity of outline must be secured. Anything that will give a formal appearance must be avoided. The larger roots should form the base with as many gnarled projections as can be sticking up and out of the face of the mound, screen, arch, or whatever is to be made; with sufficient material in the shape of enough roots of various sizes, there will be no need of anything else to hold them together even if part of the erection is to have a wall-like character. In all cases the base should be broad enough as compared with the upper portion, so as not to give a top-heavy appearance. Soil of good character should be freely used in the bottom interstices between the roots for the plants to grow in. Such things as *Juniperus prostrata*, *J. sabinoides*, *Arthrotaxus Doniana*, *Cotoneaster buxifolia*, *C. microphylla*, *C. Roylei*, *Vinca major*, and *V. aurea reticulata*, being low creeping plants, are suitable for clothing the lower part; strong-growing hardy Ferns may also with advantage be introduced amongst them. The following are free-growing climbers, and will thrive in most places where ordinary plants will succeed, planting them in good soil at the bottom, and training them up as required; amongst Ivies, take *H. canariensis*, *H. canariensis argentea*, *H. Rægnieriana*, and *H. digitata*. At first these will need securing, so as to direct their shoots upwards; if put in rich soil they will soon reach the top. *Jasminum nudiflorum*, *Ampelopsis hederacea* (Virginian Creeper), *A. Veitchi*, *Clematis montana*, *C. Jackmani*, *C. rubella*, *C. Miss Bateman*; *Roses*—crimson *Boursault*, *Aimée Vibert*, *Lamarque*, *Rampante*; *Robus leucodermis*, white-barked *Bramble*. The extent to which the covering with plants is carried is simply a matter of taste, but if the work is composed of suitable roots and well executed, it generally looks best when most of the gnarled pieces are kept bare. T. BAINES.

Dimorphotheca nudicaulis* var. *graminifolia (the bare-stemmed, grass-leaved Cape Marigold).—This very old, but, I believe, exceedingly scarce and seldom met with composite is now nicely in flower in my conservatory. Introduced into Holland so far back as 1698 and into England in 1731, it first bloomed in the Chelsea Botanic Garden from seed received from the Cape in the last named year, but has ever since continued a scarce plant from its being, I fancy, difficult to propagate by cuttings, and from its not ripening seed in this country. It was figured in the year 1818 in the 4th vol. of the *Botanical Register* by Lindley under the name by which it was known to Linnaeus, Miller and the older botanists of *Calendula graminifolia*, but more modern authori-

ties have assigned to it the name at the head of this notice as more correct and appropriate. It is a very curious plant, of trailing habit of growth, with twisted stems, bearing tufts of light green grassy foliage at their ends, out of the end of each of which, when strong enough to flower, springs a single blossom, borne on a tall naked stem, and much resembling in appearance and colour the flower of the well-known annual *D. Pongei*, with bronzy purple under petals and creamy white inside. Like it also, it only fully expands when the sun shines.—W. E. GUMBLETON.

DOUBLE-FLOWERED DAFFODILS PRODUCING SINGLE FLOWERS.

UNDER the heading "The Tenby Daffodil" (p. 224) a passage is copied from Haworth's "Monograph of the Narcissus," recording that the offsets of a bulb of the double wild Daffodil produced in Chelsea Garden single flowers. This reminds me of an old story told by Cicero: A client went to consult a diviner. A marvel had occurred in his garden—he had found a snake coiled round his crowbar; what did it portend? "Are you certain," said the diviner, "that it was as you say?" "Quite certain," answered the client. "Then, my good sir," replied the other, "it is no marvel at all; the marvel would have been if the crowbar had been coiled round the snake!" In the same way there is no marvel in a Daffodil or any other plant which has been born double-flowered reverting to the single-flowered form; the marvel would be if a plant which has been born single flowered became double. The double forms of *Narcissus incomparabilis* (particularly the "Orange Phoenix") and the double *N. tazetta* are especially given to this habit of turning single, as many growers of Daffodils have observed. Such plants continue potentially double, and under favourable conditions may revert to double. This is not the case with Daffodils only, but with many other flowers, and I have fresh experience in my garden every year of plants producing at the same time double and single flowers. Double Primroses often do so with me, and the single flowers appear quite perfect, with anthers and pistil. Amongst Sunflowers, too, I have often seen *Helianthus multiflorus* with double and single flowers on the same plant. But I will offer a premium of £5 to anyone who, under strict supervision, will succeed in cultivating the bulbs of single Daffodils which I will send him into producing double flowers.

Llandudno.

C. WOLLEY DOD.

Abutilon vexillarium.—As open garden plants during the summer months Abutilons are most valuable, and amongst them none more so than *A. vexillarium*. It is often met with as a carpet plant in formal bedding, and sometimes in vases; but it is as a border plant I have to speak of it. Grown in front of a shrubby border it is very ornamental, especially if allowed to grow in its own free way. Its slender shoots, clothed with long blooms hanging down in all directions, make it very graceful looking. Recently I saw it associated with such things as *Daphne Cneorum* and *Skimmia japonica* with the finer kinds of *Retinosporas* and *Thujas* at the back, and the green Grass in front, and the effect was all that could be desired.—J. C. F.

SHORT NOTES.—FLOWER.

Cinerarias (*J. C. Wheeler & Son, Gloucester*).—The flowers you send represent an uncommonly fine strain, particularly as regards solidity and perfect shape. The colours, too, are brilliant and varied.

Golden Feather.—To those who grow *Pyrethrum aureum* for carpet bedding, let me recommend the neat and pretty form *selaginoides*. We liked it exceedingly last season; it is all that the catalogues describe it to be.—A. M. Cranmore.

Narcissus Bulbocodium. It may interest Mr. Burdick to know that we have this Daffodil very beautiful here just now. Six bulbs in one pot bear eighteen expanded flowers and ten buds. One bulb is remarkably floriferous, having three buds and six expanded flowers, one stalk having nine flowers, which I think very unusual.—F. NEWMAN, *Ferniehurst, Shipley, near Leeds*.

Alpine Auriculas.—The term "alpine" as applied to the Auricula is perhaps rather misleading if thereby when border kinds are meant it should be imagined by some that the term really applies to the beautiful kinds grown by Mr. Turner at Slough and by others in such perfection. "J. C. C." no doubt means robust border kinds when he writes of alpinas, just as I do now, though mine are of the laced strain of alpinas, and I think the most charming strain of all for the open ground. Now it is perhaps not remarkable that having a soil naturally stiff and clayey I cannot get Auriculas to thrive well in it when employed partially as a potting compost. On the other hand, it has surprised me to see that seedlings put out early last spring in a stiff, clayey soil, and which was through the winter not only full of water, but now as hard as a brick, have stood without losing a single plant, and that all look far better and healthier than any in pots, though sheltered by glass all the winter. Most probably we kill many of our pot Auriculas by confining the roots too much, for any of these plants lifted from the open would show the roots had gone 6 inches in depth and 9 inches in width. In the case of plants in pots, giving similar root space, would be to kill them speedily, and yet in the open ground they will need nearly as much root space as a Cabbage. My plants—several hundreds—are fully exposed to all weathers and have no protection. I do not term the Auricula a bedding plant, but if I were employing it for that purpose I should plant about 12 inches apart each way, and carpet the intervening soil with seedling Aubrietias. The result, I think, would be a bed worthy of admiration.—A. D.

When to sow Castor-oil Plants.—Few plants that are grown for the beauty of their foliage are more ornamental than the different varieties of *Ricinus* or Castor-oil plants, which are not half so much grown as their merits deserve, as not only are they fine for pots, to use for the embellishment of large conservatories or halls, but they are grand outdoors, where, if planted as single specimens on lawns, dotted here and there in borders, or grouped in masses, they produce a striking effect. If arranged in the last-named way, the stronger sorts should be placed in the centre, and the weaker around, that the group may assume uniformity; and where single plants are used in prominent positions, the most robust look the boldest and best. There is one among the weaker growers deserving of special mention (*R. Gibsoni*), which has leaves and stem as darkly coloured and rich looking as *Iresine* or *Dell's Beet*, and if planted with an edging of *Abutilon Thompsoni*, the contrast between the two is most pleasing, as they associate and look well together. As these Castor-oils are gross feeding plants, the soil should be specially prepared for them by being trenched or deeply dug, and at the same time heavily manured with rotten manure; and if this is done, they will develop magnificent leaves, and have a shapely appearance the whole of the summer. Many make mistakes with *Ricinus* in sowing too soon, and starving the plants at first starting, for if they become drawn and checked then they run up with weak, naked stems instead of being furnished with foliage below. As the seeds germinate so quickly and the plants grow so fast, the middle or end of April is quite time enough to sow, as it is not safe to plant out till the first week in June, and they get to a large size in a month or six weeks if well treated and nursed on in heat. Before planting out it is necessary to harden them by gradual exposure, and directly they are in the beds they should be staked and securely tied, or the wind will break and destroy them.—D.

Lent Lilies and their varieties.—If any bunch of imported wild Daffodils be carefully examined it will be seen that there are a great many varieties answering in type to the several sorts found in our gardens, and very different from the common wild Daffodils of our English meadows. I was struck with this fact on examining a bunch which my little boy had bought at the florist's, and placed on my library table as a pleasant

token of his love. To-day I walked round the market with my friend Mr. Okell, and we were both struck with the variety we observed in every bunch. I send herewith an outline sketch very carefully made by admeasurements, showing three of the most marked varieties, and it will be seen that they are the types of some of our best known garden favourites. It would be interesting to know where these Daffodils come from, and whether they may be taken to be the original forms of our cultivated varieties. I should be glad if someone would import the bulbs for us in quantities, as they would form very welcome additions to our wild gardens.—W. BROCKBANK, *Brockhurst, Didsbury*.

NOTES FROM GLASNEVIN.

PROBABLY one of the best times to visit this botanic garden is in the spring, before the early flowers of the year have lost their freshness. Whatever one may think of the sister isle or its people in these troublous times, it is certain she can give us floral offerings at the present time superior to any at either Kew or Edinburgh, be the same indoor Orchids or outside alpinas. In a stroll through Glasnevin on the 8th inst. I observed blooms of the Japanese *Forsythia* (the golden bees alluded to in "Veronica's" notes), *Helleborus atrorubens*, Wallflowers, Snowdrops, the white *Arabis*, Siberian Squills, sheets of the bright purple *Erica herbacea carnea*, Primroses of all kinds, *Triteleia uniflora*, a double *Periwinkle*, and a white one with pretty variegated foliage, Daffodils, *Iris reticulata* with its beautiful deep purple flowers and golden anthers, a few plants of a *Ranunculus* in bloom, *Viola lutea* and odorata, *Aubrietia grandiflora*, *Pulmonaria grandiflora*, *Anemone fulgens*, and *Saxifraga oppositifolia*, white and purple varieties. No mean show of blooms this with a gale blowing from N.E. for nearly a week.

In the general collection I noticed a great improvement in the way of labelling plants. Instead, as in some collections, of each individual specimen being marked by an immense wooden T-shaped label painted white with black letters, an oval iron one is used, painted black with white lettering, the more conspicuous and unsightly ones being only used at intervals to designate the natural orders; there is therefore a more distinct lettering without the glaring amount of white paint generally so much used.

Beds of Hybrid Perpetual Roses had been pruned. I suppose they know best here from previous experience which is the right time to perform this operation, but I submit that their Roses need not all have been pruned alike, each plant and each twig to the same height as if cut over with a scythe. Surely, pruning should be performed in accordance with the growth and habit of the individual plant, the weak growers being closer pruned than the moderately-vigorous ones, and these again closer than the very vigorous kinds. A beautiful natural effect is obtained by training varieties of Jackman's *Clematis* round the outside columns of the house containing aquatic plants. Shoots of these having already grown 6 inches in length show what an effect the mild weather has had upon them, though I fear the 20° of frost registered at Leeds the night after my visit to Glasnevin will have told anything but a flattering tale. Can anything be said, in these days of cheap glass, in extenuation of the use of panes from 3 inches to 4 inches square, such as I noticed in the house containing Tree Ferns at Glasnevin, though, truth to tell, it has been utilised very sensibly in that particular case? On entering the first of a long range of houses an almost overpowering cloud of perfume assailed me, proceeding from Hyacinths, *Narcissi*, *Freessias*, and other scent-yielding plants. *Cytisus fragrans*, with its *Cattleya-citrina*-like perfume, would, I think, make a good basis on which to work in forming bouquets of scented flowers. Indoor bloom here was nowhere wanting. *Camellias*, *Amaryllises*, *Primulas*, *Polygalas*, *Epacrises*, *Cinerarias*, *Correas*, *Chorozemas*, *Habrothamnus Newelli*, a fine plant trained to a central column and bearing pendent

spikes of shining vivid crimson blossoms, *Beaufortia decussata*, 12 feet high, *Monochaetum ensiferum*, the pearl-like *Erica physodes*, and *E. melantha*, one of the loveliest. Among other plants were also *Hardenbergia Lindleyana*, with pendant purple blooms; a *Brugmansia*, with very large tubular blossoms; *Solandra grandiflora*, with pale yellow trumpet-shaped flowers; *Franciscas*, and *Ixoras*, all in bloom, and presenting quite a gay contrast of colours. The iron supporting pillars in one of these houses are thickly wrapped in peat and Moss, in which *Ferns*, *Tradescantias*, and fine-foliated *Begonias luxuriante* and produce quite a charming effect. What a beautiful bouquet green we have in *Asparagus plumosus*! no Fern can surpass, and few equal it as regards fine tracery.

On entering the Orchid houses I observed that the opportunity of creating a good first impression had not been lost, for in the vestibule some of the choicest specimens had been artistically arranged, supported by *Poinsettias*, *Euphorbia pulcherrima*, and *Gesnera cardinalis* where bright colour was at all deficient. Beyond was a *coup d'œil* for further investigation; indeed, such a staging of Orchids as is seldom seen. *Cypripedium Boxalli*, a fine form; *C. Argus*, not only having handsome flowers, but the double advantage of having beautifully marked leaves; *C. villosum* and *C. Lowi*, both fine specimens. *Odontoglossum pulchellum* and the majus variety, so sweetly scented; this is one of the few Orchids in which the lip is erect. *Lycaste Skinneri*, a fine variety, with reflexed sepals, the upper one quite backward, giving a quaint bold air to the plant; *Lælia harpophyllum*, of dazzling scarlet, too rarely seen and never surpassed. *Odontoglossum Roezli*, 5 inches across the upper sepals, which were deep purple half-way up, the lip being beautifully marked pale yellow and orange; a white variety not far off, and in comparison the further off the better; these amongst others were in the vestibule, whilst just within the next door came the sheet of bloom just alluded to. A spike of *Lælia superbiens*, bearing twelve blossoms, another of *Odontoglossum triumphans*, bearing fourteen, the pot containing this last being hung up against the light, thus giving richness and colour to its golden, chocolate-spotted flowers; behind it five blossoms of *Vanda Cathcarti*, in the rear of this again a noble specimen of *V. tricolor*, whilst in front came *Phalænopsis Schilleriana*, *Dendrobium Wardianum*, *Lycaste Skinneri*, *Trichopilia suavis*, and *Calanthe vestita*, intermixed with large pots of *Adiantum amabile* and *A. tenerum*. The *Stanhopeas* when in bloom must be a great treat, as I counted fifty baskets of them hanging consecutively. Altogether, for Orchids, few public collections can approach that at Glasnevin.

Horsforth, near Leeds.

R. A. H. G.

Graft influences.—Some dispute this influence; lately, however, my friend, Alphonse Karr, has cited an example—that of Hybrid Perpetual Roses flowering better when grafted on the common China Rose than on the Brier. In my opinion that influence is general, although not always perceptible. Let those who entertain doubts make an experiment. Let them plant two wild Briers, like those used for standard Roses, near one another; graft one of them with a Tea Rose, a delicate one, and let the other grow at random, and after three or four years it will be found that the grafted one has scarcely grown thicker than it was at first, while the other has nearly doubled in circumference. Who does not know that Pears are grafted on the Quince in order to obtain pyramidal forms, check vigorous growth, and in consequence promote earlier fruiting? Let those not acquainted with the practice graft the same variety of Pear on a Quince and on a seedling Pear of the same age, and they will soon perceive that the latter is by far the more vigorous. In the severe winter of 1870 I had the mortification to find that all the Pear trees in my garden grafted on the Quince were killed, while those on Pear stocks resisted the frost. Why do Tea Roses, especially the more delicate varieties, acquire more

vigour when grafted on the seedling Brier than on their own roots?—JEAN SISLEY, *Monplaisir, Lyons*.

TREES AND SHRUBS.

BLACK AUSTRIAN PINE.

THIS fine hardy tree, introduced into Britain about the year 1835, has proved to be a great acquisition not only in an ornamental point of view, but also as a first-class timber tree. On the calcareous mountains of Lower Austria it attains an average height when at maturity of about 100 feet. There is no other species of conifer with which I am acquainted capable of accommodating itself to a greater variety of soils and situations than this Pine; in fact, I have planted it in Scotland with success in all positions from the seaboard up to some 1000 feet above that level, and in soil composed principally of poor gravel, resting upon both granite and limestone rock. In Armagh I have planted it extensively on deep peat bog, in which it thrives admirably, and if allowed plenty of room retains its side branches, and is invaluable for cover, shelter, and general utility. At Loughall, in the same county, it makes rapid progress on calcareous soil resting upon limestone; and in the vale of Avoca and Glenelly, in Wicklow, it is quite at home on poor inorganic fragments of clay slate containing but very little soil. It is admirably adapted for planting as a screen in out-of-the-way corners, and forming a background for trees and shrubs of different habits and shades of colours. It likewise makes a grand specimen tree when planted singly on a lawn, its finely-balanced conical top rendering it very effective; the large terminal buds of the side branches, too, get capped in spring with a white downy substance, which looks at a short distance off like burnished silver, contrasting strikingly with its beautiful, dark green glossy foliage. When the trunk is cut up for use, the timber is found to be of a close, firm texture, full of resin and very durable. In cases, however, in which the trees have been grown for ornament and their side branches retained, the timber is rather knotty and coarse, but when planted and reared up as forest trees for utility, and the thinning regulated in such a way that the side branches die and fall to the ground of their own accord, they acquire fine clean stems comparatively free from knots, quite workable, and useful for all ordinary purposes. Young trees used in the round state for fencing purposes last equally long as trees of the best Scotch and Irish Fir of the same age. Irish Fir is identical with the true Highland Pine (*Pinus sylvestris*); fine specimens of the latter are to be found in many parts of Ireland. I have propagated it from seed, as well as the true Highland Pine in the natural forests of Braemar, and likewise cut up the trunks of both trees extensively for constructive purposes, and have not the least doubt that the two are identical.

Propagation.—The Austrian Pine is propagated from seed, which should be sown in April on well pulverised soil, formed into beds about 4 feet wide. Should the soil be of a stiff character, I have found a dressing of lime to be beneficial; it renders the soil more friable, and infuses activity into its dormant constituents, thus rendering it not only workable, but also capable of supporting and nourishing the young plants. Sow evenly over the surface, but not too thickly, as the plants under such circumstances get drawn up, weakly from want of proper space in which to develop their side branches. When they attain a height of from 4 inches to 6 inches, they should be planted out in nursery lines at a distance of about 8 inches apart and about 14 inches asunder between the lines, thus affording room for weeding and keeping the ground in proper order. Care should be taken to spread the roots properly out, an operation on which much depends. The ground which I use for these nursery plantations is in an exposed locality at the base of a hill, and consists of three kinds of soil, viz., good strong loam, light sandy soil, and light peaty ground. It is protected from the inroads of cattle by a common wire fence con-

structed in the usual way, with a web of wire netting about 30 inches high stretched along the surface and fastened to posts; this prevents hares and rabbits from getting within the enclosure. Thus the young trees have no shelter whatever, and being inured to the blast from infancy they receive no check as regards growth when planted out on exposed situations. On properties where

Extensive planting is contemplated it is a good plan to form a nursery for young plants as near the ground to be planted as possible. I have sometimes had four such nurseries at different places on the same estate, and have found them to be useful in every sense of the word. In selecting and enclosing ground for such nurseries preference should always be given to such as contain different kinds of soil, in order that the different species of young trees can be planted on the description of soil most suitable for their development. J. B. WEBSTER.

TRANSPLANTING EVERGREENS.

THERE are those who aver that autumn is the proper time for transplanting evergreens, and they sometimes do very well at that season if moved early, but much depends on the winter following, which, if severe, sadly cuts them up, and no wonder, for with roots disturbed and their vitality at a low ebb the sap is dried out of them, and they become withered sticks and cease to exist. If they can be planted in September so as to get fresh hold of the ground they may weather through, but if moved much later they stand a poor chance, as though the winter may be mild, like the past has been, there is March to contend with, with its searching east winds and keen blasts, is often the worst of the whole. This fact has been brought forcibly home to us this year, and those who have deferred their transplanting will have reason to congratulate themselves on the escape of their plants. The time I like to commence the work is the first week in April, and the things to start on are those that begin to grow first, as the great point is to catch them before their buds burst and they get young shoots, which in their thin, tender state are sure to suffer. Box, *Rhododendrons*, *Aucubas*, and others of that class that lift with large balls may safely be left till the last, and the more important, such as conifers, taken first. To ensure success with these, wide trenches should be opened around them at varying distances from the stems according to the size and age of the plants to be operated on. For a tree 10 feet to 12 feet high the trench should be at least a yard off, into which trench the earth can easily be forked from amongst the roots when their points are all clear. After tracing them back in this way, and working well under them, the plant may be lifted bodily by placing a lever beneath the ball and put on to a low "rulle," and thus dragged to the positions required. In doing all this great care should be exercised not to bruise or injure the roots, and it is equally important that they do not become dried. To prevent this it is necessary to have them covered during transit with wet mats, and to have the holes all in readiness for putting them in. These should be dug much larger than the roots are likely to extend, and the bottom also broken deeply up, the object being to give the plants every chance to work freely in the soil, which they would not be able to do were the earth undisturbed, and the progress of the trees under such adverse circumstances must therefore be slow. When placing them in the holes, the chief point is to see that the roots are properly spread out with the points leading down, and that the collars of the plants are on the same level with the ground as before, for to bury them deeper is very injurious, and when done, ends in throwing trees out of health. Another thing that is very apt to do this is leaving cavities among the roots by not filling in the spaces, and the only way to do this thoroughly is to wash the soil there, which may be done effectually by throwing a quantity of water quickly and with some force into the holes, when at the same time the plants should be gently

swayed to and fro, and then left still and quiet for it to settle and subside, after which the final filling up may take place. With this complete, the next thing is to

Mulch around the plants by giving a good thick coating of litter or long manure, which will prevent the earth cracking and the moisture escaping, and thus favour the formation of young roots. To keep the trees perfectly steady, which is a very important matter, they should be securely staked and tied, and if of large size it will be necessary to have three poles for each placed triangularly with the large ends on the ground and then brought in a rapidly slanting direction together at top, so as to take the stems about three parts of the way up, and if made fast there, the plant will stand perfectly rigid and quite undisturbed by the strongest of winds. Where neatness is an object, as it always is on lawns in sight of windows, galvanised wire may be used in lieu of poles, as by running it to stout pegs driven well into the earth, the plants may be supported equally well, but a collar of some kind should be used round the stem to prevent injury to the bark from chafing by the friction it gets. If the weather should set in dry later on after moving the plants, it will be a great help to them to wet them well over-head late in the evening by a jet of water from the garden engine, which will do much towards keeping the rind plump and the leaves fresh till the roots start, and this, when so favoured, they very soon do. With small shrubs there is no trouble or difficulty, as all that is requisite in their case is to lift with as good balls as possibly can be got, and in planting to make the soil firm around. For Rhododendrons it cannot well be too solid, and it is a good plan with these to ram it, as, owing to the hair-like nature of their roots, they cannot get hold of loose earth, and water when it is in that condition drains much too quickly through and leaves the plants famishing for want of that which they almost entirely live on. S. D.

Pernettyas.—The branch I sent you, cut from a bush in the garden here, will, I think, supplement your advice to grow this very pretty berried shrub as extensively as possible. It has been in about its present condition since last October, and neither frost, hail, snow, nor wind seem to have any effect on it, and we have plenty of all sorts here. I wish to endorse what "Rho" (p. 222) says about specifying locality when correspondents are writing as to hardiness and culture of plants. Their observations are often useless for want of this addition. In reply to your request I may say that the Pernettyas alluded to in THE GARDEN (p. 280) grow in a good sandy, well-drained loam—no peat. It suits them, for suckers come up all over the ground about the old plants. Of course, all are not so furnished with berries as the plant from which I cut the branch I sent you.—A. RAWSON, *Windermere*.

A curious Fir tree.—M. Louis Pire, President of the Royal Botanical Society of Belgium, has found a Fir tree in the forest of Alliaz, Canton of Vaud, which he believes to be older than the Linden of Fribourg, and considers entitled to be regarded as the oldest and most remarkable tree in the canton, if not in the whole confederation. It is growing near the baths of Alliaz, at a height of about 4500 feet above the sea, surrounded by a forest of Firs, which it over-tops by more than 30 feet. The trunk of this tree is a little more than 30 feet in circumference at the base. At about 1 yard from the ground it puts out, on the south side, seven offshoots, which have grown into trunks as strong and vigorous as those of the other trees in the forest. Bent and gnarled at the bottom, these side-trunks soon straighten themselves up and rise perpendicularly and parallel to the main stem. This feature is not, perhaps, wholly unparalleled, but another most curious fact is that the two largest of the side-trunks are connected with the principal stem by sub-quadrangular braces resembling girders. These beams

have probably been formed by an anastomosing of branches, which, common enough among angiosperms, is extremely rare among conifers; but it has been impossible to ascertain the manner in which the ingrowing of one branch into the other has been effected. The adaptation by which a limb, originally destined to grow free and bear foliage, has been converted into a living stick of timber is a strange one, and affords a new illustration of the power of Nature to fit itself to circumstances. The space between the rough flooring formed by the growing together of the offshoots at their point of departure and the girder-limbs is large enough to admit of building a comfortable hermit's hut within it.

Cost of Osier planting.—In THE GARDEN for March 17 (p. 242) is an article by Mr. J. Smith on Osiers and Osier beds. I have here about an acre of Osiers planted one year ago on a clay soil for the digging of which deep I paid 10d. per pole. The sets, about 18 inches long, were all planted by a master basket-maker and his men, and the cost of planting was about £3 15s.; the sets, 33,000, cost 12s. per thousand, and the whole cost amounted to rather over £30, a result widely different from that of Mr. Smith, who sets the cost of planting an acre at about £12. We are offered for Osiers by the basket makers here 1s. 1d. per bundle, and each bundle must be 3 feet 2 inches round at one foot from the butt. Mr. Smith says the produce the second year should be eighty bolts to an acre. Each bolt should be 18 inches round at 14 inches from the butt. Now, 18 inches round is about 6 inches through, and surely there must be more than eighty bolts of that size to an acre. Knowing but little about Osiers myself, some of your correspondents may perhaps be good enough to enlighten me upon the matter and tell me where I can get 5s. per bolt for the Osiers, as stated by Mr. Smith.—R. G., *Monmouth*.

Eurya latifolia variegata.—This pretty variegated evergreen shrub seems better able to resist the winter than is generally supposed. I recently saw some fine bushes of it which had experienced a dozen degrees of frost without the least injury, not so much as the very youngest leaves being in any way discoloured. This amount of frost would, of course, be no criterion as to its ability to stand a severe winter, yet in sheltered spots it might withstand one. This Eurya makes a very pretty shrub for conservatory decoration, as its leaf variegation is always bright and cheerful. In texture the leaves are somewhat like those of a Camellia, but more elongated, of a bright shining green, extensively marked with creamy white, and in the young state beautifully flushed with pink when exposed to light and sunshine. It is seldom met with in private gardens, yet it is sometimes grown as a market plant, so that, in all probability, it will after a time become more plentiful. This Eurya does not strike very readily from cuttings—that is to say, they often remain some time before roots are formed. It succeeds best when cuttings of the young shoots, just as they commence to become a woody texture, are used, and put in close cases on a gentle heat.—ALPHA.

SHORT NOTES.—TREES AND SHRUBS.

Garrya elliptica.—"Veronica" can procure young plants of this for about 5s. each from Mr. T. Smith, Messrs. Rodger, McClelland's, Warren's Point Road Nursery, Newry, Co. Down, Ireland.

Town trees.—Twenty trees have been planted, stretching from Mile-end Gate to Stepney Road, by the Metropolitan Playground and Public Garden Association, at a cost of little over £40, and presented for the public use, the Mile-end Vestry undertaking to keep them in order.

Red-berried Mistletoe.—The fruits of *Viscum cruciatum* (Lieb.) are perfectly red (baccis globosis rubellis teste; Boissier "Flora Orientalis," iv., 1068). I have gathered it most abundantly on the Olive trees of the Mosque Shefa-Omar in Jerusalem, April, 1880. Webb has given to M. Boissier one sample gathered at Gaucia, Southern Spain. Its only other localities are Jerusalem and Naplouse.—WM. BARBEY, *Valleyres, Vaud, Switzerland*.

Pruning Rhododendrons (*Lockhart*).—As part of your Rhododendrons are in flower just now, and others will be coming in in succession during the next three months, your best plan will be to prune each plant as soon as it has done flowering, cutting back all rambling straggling branches, so as to bring the bushes into proper shape. In this way the work will be done gradually, and by the time it is finished, say three months hence, the plants first pruned ought to be well furnished with healthy young wood and foliage. Thus the bed will never have had during the operation too naked and bare an appearance. Examine the plants in order to ascertain whether they are growing upon their own roots, or grafted upon the common *R. ponticum*; if the latter, they will be apt to produce a succession of young shoots from the roots below the graft; these ought to be pinched off, not cut, otherwise they will rob the plants.—J. B. WEBSTER.

GARDEN FLORA.

PLATE CCCLXXXII. DENDROBIUM BIGIBBUM.*

THIS Dendrobe, so gracefully represented in the accompanying plate, is in its way a "professional beauty of the most dainty kind"; but, alas, neither its grace of inflorescence nor its charm of colouring has saved it from harsh criticism. It has been stated to be "an Orchid very troublesome to grow; and when one has succeeded in blooming it a few blossoms have been gained about as beautiful as those of a Sweet Pea"—not an encouraging statement; but the fact that the plant is really difficult to establish in a satisfactory way will undoubtedly recommend it to the notice of all who excel in Orchid culture. The desire to succeed with species and genera notably "hard to grow" has ever been characteristic of all good cultivators, whether of Tulips, of Auriculas, of Heaths, of Ferns, of alpine plants, of fruits, or of vegetables; and in the case of Orchids this chivalrous spirit is perhaps more evident in our own time than ever it has been before. So the graceful little Orchid in question from the warm shores of South-eastern Australia is sure to secure both attention and admiration. The annexed illustration is so nearly photographic in its accuracy as to pose and form, and so much more than photographic in the all-important matter of colouring, that there is but little need to describe either its form or size or rosy tincture. I write this having before me a photograph taken from a healthy specimen of *D. bigibbum* some ten or fifteen years ago, at a time when healthy plants—very tiny ones they were mostly, I remember—were worth from five to twenty guineas each, or say just as many sovereigns then as shillings in this our import-everything-in-quantity epoch. This photograph represents a vigorous plant which grew in a Teak wood basket, suspended in the full sunshine in one of the old tan bed Pine stoves in the then Fairfield Nurseries at Manchester. It was at the time, about 1871 or 1872—I forget the exact year—considered a very remarkable specimen, its leading growth bearing a flexuose spike of eleven blossoms and buds. It was purchased by Dr. Ainsworth, of Lower Broughton, whose love for Orchids has

* Drawn from a plant in Mr. Peacock's collection at Sudbury House, Hammersmith.

Growers or introducers of new plants will oblige us much by early intimation of the flowering of new or rare species, with a view to their representation in our "Garden Flora," the aim of which is the illustration in colour, and in all cases where possible life size, of distinct plants of high value for our gardens.



outlived that of many other amateurs whom one could name. I am not quite sure, but I think the price was fifteen guineas; and yet the plant had only three pseudo-bulbs, the best about 13 inches in height, bearing seven good healthy leaves. An imported plant of it to-day of equal proportions would be dear at fifteen shillings. Seeing how quickly and surely imported plants take leave of us soon after flowering, sometimes before that little ceremony takes place, it would be interesting to know if this specimen is yet in the Cliffe Point House collection. Perhaps Dr. Ainsworth or Mr. Mitchell will satisfy our curiosity some day on this point. More recently Messrs. Veitch and Sons succeeded in importing a form with larger and more showy blossoms, albeit similar in colouring to those of the type represented in the annexed plate. To this the varietal name of "superbum" was most appropriately given, and a fair figure of it appeared in the *Floral Magazine*, t. 229 (third series). It also was honoured (the plant, I mean) by a first-class certificate by the floral committee of the Royal Horticultural Society on August 16, 1876, as being distinct and more showy than the Lindleyan type, which had been introduced ever since 1855, when it first bloomed in the then famous collection of the Lodiges at Hackney. The first living specimen which came to this country was sent by Dr. Thompson, who is said to have discovered it on Mount Adolphus, Torres Straits, on the north-east coast of New Holland, where it grows in company with D. Hilli, D. Johannis, and D. Tattonianum, together forming an interesting group, all requiring warm, light treatment. D. Hilli may, perhaps, best be considered as a long, thin-bulbed variety of the "Rock Lily" of Sydney (D. speciosum). In November, 1878, Mr. B. S. Williams, of Holloway, was fortunate enough to obtain a form in an importation received from North-east Australia with white blossoms delicately flushed with lilac-purple or pale violet—altogether a most beautiful rarity. The sitting for a portrait is not quite a novelty as regards this species, seeing that a good likeness appears in "Flore des Serres," t. 1143; then in Warner's "Select Orchidaceous Plants," t. 28, Mr. Fitch illustrates a remarkably pretty phase of its beauty from a plant then in the late Mr. Rucker's collection at Wandsworth. Then comes another picture in the *Botanical Magazine*, t. 4898, and the same plate again appears in Bateman's "Second Century of Orchids," t. 169, and finally the plate now before us. As to

Culture, I am not entitled by experience to speak, but I trust that some Orchid grower, whose efforts on its behalf have been successful, will oblige us with his experience in this matter. All the records I can find agree that a high temperature and plenty of light and sunshine are necessary to its welfare, and further that if the pseudo-bulbs are allowed to shrivel from want of water, even when at rest, it is difficult to bring back the plants which have so suffered to their original health and vigour. It is interesting to note, however, that the more robust D. Hilli, from the same habitat, is by no means fastidious or hard to please, growing, as it does, in any moderately warm plant stove, and, as a rule, blooming freely; it is also more showy than its congener, D. speciosum, which we have seen blooming quite freely in a sunny greenhouse. If we could but find out how best to grow D. bigibbum strongly, so as to bloom it regularly, it would soon rise in value and become one of the most highly prized and ornate of all

the many species of the group to which it belongs.

F. W. E.

ORCHIDS.

NOTES ON ORCHIDS IN FLOWER.

THE following are some of the most noteworthy Orchids in bloom in Mr. B. S. Williams' nursery, Upper Holloway, where there is now a gay display. Amongst Dendrobies the greatest novelty is

Dendrobium luteolum chlorocentrum, a variety recently named by Prof. Reichenbach. It may be at once distinguished from the type by its larger flowers (2 inches across), the segments of which are broader, particularly the labellum, which is strongly coloured with a deep primrose-yellow. The other part of the flower is a soft creamy white. It has, moreover, a sweet perfume. Like the original, it possesses the desirable character of producing its flowers on the young growth, the foliage on which gives quite a charm to the delicate colouring of the blossoms. The old form is really a pretty plant, but this variety is superior. Both may be seen in bloom in this nursery at the present time. That pretty, yet still uncommon species, D. Findleyanum, which we have praised so much of late, is thought much of here, and it may be seen in perfection. Its large mauve-tinted blossoms and ample yellow-stained lips make it conspicuous even among the gayest of its compeers. The fine old D. Dalhousianum was producing its large drooping racemes of splendid blossoms creamy-yellow and blotched with crimson. This, together with the golden clusters of D. fimbriatum, densiflorum, thyrsiflorum, and the long wreaths of such kinds as D. Wardianum, crassinode, nobile, Freemanni contributed largely to the display. Besides these one of the greatest beauties was

D. primulinum giganteum, which is unquestionably the finest of the group to which it belongs. The flowers are fully twice the size of those of the type, being over 3 inches, and with a labellum fully 1½ inches across. The colour of the sepals and petals is a carmine-magenta as near as it can be described. The ample lip is shell-like and of a delicate creamy white inclined to primrose. The whole flower sparkles with crystalline brightness, which makes it so lovely, and the delicious perfume adds to its charm. It is so seldom that we meet with this variety, that we infer it must be rare, though some good forms of the type pass under the name of giganteum. It is a gem of the first water, and it should be the aim of the Orchid lover to have it in his collection.

Calanthe Veitchi, even so late in the season, lit up the East Indian house with some very fine spikes of flowers, the colour of which is far more brilliant than that of the flowers produced in mid-winter, a circumstance, no doubt, attributable to the clearer atmosphere and solar heat. In order to obtain this late bloom the plan here is to keep the plants as cool as possible, so as to retard their growth. It is a great gain to have a crop of bloom of this Orchid to intermingle with others at this season, for it is so unlike any other in colour. The naturally later-flowering Calanthes were in full beauty also, particularly C. Turneri and vestita nivalis, a variety with spotless white blossoms, and one that is still a comparative rarity.

The Odontoglossums, as may be imagined, are in the height of their flowering season, and a houseful of them, as here, is indeed a beautiful sight, the greatest beauty being obtained from the long, gracefully arching spikes of O. Pescatorei and crispum (Alexandrae), which latter is represented by some of the very finest forms, characterised by large, symmetrically shaped flowers, with broad, crisped-edged, overlapping sepals and petals—in short, what are called first-rate varieties. Among other kinds in beauty are O. Halli leucoglossum, remarkable for the labellum of the flower, being white instead of yellow. Of the typical Halli there is a specimen carrying a spike of fourteen expanded flowers, a beautiful specimen, which fully showed the beauty of the species. O.

radiatum, one of the luteo-purpureum group and a rarity, is a handsome Orchid. It has flowers 3 inches across, borne on erect spikes. The colour is a citron-yellow, heavily blotched with chocolate-brown. It is among the finest of its race. The rarely-met-with O. cristatum, in the way of O. Lindleyanum, but with much darker flowers, is in bloom, as are also O. Andersonianum, a fine variety; O. cariniferum, a handsome, but not often seen species; and the beautiful O. nebulosum, of which there is a grand specimen bearing half a dozen flowers on one spike. Amidst a group of O. Rossi majus we were much struck with a variety called roseum, which had the segment and lip of the flower suffused with a beautiful rose, as in the variety rubellum.

Ada aurantiaca, also in the Odontoglossum house, is worthy of note, the specimens of it being fine. On one of these we counted no fewer than twenty spikes, each of which bore a crowded cluster of bright orange-red blooms, a colour rarely met with among Orchids. It is an extremely showy Orchid, elegant in growth and very easy to grow well in a cool house, as it is so floriferous; it is, moreover, a capital subject for cutting from, and the cut spikes last for weeks in good condition in water. A few plants of it grown in an Odontoglossum house light it up brightly, and bring out more prominently the quieter tints of the Odontoglossums. Another Orchid, with flowers of much the same colour, is Lælia harpophylla, and here there are some uncommonly well flowered specimens. The glowing vermilion hue of the flowers of the best of the varieties is exceedingly attractive and very telling in an Orchid house. There is a wide difference between the best and the worst forms of this Lælia; in the poorest the colour is a washy orange. Mr. Williams grows it admirably with the Cattleyas.

Other Orchids in flower included the still rare Epidendrum Wallisi, noted in these columns last week. E. evectum, Cymbidium eburneum, Colax jugosus, Pleione humilis and its variety tricolor, both pretty plants, the first with large lilac flowers, the other with its labellum stained with yellow. Cypripedium Harrisonianum superbum is the best variety we have met with of this handsome Lady's Slipper, the flowers being larger and the colour richer than the type. C. Lowi, Haynaldianum, Argus, Warneri, and biflorum are also in flower. Galeandra Devoniana, a rare and handsome species, has just begun its flowering season; also Zygopetalum Clayi, the new hybrid variety sent out recently by Mr. Williams. It is a most persistent flowerer, spikes of large flowers with bright violet lips being produced plentifully for several months in succession. Among the Vandas which form such a grand feature in the Orchid collection here there were several in bloom, and notably V. tricolor Patersoni, the splendid variety which was the subject of a coloured plate in THE GARDEN a short time since. It is one of the finest among the numerous forms of this species. In the Masdevallia house, already bright with flowers of M. ignea, Lindenii, Harryana, Veitchiana, there is the grotesque-looking M. trochilus (the Humming Bird Orchid) in flower, the blooms of which are fully 8 inches across. In contrast to this are such pigmy species as M. Estradei, and Wageneri, which have an interest to those who love flowers for their own sake, and not for their gay colours. W. G.

Sale of established Orchids.—On the 21st inst., the collection of Orchids belonging to Mr. J. Batten, Highfield, Bickley, Kent, was disposed of at Stevens'. There were 262 lots, the number of plants in each varying from one to six. The plants being on the whole well grown and in excellent health fetched good prices. The following are some of the highest which they realised, viz., Cattleya exoniensis, a fine healthy plant, with twelve bulbs and nine leaves, £78 15s.; C. Mendeli, a fine variety with fourteen bulbs, £19 8s. 6d.; another with twenty-three bulbs, £13 18s.; C. labiata, true autumn flowering variety with seven bulbs, £13 18s.; Vanda cerulea, with twenty-three leaves, good variety, £10; Cymbidium eburneum, a fine specimen, twenty-two

growths and fourteen flower-spikes, £10; *C. Lowianum*, fine variety, £9 9s.; *Lælia purpurata*, £7 7s.; *Cattleya aurea*, £7; *Angraecum sesquipedale*, with twenty leaves, £8 18s.; *Dendrobium thyrsiflorum*, £5 15s. 6d.; *Cypripedium hirsutissimum*, fine plant, in 10-inch pot, £6 6s.; *C. caudatum*, specimen plant, with twenty-four growths, £11; *Cattleya maxima*, £5; *C. Mossiae*, nineteen bulbs, £4 10s.; and *Vanda Cathcarti*, with thirty-three leaves, £4.

Cœlogyne cristata Lemoniana.—The finest form of this lovely Orchid that has come under our notice is now in flower in the Kew collection. Its flowers are quite as large as those of what is known as the Chatsworth variety of the typical *C. cristata*, and like that kind it seems to flower later than the ordinary form of *Lemoniana*. There are few lovelier Orchids than this primrose-crested *Cœlogyne*, and when represented so finely as it is just now at Kew it is hard to say which is the most beautiful—it or the pure white (*alba* or *hololeuca*).

ORCHIDS IN AMERICA.

THE following are in flower at Kenwood, near Albany, the residence of the Hon. Erastus Corning, viz., *Phaius irrorata*, a scarce hybrid, the result of a cross between *Phaius grandifolius* and *Calanthe vestita*. In habit it resembles the former; the flowers, which are produced on a pubescent upright spike, are $3\frac{1}{2}$ inches across, sepals and petals cream coloured suffused with pink, lip roundish white, throat stained with yellow. Of *Phalenopsis Veitchii* two specimens are in flower; though scarce, this is not a striking variety; the leaves resemble those of *Schilleriana*; the flower measures about 2 inches across; sepals and petals roundish, same colour as those of *Schilleriana*; lip tapering as in *P. rosea*, but notched at the tip, and of a bright rose; probably a cross between *P. rosea* and *P. Schilleriana*. *P. delicata* is a new species with dark green leaves; flower same size as that of the preceding; sepals and petals white, the latter shaded with amethyst at the base; lip same shape and colour as that of the majority of *P. rosea*, of which this seems only to be a giant form. Of *P. intermedia Portei*, three specimens are in flower; it is a very pretty kind, supposed to be a hybrid between *P. rosea* and *P. amabilis*, and is about intermediate between these species. Good examples are in flower of *P. casta* and *leucorrhoda*, natural hybrids between *P. amabilis* and *P. Schilleriana* and *vice versa*. The magnificent new *Phalenopsis*, *P. Stuartiana*, of which we have some 30 plants, is now in full bloom, and when its long branching spikes are seen intermingled with those of older species it is extremely difficult to determine what rank it should hold in this lovely genus; the variety *nobilis* is greatly superior to the type, but the variety *punctatissima* scarcely deserves a distinctive name. The flowers of *P. Corningi* are conspicuous, being the only ones of that type open at present, though those of *P. sumatrana*, *violacea*, and *Ludemanniana* are developing rapidly. The flowers of two other species are anxiously looked for, viz., *P. Mariæ* and *P. fasciata*. In addition to the species just named our *Phalenopsis* house contains over 400 spikes of *P. Schilleriana* and *P. amabilis*. *Dendrobium endocharix*, the result of a cross between *D. heterocarpum* and *japonicum*, besides being fragrant and very pretty, has the additional good property of lasting very long in bloom. The plant in question has been in flower over two months, one night of which was spent on a dinner table in a gas-lighted room, and it is still comparatively fresh. Of *Dendrobium suavisimum* we have several large plants each bearing from eight to thirteen spikes of flower; this species is apparently the better for a very long rest. Several plants of the free-flowering *Aerides Lceanum* are in bloom; though of recent introduction it is identical with a plant that has been here some years under the name of *A. Thibautiana*. A small plant of *Cypripedium barbatum nigrum* has nineteen spikes of flower on it, eleven spikes being twin-flowered, a mode of flowering by no means constant even in the case of this plant, as last year all the spikes

were single flowered, and the year before only some five or six spikes produced twin flowers. We have also *Schomburgkia* in flower a good deal in the way of *S. crispata*, but the sepals and petals are of a bright orange, and the lip and column pure white—a very showy species. It was imported by Mr. Corning from the Rio Janeiro. *Lælia Pilcheri* and its white variety, the result of a cross between *Lælia Perrini* and *Cattleya crispata*, are both in lovely condition. *Cœlogyne ocellata*, also in bloom, is a very pretty free-flowering useful Orchid, and one which lasts long in perfection. Cool house treatment suits it best. Two plants of *Dendrobium Pierardi* are finely in flower; they have bulbs from 4 feet 10 inches to 6 feet 3 inches in length, each carrying from 60 to 110 blooms. This species, when growing, requires abundance of heat, and it flowers best when rested in a temperature of not less than 60°. Other noteworthy species from among a collection of over one hundred kinds in bloom are *Lælia harpophylla*, a kind with bright orange-red flowers; some fifty plants of *Cattleya citrina*, *Cypripedium Domini*, *C. Lowi*, *vernixium*, *nitens*, *albo-purpureum*, *calurum*; some scores of *Dendrobium Wardianum* and *crassinode*; a few *D. primulinum giganteum*, the remarkably curious *Cirrhopetalum picturatum*, and an immense plant of *Vanda gigantea* with two spikes and twenty-seven flowers. On plants of *Odontoglossum Alexandræ* there are some hundred or so spikes at present open. *Oncidium bicallosum* and *O. obryzatum*, two very showy yellow-flowered species, and that extremely handsome variety of *Cymbidium giganteum*, called *Lowianum*, are all in good condition.

F. GOLDRING.

Odontoglossum sceptrum.—A plant of the true form of this Orchid that has just flowered in the New Plant and Bulb Company's nursery at Colchester shows it to be a very handsome species. It belongs to the *O. luteo-purpureum* class, but is quite distinct from any other of the group. The flowers, borne on an erect spike, are $2\frac{1}{2}$ inches across; the sepals are chestnut brown, barred and tipped with golden yellow; the petals, nearly an inch broad, are deeply jagged at the margins, and are yellow blotched with chocolate-brown. The lower part of the lip is, as it were, goffered, and being canary-yellow and brown makes it highly attractive. The plant in question bore a dozen flowers on one spike. It appears to be a very scarce plant as yet.

Longevity of Odontoglossums (p. 246).—It may interest "Peregrine" if I direct his attention to one of the original plants of *O. vexillarium* which is still in existence. The plant in question formed part of one of the first importations of this species made to this country, and was purchased by Mr. Michel, of Highgate, who kept it until his collection was dispersed; the plant then fell into the hands of Mr. Bull, of Chelsea, and in 1878 it was sold for sixty-five guineas to its present owner, and, strange to say, again came under the care of the man who grew it at Highgate. The plant was in perfect health when received from Mr. Bull. It produced seven spikes of bloom early in May, and from that date it has continued to improve. It now occupies a very large pot and has some five or six "leads." Curiously enough, it flowers a fortnight earlier than any of the others amongst which it is grown, and it looks as if another nine years would find it as healthy as it is at present.—B. ROOTS.

SHORT NOTES.—ORCHIDS.

Dendrobium Wardianum (*J. Almond*).—A very fine variety, both as regards size and depth of colour on the sepals and petals.

Abnormal growth of Dendrobium (*C. W.*).—The young shoot which you send of *D. nobile* with a flower produced from its side is quite an abnormal production, and if removed the young growth will be injured thereby. Normally the flowers of this *Dendrobe* are borne on the preceding season's growth.

Cocoa fibre for Orchids.—I fear that but little good will come of the attempt to grow Orchids in this. Shortly after Cocoa fibre was brought into notice by the late Mr. Donald Beaton it was tried rather largely in several London nurseries, notably, I think, at the Messrs. Rollisson's Tooting. At first it was thought that the plants would do well in it, but the roots eventually either did not move properly or decayed. I am no great friend of Cocoa fibre for potting purposes. There is no nourishment in it; at any rate plants potted in it in a pure state merely linger on. I fancy that, unlike Moss, it is naturally very cold indeed. I have been told that unless specially heated it is always several degrees colder than the house.—J. CORNHILL.

Odontoglossum Wilckeanum.—The finest form of this handsome hybrid we have seen is in Messrs. Shuttleworth & Carder's nursery, Park Road, Clapham. It may be best described as being about midway between a fine variety of *O. crispum* and *O. luteo-purpureum*. The flowers are $3\frac{1}{2}$ inches across; the petals, about three-quarters of an inch broad, are distinctly toothed at the edges, and with the rather narrower sepals are of a pale citron yellow heavily marked with irregular blotches of chestnut brown. The broad labellum has a fine frilling at the extremity, which is pale yellow, while in the centre of the lip is a large blotch of rich brown; altogether it is a most distinct and very handsome Orchid, and the plant in question, which bore ten flowers on one spike, showed the variety to perfection. In growth it resembles *O. crispum*. There appears to be several forms of this Orchid in collections, for only last week we saw two dark kinds and a very light tinted one called *pallens*, but the one we have just alluded to appears to be nearest that originally described. Another handsome hybrid Orchid in flower in this nursery was one called *O. mulus*. It is allied to *O. luteo-purpureum*, which it resembles in habit of growth and flower-spike. In size and form of flower, too, it resembles it, but is different in colour, which is a rich yellow heavily blotched with rich chestnut brown, so much so that the flowers look wholly of the latter colour at a distance. The frilled lip is yellow blotched with brown.

Orchids in flower at the College Gardens, Dublin.—Besides the lovely little plant *Angraecum citratum*, especially alluded to a few weeks since, there are two or more—says the *Irish Farmer's Gazette*—of the larger species in flower—stately plants, no doubt, but to our mind, as regards real beauty and interest, nowhere in comparison with that little gem of the genus. A meet companion of it is a pretty and rather rare variety of *Pleione humilis*, with pale, rosy lilac flowers, the lip suffused with yellow, blotched with pale cinnamon, the edge deeply and prettily fringed. *Dendrobes* are represented by the old and favourite *D. nobile*, the elegant *D. Devonianum*, the beautiful *D. Wardianum*, and the little less lovely *D. lituiflorum* var. *Freemani*. *Cattleyas* are represented by *C. Trianae* and the white-flowered *C. Warscewiczii*; *Odontoglossums* by *O. Insleayi* and others; and *Oncids* by the pretty purple sweet-scented *Oncidium cuculatum*; *Indian Moth* plants by some charming little specimens of *Phalenopsis Schilleriana* and *P. grandiflora*, growing in miniature shallow pans not more than 2 inches or so in breadth and 1 inch in depth. These tiny plants, suspended from the roof, are particularly pleasing and interesting, and show off their lovely flowers to great advantage. *Dendrochilums* are particularly neat and attractive little Orchids, and *D. glumaceum*, now in flower, is not only pleasing in its aspect, but agreeably fragrant. A small specimen of the beautiful *Lælia harpophylla*, with its rich cinnabar flowers, adds a pleasing variety, its colour being flaunted by only one or two others of the tribe—at least of those in cultivation.

Plants by rail.—My experience of the new parcel rates which were put forth by the railway companies as a materially reduced tariff is that I have much more to pay for a hamper of plants than

heretofore. A small hamper from Ilford, containing only six Auriculas in 4-inch pots, cost me 3s. 2d.; one from Aberdeen, quite small, cost 3s. 6d., and so forth. It is a mistake to send plants in boxes, and in most instances they will come quite as well without the pots, and with all the soil shaken off except a ball round the roots. Carriage is now charged by weight, and light packages wrapped in matting come cheaply enough, whereas a box containing plants in pots with heavy moss to prevent breakage costs thrice the amount.—BROCKHURST.

SEASONABLE WORK.

FLOWERS AND PLANTS IN THE HOUSE.

WILD Daffodils and their garden relatives are now some of our most valuable plants for indoor decoration. About a hundred flowers of the common single garden kind (*N. Pseudo-Narcissus*) placed in a large china bowl with leaves here and there have a fine appearance. They stand upright in bold masses, supported by Moss below the water; the heads stand at various heights, the stalks being of different lengths, and all touching the bottom. Such a mass of delicate yellow is cheerful in a living room. A bold group of the great Golden Daffodil (*N. maximus*) in an upright jar of dark blue porcelain also looks well; they are cut their full length of 22 inches. In a broad, shallow bowl are profusely flowered sprays of scarlet Japan Quince and Almond blossom; it stands high, and is well seen against an ebony cabinet. Another china bowl, large and deep, is filled with an important mass of blood-red Wallflowers; they are at their best when only the lower flowers are expanded, leaving a good space of the brown-purple buds in the centre—the whole year gives us few such feasts of rich colour as this bowl of Wallflowers. From the greenhouse there are Tea Roses Madame Falcot and Souvenir d'un Ami. In an entrance hall stands a large white Indian Azalea, a mass of bloom about 3 feet through, not trained in the stiff pyramidal shape so commonly seen, but grown as a graceful and naturally shaped bush; it is accompanied by plants of *Aralia Sieboldi*.

FLOWER GARDEN.

General work.—In order to get all extraneous work out of hand, we are as rapidly as possible finishing up Laurel and hedge cutting, applying mulchings to recently moved trees and shrubs, and edging and regravelling roads and walks. These done, mowing and the general preservation of neatness will constitute the whole of what we term our "far-afeld" duties. Local ones consist in affording beds of spring flowers timely attention; Hyacinths must be tied, and the less hardy flowers protected from the sharp frosts that generally prevail at this time. Where any of the beds are vacant, summer bedding arrangements may be determined, and the edgings and ground-works of hardy plants got out. *Herniaria*, *Cerastium*, *Sedums*, *Saxifragas*, *Thymes*, *Violas*, *Pansies*, and small shrubs are a few of the kinds the planting of which we hope soon to finish. As used here in the formation of upright edgings, 4 inches high, *Herniaria glabra* makes the most perfect green fretwork wall that can be conceived, and naturally grows so dwarf and dense, that it requires no attention to keep it in form. As edgings of *Echeverias* and *Sempervivums* have become so common, and look so formal and artificial, and as for such purposes there are so many better plants, their use in this way should be discontinued, but as a ground-work for taller succulents they are in every way appropriate, and when so used and allowed to flower, which they do profusely, succulents may safely be classed among the most quaint, yet gay, of all summer bedders, and in all weathers effective.

Bedding plants.—*Alternantheras* are growing so freely that abundance of cuttings may now be had from them at any time, and the hotbed mode of propagation described in a former paper is by far the best way to strike them, the frames

being moved or thrown quite open as soon as the plants have become well established. *Coleuses* and *Iresines* may still be struck, and those cramped in cutting pots may be potted off. These are both so long in starting when first planted out that, with a view to immediate effect, the aim should be to get the plants large before planting-out time. As increased space will daily now be needed for the tender kinds of seedlings, all sorts that will stand a degree or two of frost should be put out into pits or sheltered spots. *Lobelias*, *Verbenas*, and *Petunias* we put in turf pits and cover up with straw hurdles or felt frames. *Calceolarias*, *Gnaphalium lanatum*, and *Abutilons* are placed at the foot of the fruit walls, where they have the benefit of the wall covering. Most kinds of *Pelargoniums* are also quite safe under the same conditions. The tricolor section must, however, yet have glass shelter, but be given abundance of air on all favourable occasions. Seedlings of *Solanums*, *Wigandias*, *Daturas*, single *Dahlias*, and others sown a few weeks ago will now be quite ready to pot off, and when done place them in a close, warm atmosphere, and shade them for a few days till the roots have started in the new soil. Castor-oils should always be sown singly in pots, as they are bad subjects to handle in the seedling state. There is yet ample time if sown now to have good plants by the end of May; those sown earlier will be ready to remove to a cooler atmosphere to be grown on in plenty of light, otherwise the growth becomes attenuated and the plants liable to be severely crippled when first planted out. The same remarks apply to *Tobaccos*, *Ferulas*, *Acacia lophantha*, and *Grevillea robusta*. In mild weather draw the lights entirely off frames in which seedling Stocks, Asters, *Phlox Drummondii*, *Everlastings*, and others of the annual and biennial sections are growing, and prick them off or thin them out as soon as they can be handled; even if the surplus seedlings should be destroyed it is better than that all should be injured by overcrowding.

PROPAGATING.

Cyanophyllums.—Any of these that have lost their leaves during the winter, or that have become too tall, should be cut down and the tops inserted as cuttings. If put in now they will root quickly; the old plant will break out freely, and yield a goodly number of cuttings, which, if it be required to increase the stock, should be taken off and struck as soon as they attain sufficient strength. In preparing the tops leave about three pairs of leaves, and cut them off at the joint immediately below the bottom leaf; then insert them in pots of sandy soil and plunge them in a close case in a bottom-heat of from 75° to 85°. Before plunging them give a good watering to settle the soil, and keep them afterwards moderately moist till rooted, which will soon take place, especially if in a vigorous condition. It will be necessary to shade during sunshine, the object being to keep the leaves in as perfect condition as possible.

Rhododendrons of the greenhouse section, such as *Princess Royal*, *Alexandra*, and *Helena*, besides the newer kinds called *Taylori*, *Duchess of Edinburgh*, *Duchess of Teck*, and others, will, if in good condition, by this time have made new shoots, which will root without much difficulty and form useful plants. As these shoots, which should be about half ripened, consist of a cluster of leaves with a good length of bare stem below them, they form when taken off ready-made cuttings, but in removing them always leave two or three buds on the plant, in order to give it the means of furnishing itself with new growth. Sometimes the shoot removed is too long to be used in its entirety; in that case, it may be cut to the required length, but the buds at the base hasten the rooting process, and should be left on if possible. The soil most suitable for such cuttings is fine sandy peat, with a liberal admixture of crocks broken very small or pounded charcoal. In this they will root far more readily than in peat and sand alone, the young roots evincing a great partiality for the broken crocks by clinging closely

around them. Use small, clean, well-drained pots for the purpose, and insert the cuttings firmly; then give them a good watering, and place them in a close case in a temperature of from 65° to 75°; water and shade them as may be required; if too damp, give air for a little time. A sharp outlook must be kept for thrips, which, if once a lodgment is gained, will increase rapidly in the confined atmosphere, and greatly disfigure the leaves.

Phloxes and Pentstemons may, where scarce, be propagated now in the same way as *Chrysanthemums*, viz., as the young shoots come up cut them off and make cuttings of them, which should, however, if possible, be put where there is a little heat, say on a gentle hotbed. If the plants are in pots they should be kept close a few days before the cuttings are taken off. Cuttings struck in this way make good little flowering specimens the first season, but of course the above method will only need to be used for scarce kinds, but where large masses exist division is the best mode of propagation.

INDOOR PLANTS.

Heaths.—If the different varieties of soft-wooded winter-flowering Heaths, such as *hyemalis*, were cut back freely after blooming they will now have started into growth, and should be potted at once. Pots 2 inches larger than those they are already in will, in most cases, be sufficient; no disturbance of the roots should be attempted; merely remove the crocks from the bottom of the ball. Stock of this kind is often pot-bound, and therefore the new soil must be rammed more than ordinarily solid, otherwise in watering the water will be sure to pass through the new material, leaving the old ball dry. A mistaken impression often exists as to the time Heaths generally should be potted. Early in the spring before the weather gets hot, or in the early autumn after the dry, parching season is over, are the safest times for repotting, and where any portions of the younger description of stock are suffering from want of rootroom, we should not hesitate to move them now, even though their blooming season is approaching, as if the potting is managed with the care it should be, so as not to injure or disturb the roots, the flowering will be little interfered with. The principal thing is to see that each plant has the soil well moistened before being shifted, and to place them for two or three weeks afterwards in a pit or house with only a little air given at the roof, or one side, so as to avoid the drying effects of a through draught, for although Heaths are essentially air-loving plants, and will not succeed for any length of time with a deficiency of it, yet for the short period named, until the roots begin to move, no harm will be done. A word as to the description of soil suitable for the different sections of these plants. The hard, black, hungry peat that used at one time to be all but exclusively used for Heaths in general is anything but the best, and its use alone should be confined to the slowest growing, hardest-wooded varieties. All the freer growing kinds will make much better growth in peat of softer texture, which contains much more vegetable fibre, and is usually brown in colour. This seldom has much sand naturally in it, and consequently in its preparation proportionately more must be added.

Hard-wooded greenhouse plants.—In potting these, commence with the freest growing sorts, such as *Genistas*, *Acacias*, *Boronias*, *Eriostemons*, *Polygalas*, *Clianthus*, and others of a like description, giving them pot room proportionate to the more or less naturally vigorous habit of the respective kinds. It may be well to remind those who may not have had much experience with plants of this character that they will not bear partial removal of the old soil in the operation of potting, and that unless they have sufficient pot room they soon get naked and deficient of foliage at the bottom, a condition which makes them more eyesores than ornament.

Vallotas.—These handsome late summer flowering plants will now be making growth, and, where required, larger pots should be given them, yet discrimination here is required, for in common with most bulbous subjects of a similar character they do not succeed well if over-potted. Vallotas may be increased by the quantities of offsets which they produce, and which if allowed to remain attached to the old bulbs soon impoverish and over-crowd them. It is therefore well at this season to remove all the little bulbs, putting them in small pots about 1 inch apart just within the rim like cuttings, and using, as in the case of old bulbs, good holding loam with a little sand, making it firm, as they do not succeed with light potting. An ordinary greenhouse temperature is sufficient during the growing season, but, like a good many kindred species, these Vallotas enjoy a few degrees more warmth during this and the following month if at the same time they are accommodated with a light position, otherwise the extra heat would induce over-lengthening of the leaves.

Brugmansias.—Few plants are more easily managed than the Daturas, or rather Brugmansias, yet they are not so generally cultivated as they deserve to be. Cuttings put in now in the ordinary way and placed in a little warmth will soon strike and make nice flowering plants in a year, forming beautiful objects when in flower in conservatories, halls, and similar places; they also come freely from seed, which, if sown at the present time and placed in a little warmth, will soon germinate, after which, when large enough, the seedlings must be put singly in 3-inch or 4-inch pots, giving them more space as the season advances. Old plants that require more room should now have a shift, using pots or tubs, regulating the size of these by the extent available for the plants, as they will bloom fairly well in 15-inch pots; still, so confined the size and quantity of the flowers are much less than is attainable with more root space. Large plants that were cut back after blooming, and that have made some growth, should now be repotted, giving them good turfy loam with some sand added, and as soon as they begin to make free growth, manure water ought to be given regularly.

Double Primulas.—The flowering will have somewhat weakened the plants, and it is better to now pinch out the bloom-stems as they appear; this is the more necessary where an increase of the stock is required. Where large plants exist these may now be divided, separating the crowns and inserting them singly in small pots, placing them in an intermediate heat, and so far confined under propagating glasses as is requisite to prevent flagging, but no more than this, as if kept so close as some things require damping off will follow.

Propagation of winter-flowering plants.—If, as advised some weeks ago, a sufficient number of cut-back plants to furnish the requisite quantity of cuttings have been placed in heat enough to induce free growth, the cuttings should now be ready for putting in. A brisk stove temperature is necessary to strike them, and no time ought to be lost in getting them rooted, for on this much depends their becoming strong enough to flower well.

FRUIT.

Peaches and Nectarines.—Now the sun is gaining strength, timely ventilation, good syringing with tepid, soft water, and liberal supplies of warm, diluted liquid will be imperative. Let the night heat range about 58° when mild. Stop the fires early on bright mornings, and syringe as the temperature begins to rise. Give a little air when it touches 65°, gradually increase it until 75° is attained with a free circulation, reduce in like manner, and finally close at 70° with a copious syringing. Although we have often drawn attention to the importance of mulching inside borders, we must again urge the necessity of getting the surface roots well covered with short manure for the twofold purpose of exciting them into activity, as well as for giving off atmospheric

moisture so much needed by the tender foliage through the hottest part of the day. All the base shoots having been neatly heeled down, pinch in intermediate growths to form spurs and avoid laying in more wood than is wanted to furnish the tree and carry next year's crop. Allow weak growths to have freedom and balance the flow of sap by stopping those which are likely to become gross, and tie them down to the trellis. Look well to mid-season and late houses and see that trees having their roots in external borders do not suffer from want of water. It does not often happen that outside borders get dry before midsummer; but this has been an exceptionally dry spring, and radiation under a powerful sun being very great, a good covering with old lime rubbish followed by a little long litter, while admitting warmth will prevent the escape of moisture from the surface roots. Keep late houses fully ventilated until the fruit is set, and syringe freely when the petals begin to fall. If the ripening is to be delayed until late in the season, retard as much as possible through the early stages, when a low night temperature is so beneficial to all kinds of stone fruit.

Figs.—If the early pot trees started in November have been kept in a bottom-heat of 70° the fruit will now be swelling rapidly, and, favoured by one of the most genial winters on record, some of the most forward fruits may be expected to ripen early in April. With a continuance of favourable external conditions allow the temperature to range from 60° to 65° at night, 70° to 75° by day, and 80° to 85° after closing with sun. Give air at 70°, gradually increase it as the day advances, and economise fire heat by closing early. Syringe well twice a day, otherwise the foliage will soon be infested with spider, and keep the roots well supplied with diluted liquid or guano water until the fruit begins to ripen, when more air and a drier atmosphere will be necessary, but even then a liberal supply of water must be given to the roots, as anything approaching a check would cause the trees to cast all the best fruit. As Figs in pots or internal borders make very quick growth, see that stopping, thinning, and tying receive regular attention, and carefully guard against getting the young shoots crowded, as it is simply impossible that closely-shaded fruit can have colour or flavour, and a flavourless Fig is the most insipid fruit imaginable. Trained trees in succession houses will require mulching with good manure and liberal watering. Ventilate freely through the early part of the day to keep the young growths short-jointed and fruitful. Thin out the spurs and tie in leading shoots where there is room for extension. Trees in late houses may be pruned and tied in to the trellis, as there is now little danger of damage from frost, but unless the structure is supplied with hot-water pipes it will be well to retard for the present by ventilating pretty freely on all suitable occasions.

Strawberries.—As ripe fruit is gathered let old plants be destroyed or removed quite away from the houses, and thoroughly cleanse the shelves before they are again occupied with the succeeding batch. Where exposed shelves in vineries and Peach houses are occupied with plants in various stages of growth incessant syringing and watering will be needful if they are to be removed without leaving a legacy of red spider behind them, for which a heavy price will have to be paid before the end of the season. Good forced Strawberries are always a great acquisition to the dessert; but it is not known to every employer who is told he may grow everything in two or three small houses, that his tasteless Strawberries are often the cause of his Grapes remaining red and his Peaches ripening prematurely, when a properly constructed house would give comfort and satisfaction to employer and employed. Where proper arrangements do not exist a long season of ripe fruit may be secured by allowing a quantity of plants to set, swell, and ripen if need be, in the pits in which they are wintered, and by planting north borders with some of the best late kinds, including Oxonian, Elton, and Frogmore Late Pine.

Where British Queen is grown for coming in through May and June, remove all weak trusses and blooms, and fertilise the finest. Keep the plants near the glass with plenty of air; tie the fruit to sticks when set; feed and syringe well. In low, damp gardens, or imperfectly ventilated pits and houses, some kinds, notably President, Paxton, and Napier, are subject to mildew, which soon spoils the fruit. The best remedy is good cultivation, abundant ventilation, and frequent syringing with clear sulphur water. Forced plants of Vicomtesse Héricart de Thury will require protection from frost until they are sufficiently hardened for planting out. If placed on a west border they will sometimes give a few dishes of fruit after late kinds on north borders are over.

Cucumbers.—If old plants cannot be dispensed with, thoroughly renovate the beds by forking out as much of the sour soil as can be taken away without injuring the roots, and replace with good rich turf and lime rubble. If worms have got into the pots or beds this operation will afford a favourable opportunity to apply lime water for their destruction, as Cucumbers cannot succeed where the soil is exhausted by these pests. Woodlice, very often the cause of canker at the surface of the soil, may also be greatly reduced by the application of boiling water, as they beat a hasty escape to the edges of the pits for temporary shelter. Continue to cut the plants over until all the old foliage is renewed, then train thinly and keep the foliage clean by syringing with warm soft water, light cropping, and early closing with solar heat and moisture. If it is needed, spring-sown plants may now be allowed to carry a few fruit; but light cropping is imperative. Ventilate freely through the early part of the day to keep the foliage firm and healthy, and avoid shading as much as possible, or altogether where the fruit is not affected by the sun. In light houses the fruit of Telegraph is very liable to morning scalding; but a thin shade for a short time until the fruit is dry, and early ventilation will always correct this evil.

Manure beds.—Although plants in frames have had a favourable time of it, linings will now require regular renovation to maintain a steady minimum of 70°, and good dry covering must not be neglected. Add a little fresh soil as the roots protrude, peg down the young shoots, train thinly, and rub off all male blossoms up to the time their services are needed. Be guided by the weather in the application of water; if bright and fine and the heat is strong overhead watering about 2.30 p.m. will do good, but for the present the wetting of the foliage must be conducted with great caution.

KITCHEN GARDEN.

DOUBTLESS many will have Snow's Broccoli sown on the plea that second sowings form a good succession, but this is a mistaken idea. If this Broccoli is sown just now, or any time before this, it grows quite out of all character—becomes large, soft, and succulent, and the first sharp frost prostrates the foliage, leaving the heart unprotected. If sown the first week in May it will be fit for cutting the first week in November, and the plants will be close to the ground and have much the same appearance as Walcheren Broccoli. Onions, Carrots, and a few Turnips may now be sown. We are at present briskly employed in planting our main crop of late Potatoes, consisting of Beauty of Hebron, Schoolmaster, and Paterson's Victoria chiefly. The Champion, but for that objectionable deep eye, would be largely planted. So far as flavour goes it is excellent. Early plants of Celery will now be ready to prick out. A slight hotbed is the best place for them, but they will do well in boxes under glass. Early Cauliflowers will also now require attention in the way of pricking out, in order to obtain good plants for the second batch of this indispensable vegetable. Onions may be sown; the two varieties which we grow are White Spanish and James's Long-keeping; the latter we are now supplying firm, and not shot in the least. The main crop of Carrots may also be

sown. Sweet Basil, a really useful herb, should be potted and grown in Cucumber frames for use green; all kinds of herbs may now be sown under glass.

PUBLIC GARDENS.

THE TIMES ON THE PARKS AND THE METROPOLITAN BOARD.

WITH regard to the great requisite of healthy town life—the supply of fresh air—London is more happily endowed by Nature than any other large town in the kingdom. Not only is she situated on a noble river, but she rejoices in a considerable acreage of royal parks, and she is surrounded by breezy heaths and commons. It has been computed that within fifteen miles of Charing Cross—an area nearly the same as the Metropolitan Police district—there are over 16,000 acres of open land, while if the radius is extended for another ten miles this acreage is more than doubled. Parliament has for many years been dimly conscious of the value of this heritage. So early as 1845, when the tide of enclosure was at its height, the rule was laid down that no common should be enclosed by the newly created Commissioners within fifteen miles of the capital without the express sanction of Parliament. Ten years afterwards, when the Metropolitan Board of Works was formed, one of the powers conferred upon it was that of submitting to Parliament proposals for the formation of parks. In exercise of this power Finsbury Park and Southwark Park were formed, but in each case the Board was too anxious to make the project pay its own expenses, and gave to the builders land which they might have thrown into the park. In the ten years which followed the formation of the Board the question of open spaces grew with a rapidity which the Board could not comprehend, and in 1865 the whole subject was discussed at length by a large and influential committee in the House of Commons. Before this committee the Board propounded views which, if they had found favour, would have deprived London of the greater part of its open spaces. The lords of manors and the commoners were to be bought out, and the Board was to recoup itself by selling part of each common for building. Fortunately, wiser councils prevailed. The commoners were exhorted to assert, in the interests of the public, their rights of grazing and Furze-cutting, and thus to prevent enclosure; the Commons Preservation Society was formed, under the chairmanship of Mr. Shaw-Lefevre; and that series of legal contests began which culminated in

The great Epping Forest suit.—Throughout this struggle the Metropolitan Board never stirred a finger, but looked on with cold disapproval. Not so the Corporation of London. When Epping Forest was in imminent danger of being lost from want of funds to contest the claims asserted by the lords of manors, the Corporation boldly came to the rescue. It spent its wealth freely in the Courts, in Parliament, and before the special tribunals instituted to settle the complicated questions which arose. The consequence is that nearly 3000 acres of forest land have been rescued from actual enclosure, and a tract of nearly 6000 acres in all has been dedicated to the public use. This is a splendid service, which not even a reformed municipality can surpass. But such a municipality would not have been hampered in its performance as the Corporation was. The Metropolitan Board, so far from seconding its

efforts, interested itself only in advancing its own claims to assume the management of the open space reserved from enclosure in place of the body by whose efforts the rescue had been effected. Needless to say its efforts were fruitless. But, as in all such cases, the ratepayers' money was spent—spent by their representatives in a contest of rivalry with another public body, also drawing its funds (in this instance) from the taxation of the metropolis. In other instances the action of the Board has been more directly hurtful. In 1870 the Corporation obtained Parliamentary sanction to commute its dues on the metage of grain entering the Port of London for a fixed duty of 3d. per hundredweight, on condition that it laid out the proceeds in the preservation of open spaces. The Metropolitan Board opposed the Bill, and, unable to throw it out, obtained as the price of abstention from further contest the insertion of words limiting the application of the fund to the City on the one hand, and to the district outside the boundaries of the metropolis on the other. Thus, in the area which is essentially London, from Whitechapel to Kensington, from Hampstead to Camberwell, the Corporation are powerless to use

The fund specially devoted to the preservation of open spaces. It cannot be used in the acquisition of Lincoln's Inn Fields, in the formation of Paddington Park, in the preservation of such spots as Kingsland Green, or of any common within the metropolis. The district which pays the main part of the duty is deprived of direct participation in its benefits, and that at the instance of a Board which is supposed to exist for the protection of its interests. It is impossible to conceive a stronger condemnation of the present system of dual government, or of the existing constitution of the only body which is representative in any way of the metropolis at large. Nor have the ratepayers the consolation of knowing that, though taxed twice over for the purpose, all that is possible in the way of providing open spaces is being done for them by the Board. The total acreage of the parks, gardens, and commons under the management of the Board, as shown by their last report, is, indeed, 1698 acres, much of which has been obtained at a very great and, in the opinion of many who are qualified to judge, a needless cost. On the other hand, the Board actually opposed the Bill by which Wimbledon Common, 1000 acres in extent, and by far the most important of the London commons after Epping Forest, was dedicated to the public, because it was not proposed to invest the Board with its management. They have done nothing to open the gates of the numerous

Square gardens which lie in the midst of crowded neighbourhoods, and which, at the expenditure of a little trouble in negotiation, might be made to subserve the interests of the inhabitants generally without injury to the occupants of the square houses. Notably, they have refused in any way to aid in the opening of Lincoln's Inn Fields, a space of seven acres, surrounded by business premises, the tenants of which never step inside the gardens from one year's end to another. Nor do they make any effort to acquire land for the purpose of forming new parks in districts not possessing commons, and towards which building is extending. In the case of Paddington Park it will be remembered they gave but a lukewarm support, which resulted in the loss of the Bill, objecting to the great amount of money involved, while at the same time they took no steps to

supply the undoubted wants of the north-west of London by taking other land which might be obtained at a cheaper rate. They have not even been able to preserve the area committed to them, for only within the last few weeks large spaces have been abstracted from the Thames Embankment Gardens for the purpose of providing vent-holes by which the underground railway may vomit forth foul air to counteract the beneficial effect of the surrounding trees and shrubs. It is true that the Metropolitan Board opposed this project in the approved way before a Parliamentary Committee, but does anyone believe that a really representative corporation would have suffered itself to be beaten on such a question, and would have surrendered, after a mere argument by counsel, part of the most central open space in London in order to save the shareholders of a railway company the expense of building proper ventilating shafts? The extension of the Corporation to the metropolis at large will enable such unworthy considerations to be dispensed with, and it will not be long before London will find how greatly the conditions of town life may be improved by the existence of a central authority, capable of taking a comprehensive view of its duties, and strong enough to give effect to its intentions.

HULL BOTANIC GARDEN COMPANY.

AN extraordinary general meeting of the Hull Botanic Gardens Company was held the other day in the George Hotel, Whitefriargate. The chairman (Dr. Rolitt), after some preliminary observations, went on to make a statement in regard to the position of the company at the time when it was taken over by the new administration. The company was based on an agreement with the North-Eastern Railway Company, which agreement comprised two classes of land—the land on which the gardens were situated and the adjoining land to the north and east, and also the leasehold land situated on the east. In regard to the financial position of the company, he said it was very unsatisfactory; in fact, they had no funds at all for the payment of rates and other debts, and unless Mr. Dauber had found the money and paid the claims made the company must have been prosecuted. The liabilities amounted to between £700 and £800, and they had also a claim of £2600 from Sir James Walker. Their creditors had exercised a fair amount of forbearance in the past, and were still willing to do so. Their assets, even if the plants and other things were sold, would not bring more than from £2000 to £3000 value. In reference to the North-Eastern Company, he said they had declared that they must have matters brought to a close and that some definite arrangement must be come to either for the purpose of fulfilling the contract with them with regard to the purchase of the land or of cancelling it. They had given them notice that the tenancy of the leasehold land must be terminated, and in that action the Botanic Company had no defence. The directors had tried to negotiate with the railway company and they had expressed their willingness to defer taking possession until the 30th of June, and in that way the movable effects of the garden should practically be saved for the company. Every effort had been made to prolong that time till the end of October, for the obvious purpose of conducting the gardens during the season and to get subscriptions, which would not otherwise be obtained. They should either have to determine whether they should resist the proceedings of the North-Eastern Railway, or whether they would concede to the order and place themselves beyond all question in the hands of the railway by not paying the amount of the purchase money. The amount due was about £23,000, and if it was not paid they must be prepared to allow the railway to take possession, if

not in June at the latest in October, and the question for their consideration was, were they to extricate themselves from that position or not? If it were not possible to extricate the company there would be very little left for the creditors, and certainly nothing for the shareholders, besides a great loss to the town. Would the town permit the gardens to cease? or would they, by public spirit, or some solution of the difficulty they were placed in, manage to allow those gardens to be continued, and thus allow the inhabitants of the town an additional ground for recreation, and also the facilities for the study of scientific subjects? There were four courses open to them, of which they would have to choose one. In the first place they might assent to the order proposed by the railway company, of which they had the alternative, and they could then sell the building plots lying on the north side of the gardens, or, in other words, they could not pay the North-Eastern Railway while they held the land, but if they divided it and sold the plots which ranged in price from £190 to £300, they might thus raise sufficient money to meet the claim of the railway company. Of course there were other claims beside that of the railway company, but these were of a minor nature, and he asked them to join in aiding the disposal of the eighty-six plots as suggested. The second course open to them if they could not get rid of the plots was to sell the land for whatever it would fetch, as the land was undoubtedly sinking the gardens. The third course was to allow the directors to let it or sell it to a syndicate, which was a fair opportunity for private speculation, and if this object could be obtained they would save the gardens, and also preserve the botanic element for the benefit of the town. The fourth course was to let the town take the gardens on the condition of freeing the Botanic Company of their liabilities, and thus secure the open space as a park to the town at a comparatively cheap rate. These, he said, were the courses open to them, and he concluded by calling upon them to save the gardens from the hands of the railway company, as on their enterprise and the town's public spirit depended the retaining of the gardens for the inhabitants. A discussion took place afterwards, the majority of those present supporting the course of inducing the Corporation to negotiate with the North-Eastern Railway Company for the taking over of the gardens. It was ultimately moved from the chair—"That the proposed order allowing the North-Eastern Railway Company to take possession of the gardens at an early date be assented to, and that the town be approached by the directors with a view of saving the gardens for the benefit of Hull, either as gardens or for a park." Mr. C. Wilson, M.P., seconded the resolution, which was carried unanimously. At the close of the meeting the chairman spoke in the highest terms of the ability and energy of the curator, Mr. Macmahon, who, he said, had done all that any man could do for the gardens under the most trying and difficult circumstances.

We learn that the liabilities, including contracts to make roads, &c., are estimated at about £30,000, and the assets about £2000. During the past twelve months £4000 of the debt has, we believe, been paid off.

Regent's Park enclosure.—A contest is going on between the public and the neighbouring householders and others in regard to that portion of the Regent's Park near Clarence Gate which has up to the present time been kept as a private garden. The strip of land in question is about three-quarters of a mile long and about 50 yards wide. It contains fourteen acres, or more than three times the area of Biggrave Square; and it is now devoted to the private use and enjoyment of about a hundred householders of adjoining houses, who pay one guinea per annum for the privilege, and about sixty people who live rather farther off, who pay two guineas per annum. The chief point urged at a recent meeting held on the subject in Regent's Park was that persons entering the park by the Clarence Gate from Baker Street, if they wish to cross the park, have no

choice but to go round by York Gate on the one side or Hanover Gate on the other, while but for the enclosure of the fourteen acres aforesaid a bridge might be thrown across the lake, and a speedy and convenient approach to the park be provided. If it be true, as alleged, that the householders have no shadow of a legal claim to the exclusive enjoyment of the garden in question, it is clear that a very great advantage would accrue to the public from its being thrown open, as the region behind the Clarence Gate is very populous. On the other hand, the residents in Hanover Terrace, Sussex Place, and Cornwall Terrace will lose the privacy of a very charming garden, which doubtless they have enjoyed none the less because they have had no legal and permanent right to enjoy it. It may be a consolation to them to reflect that if they lose their present private garden, and if the bridge asked for by the agitators be built, they will still be within a few hundred yards of one of the most retired and beautiful gardens in London, that of the Royal Botanic Society. The case, therefore, will not be one of very great hardship to the householders, while to the public the benefit is obvious.

Improvements in Brighton.—The Brighton town council having applied to the Local Government Board for permission to borrow £6000 for "the purpose of street improvements," Mr. S. J. Smith, C.E., attended the Town Hall yesterday to hold an inquiry on behalf of the Board. The town clerk explained that the money was required to lay out two enclosed lawns, 300 feet by 50 feet, with lavatories, covered seats, and the band-stands on that portion of the beach between the Western Pier and the Western boundary of the borough. A long discussion, raised by the inspector, then took place as to whether the money should not have been applied for under that section of the Public Health Act relating to the provision of public parks and pleasure grounds; but it was shown that the esplanade adjoining the ground had been repaired at the public expense for twenty-four years, and that the beach only commenced on the southern side of the proposed enclosure.

The Alexandra Park Bill.—The London correspondent of the *Manchester Guardian* writes: There is a bill which will probably some day this session come before the House of Commons raising a point of peculiar interest with regard to land. This is the measure by which the parties in possession of the Alexandra Park and Palace at Muswell Hill propose to obtain power to convert the property without reserve to building purposes. This intention will be stoutly opposed, and probably with some success. It is alleged that when a company obtains parliamentary powers to devote land to public amusement for a certain charge of money not necessarily specified, interests grow up in the neighbourhood in connection with the undertaking which the Legislature ought not to neglect, and it is said that so conservative an authority as Lord Redesdale holds this view of the Alexandra Park Bill. Anyone will understand the case by reference to that at Sydenham. Could the Crystal Palace Company convert all their land into building land, and if they came to Parliament for such powers, would not Parliament be justified in saying that the public had acquired quasi rights in the land, and that its conversion to exclusive purposes could not be permitted without some regard being shown to those rights? At all events, this view so strongly prevails that the Alexandra Park Bill will hardly be accepted without considerable modification.

Enclosure of Commons Bill.—Among the most hopeful legislative promises of the session is a Bill to amend the laws relating to the enclosure of commons, which has been brought in by Mr. W. James, Mr. Bryce, Mr. Cheetham, and Mr. Story Maskelyne. In point of form the Bill is as patchy and unintelligible as most others; but the substance of the measure constitutes a decided advance in the great cause of the protection of commons. If it becomes law, no common within a certain distance from towns—the distance varies from one mile in the case of a town of 5000 inhabitants

to six miles in that of a town of 200,000—can be enclosed without an Act of Parliament. Even in the case of more distant commons—up to fifteen miles in the case of towns with 100,000 people or upwards—power is given to the urban sanitary authority to resist enclosure before the commissioners, and to contribute to the maintenance of commons as open spaces. Facilities for the management of commons devoted to that purpose, a provision against encroachment upon roadside waste, and some clauses removing the technical difficulties which often lie in the way of the assertion of rights of common, make up the rest of the Bill. The measure certainly does not go too far in the right direction, but it goes some way, and it deserves the hearty support of all who amid the distractions of party controversy still remember the health and welfare of the people.

AMERICAN NOTES.

Tree sports.—Mr. Robert Douglas, the veteran nurseryman, of Illinois, says that he is sorry to be compelled to confess that all his attempts to produce something good from hybrids have been absolute failures. Whatever he has produced of value has been produced by sheer accident, and in nearly every instance from common seeds sown in the nursery beds or nursery rows.—*Prairie Farmer*.

Fruit from primitive forms.—With seeds of fruits with an abnormal development of pulp, like does not produce like. As an instance, the Acme Tomato was not produced from the seeds of the largest and finest specimen, but from the small hardy Plum Tomato fertilised by the best known variety on the score of size and perfection of fruit. So the Rogers' Grapes came from the seeds of the wild Sage Grape fertilised by the best foreign sorts. The Hovey seedling Strawberry was from the seed of the native species fertilised by the South American. The Wealthy Apple was from an Astrachanic Crab seed fertilised most likely by the Fameuse. The securing of hardy and vigorous seedlings from nearly primitive forms is also illustrated by the remark of our Joseph Harris in his seed catalogue for 1880: "You can raise, he says, more plants from an ounce of poor Cabbage, Onion, Lettuce, Carrot, Farnip, and Beet seed than you can from the best and choicest." Again we have the authority of Dr. E. L. Sturtevant, who says: "As a rule to which as yet I have noted no exceptions, the larger the Apple the greater the number of abortive seeds. It also appears to be a fact that in general the improved varieties of Apples contain fewer seeds and a larger proportion of abortive seeds than do wildling Apples." Still again we have the word of Mr. Robert Manning, and other good authorities in America and Europe, that the seeds of the best cultivated Cherries are usually abortive, and that hardy new varieties are produced by planting primitive forms fertilised by sorts with the best fruit.—*New York Tribune*.

Rose growing in California.—Mr. David Tisch, of Oakland, spoke as follows of Roses at a recent meeting of the State Horticultural Society, San Francisco: Parkinson, in 1620, stated that there were but twenty-four kinds of Roses at that time known in England, including the Sweet Brier. Among others of his twenty-four sorts is the parti-coloured Rose, called by some York and Lancaster. "The double yellow Rose, of great account both for its variety and doubleness, was first brought into England by Master N. Lete, a merchant of London, and a great lover of flowers, from Constantinople, which, as we hear, was first brought thither from Syria, from which is sprung the greatest store that is now flourishing." The Moss Rose was introduced into England at the beginning of the last century, and was first mentioned by Fimber in 1724. After alluding to the classification of Roses, he said: There is one variety of Rose that I have grown for many years, and I think it is the best one we have in the State. It is Safrano. Lamarque is one of the best climbers we have. In the East people have given up growing white Camellias, and use the

Lamarque Rose in their place. In place of the red Camellias they are using the Pauline Rose. The following is a list of Roses which will flower the year round: Hybrid Perpetuals—Beauty of Waltham, Cardinal Patrizzi, Eugène Verdier, General Washington, General Jacqueminot, Gloire de France, John Hopper, Jules Margottin, La France, Madame Rivers, President Lincoln, Princess Mathilde. Noisette—Lamarque, Climbing Devoniensis, Maréchal Niel, Claire Carnot. Banksia—James Sprunt, Cherokee, Ophir, Monplaisir, Queen of the Prairies, Chromatella. Bourbon—Souvenir de Malmaison, Charles Duval, Hermosa, Louis Odier, Mrs. Bosanquet. China Roses—Agrippina, Louis Philippe, Madame Breon. Teas—Bon Silene, Bougère, Cels-Multiflora, Devoniensis, Elise Sauvage, Emperor of Russia, Gloire de Dijon, Isabella Sprunt, La Sylphide, Lady Warrender, Safrano, and Triomphe du Luxembourg. Proper pruning and irrigation had a great deal to do with Rose growing. Dr. Gibbon said that for three or four years past he had been paying some attention to the Castilian Rose. He pruned it up as a standard, trimmed it up closely, and it improved vastly. Last year it bore two crops of Roses.—*Pacific Rural Press*.

Water Lilies.—Mr. Sturtevant says: "In regard to *Nymphaea Sturtevantii*, I am sorry to state that it does not flower as freely as *N. devoniensis*. It flowers constantly, but does not produce so many at a time. It has the same odour as *devoniensis*, which I do not think is very pleasant. It opens in the evening, and closes about the middle of the next forenoon. Each flower lasts four days. I started my plants in warm water under glass, then planted them out in a basin with a cement bottom where they received no artificial heat whatever the whole season. There is quite a difference between the temperature of the water in one of these basins and that of a basin of bare earth. When, however, I wish to have the plants bloom early in summer and late in autumn, I introduce heat by running a flow and return pipe from the greenhouse boiler into the tank and leaving both ends of the pipes open. The circulation of the water between boiler and tank maintains the desired temperature. It might seem to anyone who has not tried it that water coming from the inside of a boiler and passing through rusty iron pipes would be injurious to aquatic plants. But with me their rapid growth and perfect health testifies to the contrary. Of course this plan of heating is not recommended for tanks under glass. I have tried it for several years, and it works well. I do not give artificial heat to any of the Lilies in midsummer, not even to the *Victoria regia*. No artificial heat is given in hot summer weather. In my largest tank none was given at any time last season, and *N. devoniensis* and others bloomed till quite late in October. I have been troubled with aphides and water snails. My remedy is to keep an abundance of fish in the tanks. I have gold, silver, and sunfish. Next season I am going to try the European carp. As to varieties, I have a new form of the *dentata* type emitting a delicious odour like that of ripe Apples. It is a fine acquisition. *N. pygmaea* is a charming thing and a free bloomer. I have left it out to test its hardiness, and yesterday examined it and found it all right. I am quite confident that it is hardy. *N. alba candidissima* is a superb kind, with large white flowers. *N. alba rosea* I flowered last summer. It is very fine, but not quite equal, in my opinion, to the Boston variety of *N. odorata*. I wish to give great emphasis this season to the fact that *Nelumbium speciosum* is perfectly hardy. It blooms with me from July until frost." It is difficult to keep Lilies in ponds free from aphides, but the plants grown in tubs and tanks, which can be got at conveniently, can, with proper attention, be kept perfectly clean. In our little pond there is a multitude of gold fishes, but they do not seem to lessen the aphides at all. The only remedy I use, and can suggest, is to wipe off the insects with a sponge. In tubs I keep clear of them by showering the plants overhead freely from a water-pot rose, and letting the aphides thus washed off disappear with the overflow.—

WM. FALCONER, *Cambridge Botanic Garden, in Country Gentleman*.

Does snow protect the soil from frost?

—The numerous experiments which it was necessary to make to obtain a precise answer to this question were carried on last winter in the Jardin des Plantes. The aim of these was to ascertain—first, to what extent the temperature of the ground was influenced by the temperature of the air, both under bare ground and in sodded soil, with and without snow; also to ascertain what depth the temperature of the air was able to make its influence felt. In these complicated investigations the electric thermometer invented by Becquerel was employed. Simultaneous observations were made of the temperature of the air at the height of 33½ feet and 66½ feet, and of the soil at the depths of 2 inches, 4 inches, 8 inches, 12 inches, and 24 inches. They were made under sod and bare ground. On November 26 a dry frost began, which lasted without interruption until December 3. At this date the air had a temperature of 7° Fahrenheit, and a heavy fall of snow began that covered the ground to the depth of 10 inches. From the 6th to the 19th of December the cold steadily moderated, until on the morning of the 19th and 20th it was above 32°. A variable cold weather followed, and the snow sank to less than 8 inches. Observations showed that both before and after the snow fell the temperature of the soil, where it was covered with sod, remained above the freezing point even on the coldest day. On November 26, at a depth of 2 inches, the temperature was 40° Fahr. From this time it sank continuously until December 14, when it reached 32½° Fahr., but it never fell below this minimum. The results were quite different in soil not covered with Grass sod. On November 26, the day when the dry frost began, the temperature at a depth of 2 inches fell below 32° Fahr.; on November 29 it stood at 26½° Fahr., and on December 2, before the snowfall, it was 25° Fahr. During the whole time when its surface was covered with snow from 10 inches to 8 inches deep, the temperature never rose above 32°, but only varied, at a depth of 2 inches, between 28° to 30° Fahr. It was thus proved that changes in the temperature of the air make themselves felt to a certain distance in the earth even when the surface is thickly covered with snow. Hence the generally received opinion that a mantle of snow keeps the earth warm is in general erroneous. Snow does not protect the soil and seed at all from freezing, but only hinders to a certain degree the too extensive radiation of heat from the soil, and is converted into water at 32°, which sinks into the earth and somewhat raises its temperature. These experiments also prove that the best protection for the soil is a heavy sod, which does more to raise its temperature than ever so thick a layer of snow. The matted roots of the sod form a sort of felted covering which not only excludes the cold in a high degree, but also draws up the moisture from the lower strata toward the surface.—*Scientific American*.

RECENT PLANT PORTRAITS.

PELLIONIA PULCHRA (*Illustration Horticole*, plate 479).—A pretty ornamental-foliaged trailer with curiously variegated green leaves resembling those of a small-foliage Begonia. A native of Cochin China, already described in a contemporary by Mr. N. E. Brown.

ODONTOGLOSSUM MADRENSE (same work, plate 480).—A handsome conspicuous flowered Orchid with a spike of large white flowers with brown centres. A native of the cooler parts of Mexico, where it is oftenest found growing as a parasite on the Oak.

ÆCHMEA LALINDEI (same work, double plate 481).—A very handsome Bromeliad from New Grenada, named by M. Linden after M. Lalinde, who sent him the plant in 1867. The plant has been in flower for the last three months in the stove of the Compagnie Continentale at Ghent, where its handsome spike of rosy white flowers with conspicuous deep rose-coloured involucre have been much admired.

STREPTOCALIX VALLERANDI (*Belgique Horticole* for January).—This rather ornamental Bromeliad is portrayed on a double plate, with foliage somewhat resembling that of a Pine-apple, and a tortuous spike of purplish flowers with bright red involucre. It is by no means a new plant, having been figured under the name of *Lamprococcus Vallerandi* by M. Carrière in the Paris *Revue Horticole* so far back as 1877. M. Morren, however, now describes it at length, and gives reasons for its new name.

The February number of Dr. Regel's *Gartenflora* contains coloured plates of *PHLOX SUBULATA*, group of eight pretty hybrids raised by the late Rev. J. G. Nelson, of Aldborough, Norwich, and already figured in *THE GARDEN*; and of *EXACUM AFFINE*, a pretty herbaceous warm greenhouse plant, with bluish lilac flowers with yellow stamens somewhat resembling those of one of the *Solanums*.

DENDROBIUM EBURNEUM (the Ivory Dendrobe).—The second number of the *Revue Horticole* for March gives a portrait of this very ornamental Orchid producing bunches of pure white flowers with bright red centres, making a most charming contrast. It was first introduced by Mr. Parish, from Moulmein, who sent it to Messrs. Low, of Clapton, and more recently in the course of last year, for the first time direct to France, by M. Augustin Regnier, from Plumbat, in Cambodge. This number also gives a woodcut and description of M. Brant's perpetual-blooming Thorn (*Crataegus oxyacantha semperflorens*), showing the almost ripe haws of the early bloom in May on lower part of branch, which is crowned with a fine bunch of open flowers and buds, forming the August bloom, while there had also been an intermediate flowering on the same branch in the early part of July. W. E. G.

PLANTS IN FLOWER.

HEPATICA VARIABILIS.—We saw lately at the Hale Farm Nursery, Tottenham, a very pretty and interesting plant under this name. It is said to be a Pyrenean plant, and possesses the peculiarity of producing flowers white, blue, and intermediate shades. The blooms are somewhat larger than those of the common *Hepatica*, but appear about the same time.

RHODODENDRON MULTIFLORUM.—A very pretty shrub bearing this name came under our notice the other day at the Victoria Nursery, Upper Holloway. It is of dwarf growth and twiggy, has rather small foliage, inclined to be downy, and clusters of flowers borne at the tip of nearly every shoot. The blossom is about 2 inches across, of thin texture, and wavy at the edges; the colour, a delicate mauve, is most pleasing and the flowers being plentiful the plant is attractive. It was growing in the new Rhododendron house, a capacious span-roofed structure specially fitted up for the culture of greenhouse Rhododendrons, of which Mr. Williams possesses so rich a collection.

TOXICOPHYLEA SPECTABILIS.—Those who like to have sweet-scented plants in their greenhouses should make a note of this one—a small-growing evergreen shrub from South Africa. It is a compact-growing plant, of much the same habit as an *Ixora*, to which it is allied. The tiny white blossoms are produced in dense clusters from the tips of the branches and smaller ones from the axils of the dark green leathery leaves all along the branches. The odour of the flowers is delicious. The plant flowers at no particular season, but seems in its best state just at this time of the year. It may be seen well grown and flowered in the Victoria Nursery, Upper Holloway.

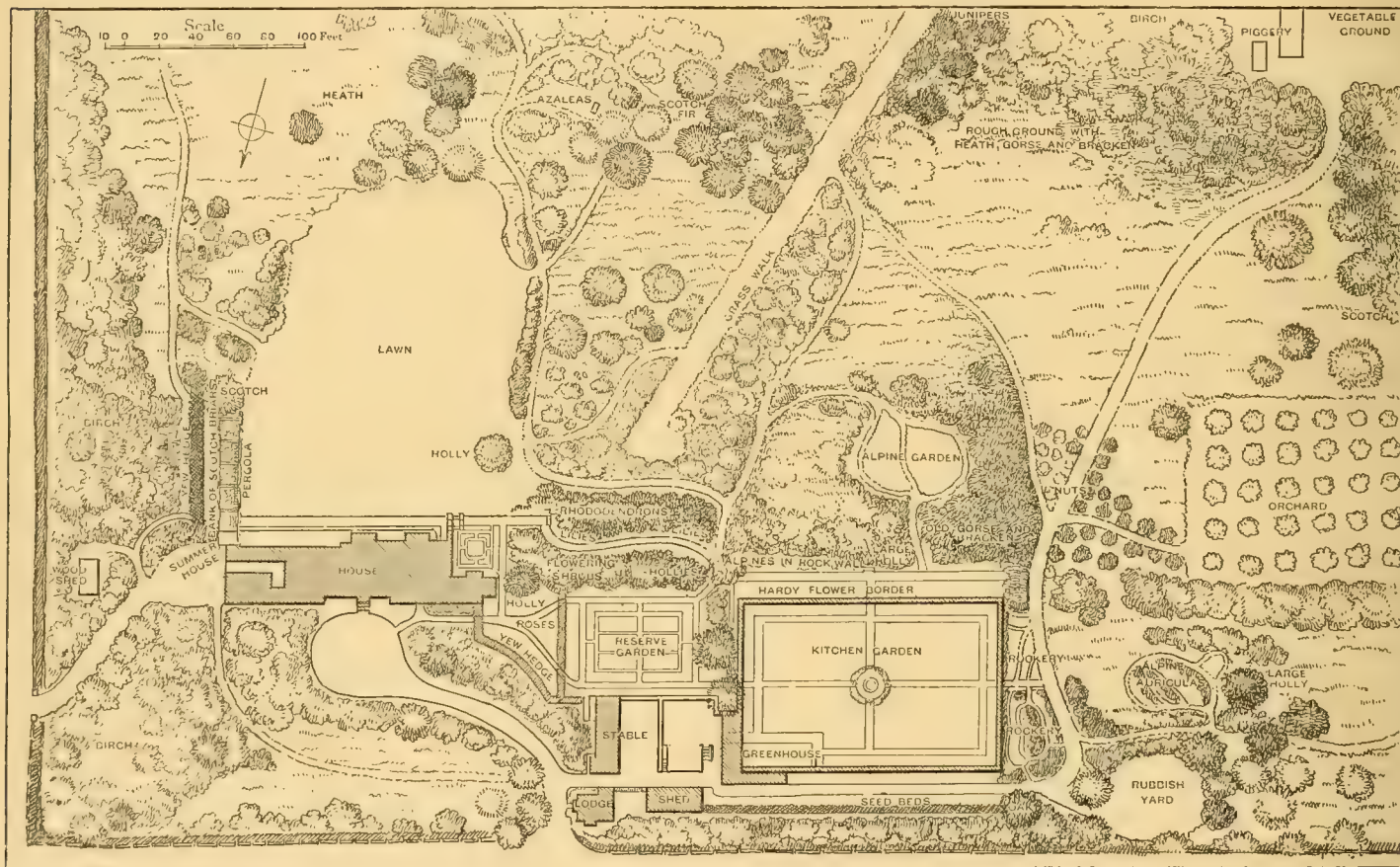
LEONTICE LEONTOPODIUM.—The finest cultivated specimen we have seen of this plant was one in Mr. Ware's nursery, Tottenham, a short time since. It was planted out in a bed in an unheated house, which evidently was just suited for it, as it had grown quite out of our recognition. The flower-stems were some 2 feet high, widely branched, and covered with bright golden flowers. The glaucous foliage, too, was large. Though not what may be termed a garden plant, it is a most inte-

resting one, and it is also one of the oldest of cultivated plants, having been introduced at a very early date from the East. It belongs to the Barberry family.

IMANTOPHYLLUM MINIATUM SPLENDENS.—There are now a good many varieties or rather forms of the well-known *Imantophyllum*, some superior to others in point of colour, others in point of size. A week or so ago we made note of some of the finest in Messrs. Veitch's nursery, and these we can supplement by one or two others we saw the other day in Mr. Williams' nursery, Upper Holloway, where the plant is made quite a speciality of. As regards colour, there are none in flower at present that surpass the variety named *splendens*. Both flowers and trusses are large and the colour, a glowing orange-scarlet, is grand.

family, these are arranged in a spreading vase-form manner. From the heart of this huge tuft of foliage the stout flower-spike rises erect for about a foot in height. On the upper portion are arranged in a dense cylindrical spike to about 4 inches in length small stalkless flowers, which, as they come out of the greenish calyx, are tipped with deep blue changing to a pinkish hue. The great beauty of the plant, however, lies in the large membranous bracts which clothe the lower portion of the flower-spike. These are some 4 inches in length, at first boat-shaped and horizontal, afterwards quite drooping. The colour of these bracts is a rich rosy carmine, a colour at once pleasing and highly attractive, and set off well by the noble foliage. It remains in perfection for several weeks together, hence its great value as a

form they are very refined, and the colour, a fiery crimson, is spread uniformly throughout the bloom, so as not to leave a trace of green or other tint, which so often mars the beauty of otherwise splendid sorts. This variety is so distinct that it may at a glance be singled out from a hundred others, and it is doubtful if it will be surpassed. Another great beauty is a pure white flowered sort called *Mrs. B. S. Williams*, and one that has been so much admired wherever exhibited. The flowers which are not large are funnel-shaped; and white flowers being so uncommon among *Amaryllises* give to this one a greater charm. One remarkable for large flowers was a new one called *Masterpiece*, the flowers of which measure over 7 inches across; they are of good shape and of a brilliant scarlet-crimson veined with light lines.



Plan of the garden at Munshead.

Arrangements of the various departments in relation to the lawn and house.

Another, named *cruentum*, though rich and good in colour, is not equal to *splendens*, and still another called *aurantiacum* is distinct from all the rest, inasmuch as the colour is more of a yellow than a red. It is good also in size and form of blossom. The grand variety *Martha Reimers* figured last year in *THE GARDEN* is not yet in bloom, which, perhaps, is as well, for others could not stand beside her in beauty. There is something so fine about the form and habit of these plants that makes them so desirable to cultivate (which is a simple matter), and the handsome foliage, being evergreen, adds much to their decorative value.

ECHMEA MARLE REGINÆ.—This very fine Bromeliaceous plant, which, without doubt, is one of the finest of the family in cultivation, may now be seen in perfection in Mr. B. S. Williams' nursery, Upper Holloway, where some grand specimens of it are in bloom. It is a large growing species, with broad spiny-edged leaves from 1½ feet to 2 feet in length, and, as in most of the

decorative plant. It is a plant of easy culture in an ordinary moist and warm stove, potted in a compost of loam, peat, and sand. During the growing season the plant is much benefited by abundance of water, especially overhead, so that the axils of the leaves may be filled. It is a native of Costa Rica, in Tropical South America.

THE AMARYLLISES in flower just now in the Victoria Nursery, Upper Holloway, make a brilliant show, though a small portion only of the collection is in flower, it being the aim of Mr. Williams to spread the *Amaryllis* season over as long a period as possible, and not to have the major portion of the collection in flower at one time, and consequently only for a few weeks. At the present time there are large numbers of kinds in flower, and among these are some remarkably fine varieties both named and unnamed seedlings. Some of the most conspicuous are *Dr. Masters*, than which there are in many respects few finer varieties in cultivation. The flowers are not very large, being some 6 inches across, but in

Cruenta and *Fascination* are also both superb sorts; likewise one called *Leana*, which has flowers of a deep crimson and of excellent shape. Some of the seedlings of the *marginata* type promise to develop into grand varieties, and one in particular, apparently between *Mrs. Rawson* and *marginata grandiflora*, was uncommonly fine. The above are but a few of those in bloom, and these will be soon augmented by a large number which will be in perfection in a few weeks.

SAXIFRAGA VIRGINIENSIS with double blossoms is among the prettiest and most interesting of the *Saxifrages* in flower at Kew at the present time. Those who know only the type—a somewhat weedy looking plant—would hardly recognise its handsome variety, which bears dense clusters of miniature, pure white rosettes, on stems ranging from 3 inches to 6 inches in height. It is a neat and pretty plant for the rock garden, perfectly hardy, of simple culture, and interesting as being about the only double-flowered *Saxifrage* known. If well grown in pots it would make a handsome

plant for greenhouse decoration in spring. Though not new it is scarce, and is, we believe, one of the numerous introductions of M. Max Leichtlin, of Baden-Baden.

ANEMONE CORONARIA THE BRIDE is a lovely flower with cup-like flowers $2\frac{1}{2}$ inches across and pure white. A flower brought us by Mr. Gumbleton shows well its beauty.

SIPHOCAMPYLUS NITIDUS.—This pretty stove plant, now in flower at Kew, is worthy of general culture. It is dwarf and neat in growth, and produces an abundance of tubular blossoms, about 1 inch long, and bright scarlet tipped with clear yellow. It needs precisely the same treatment as other species belonging to the genus.

A DOUBLE PEACH from Mr. Crawford's garden, at Lakelands, Co. Cork, is the finest we have yet seen, the flowers being perfect rosettes about $1\frac{1}{2}$ inches across, and of the loveliest deep rose-pink imaginable. Such a hardy tree as this is alone sufficient to make our too often flowerless shrubberies and lawns bright with colour during March and April.

BOUGAINVILLEA SPECIOSA.—I send you a few sprays of this climber, now an object of great beauty in our plant stove. It is trained under the roof and covers a space of 10 feet by 8 feet. It is a sheet of bloom and a conspicuous object even at a distance.—F. FORD, *Snalcliffe Park, Banbury*. [A lovely plant with bracts deeper and richer in colour than either those of *B. glabra* or *spectabilis*. They are produced in dense terminal clusters. It is one of the finest of all stove climbers.]

A NEW WATER LILY from Zanzibar named *Nymphaea zanzibarensis* is now in flower at Kew for the first time under cultivation. Though the plant bearing the flower is but a pigmy compared with the size of a fully developed plant, there is sufficient to show that the species is a most attractive one, and a welcome addition to the garden flora. The blossom just expanded is about 2 inches across, and rich violet-purple in tint, different from any of the other cultivated *Nymphaeas*. When fully matured the flowers will probably be thrice the size, and the colour doubtless even brighter.

HYACINTHS, TULIPS, CYCLAMENS, and other spring-flowering plants may now be seen to perfection and in large quantities in Mr. Williams' nursery, Upper Holloway, where a capacious span-roofed house is solely devoted to them together with the *Amaryllis* collection. The brilliancy of such a mass of gay colours is indescribable, and the perfume from the flowers is almost overpowering. Anyone desirous of making a leisurely inspection, so as to make a selection of Hyacinths and other bulbous plants, can do so here far better than at an exhibition.

STIFFTIA CHRYSANTHA.—One of the rarest plants that has been sent to us for some time is this handsome Brazilian composite shrub, which comes from Mr. Crawford's garden at Lakelands, Cork. The whole flower-head, including the protruded styles, is 3 inches in length. The dense tuft of tubular florets is 2 inches long and a reddish orange colour, hence very showy. It is a shrub of robust and bushy habit, attaining naturally from 6 feet to 10 feet high, and the flower-heads are borne from the tips of the young shoots. A poorly coloured drawing of it may be found in the *Botanical Magazine*, tab. 4438.

TWO BEAUTIFUL ACACIAS for flowering in a small state in pots for conservatory decoration are *A. Drummondii* and *A. lineata*, both now in full beauty. The first is a neat, compact grower, forming twiggy bushes with small evergreen pinnate foliage. The flowers, produced in small cylindrical spikes like miniature bottle-brushes, are pale sulphur-yellow, a tint just in harmony with its dull deep green foliage. It is a most abundant bloomer, and will continue in beauty for several weeks to come. It is one of the very best of the hosts of Acacias to be seen at Kew, and one of the few that are grown by the thousand for the London flower market. *A. lineata*, which is showier when in full bloom, is quite of a different stamp;

as its name indicates, the foliage is long and narrow, and not being very dense, the plant has a much lighter look about it than the other. The flowers, produced in tiny globose heads, are bright yellow and borne in great profusion, so that the whole plant is a mass of yellow. It flowers freely in a small state, *i.e.*, from 1 foot to 3 feet high. In the greenhouse (No. 4) at Kew both of these species are made free use of during the spring, and some attention is given to their culture. Both may be readily procured from any good nursery.

LACHENALIA NELSONI.—Of this extremely beautiful variety Mr. Smith sends us from the Caledonia Nursery, Guernsey, some wonderfully fine flower-spikes, each about 12 inches in height and covered fully half their length with drooping golden yellow blossoms. The foliage, too, is remarkable as regards size, being over 12 inches in length and 2 inches in width, and copiously blotched on a bright emerald green ground. As Mr. Smith observes, such a lovely plant as this cannot be too highly praised or too widely known. The Guernsey climate does indeed favour the growth of bulbous plants.

FOUR KINDS OF FREESIA from Mr. Gumbleton's garden are all distinct as regards their flowers, and all extremely beautiful and deliciously scented. The largest is *refracta alba*, the flowers of which are $2\frac{1}{2}$ inches long, with along attenuated tube and a spreading limb. The colour is pure white, with a dash of yellow in the lowermost sepal, and the lower part of the tube is stained with yellow. On the exteriors of the sepals there is an inclination to flushings of purple. *F. Leichtlini* major has the flowers rather shorter, the tube more suddenly contracted in lower part. The colour is a yellowish white, deep yellow on the lower sepal and base of the tube, and flushed with purple on the outside of the limb. *F. Leichtlini* has much smaller flowers than those of the major variety, and has the tube even more contracted. The whole colour, too, is a deeper tinge of yellow, and the blotch on the lower sepal bright orange. The flower scarcely exceeds $1\frac{1}{2}$ inches. *F. aurea* is the smallest of all, and is the most distinct of all, inasmuch as the bracts, which in the others are herbaceous, are in this quite dry and membranous. The flowers, moreover, are under an inch long, erect, scarcely curved at all, and gradually, not abruptly, narrowed towards the base. The stigma, too, as in *F. refracta alba*, equals in length the perianth segments. The colour is a rich, warm yellow. This is a most interesting and distinct plant, and probably is the true *F. Leichtlini* of Klatt.

PLAN OF A GARDEN.

THE relation of the house and lawn to the more interesting portions of a garden is a very important question for many who take a higher view of the garden than as a receptacle for everything that can be crowded into it. Few think as much as they ought about the matter, judging by what we see of complicated beds, vases, statuary, small ponds, hedges, dead walls, old houses, and frames, where there ought to be a little quiet breadth or a pleasant bit of Grass. In the very smallest class of gardens such considerations are out of place. In a cottage garden we do not seek breadth; the effect is often very good there without it. The "nest" of flowers is relieved in other ways, and all are pleased at the unpretending beauty of the spot. But in the many gardens of a larger kind a little attention given to this point would improve the effect greatly. The delightful quality of repose, good in all cases, is now more than ever essential, owing to the noisy and confused conditions of our lives in great cities. The spread of brickwork over vast areas near London and other large cities which were once among our prettiest districts and full of trees and fair gardens makes it almost the duty of those who have a garden to see that it at least is not a waste of confusion or a mere mass of incoherent units. The garden shown by the annexed plan is free and quiet near the house, for little work need be done there, and that takes very little time. The flowers are not spread out

before the windows till we get tired of them there, but bits of the colour of the various gardens may be seen from some of the windows, and all are within a minute's walk. Pansy, Pink, Rose, rock flowers, Primroses, Auriculars, flowering bushes and Ferns all have their allotted nooks and plots where they get what shade, sun, water, or soil can be spared them, and where the most radical preparations may be made for their reception and health without disturbing the quiet desired near the house itself. The lawn is free from any but the most permanent kind of gardening—Scotch Firs and other "hardy plants" that fear no changes. On the left the *pergola* (Italian for trellis-covered way) is for American Vines and the more vigorous creeping Roses, and it forms a screen. The alpine garden is one without "rock-work" cropping naturally out of the heathy ground, which covered the whole space a few years ago. It is quite near, and yet concealed from the richest and most effective border of hardy flowers that we know of near London. The reserve garden, too, a place for hosts of fine things that deserve special culture, and are worth cutting and having in plenty, is well sheltered and concealed, and yet may be entered as easily as one of the rooms. The arrangements otherwise are those that suit the site, soil, and the taste of the owner; imitating these would not perhaps be right under other circumstances, but good examples of places where some of the essential principles in design are not lost sight of and yet every convenience for good gardening secured are worth seeing. The plan is that of Munstead garden, near Godalming.

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 27.

ON this occasion, besides the ordinary committee meeting, the first spring show was held in the conservatory, rendered gay by the masses of spring flowers which it contained. These consisted chiefly of Hyacinths, Tulips, Cyclamens, *Amaryllises*, and Roses. There was a conspicuous absence of tender plants owing to the coldness of the weather; consequently there were comparatively few novelties placed before the floral committee.

First-class certificates were awarded to the following:—

RHODODENDRON TRIUMPHANS.—A greenhouse variety of the Japanese type. The flowers were about $2\frac{1}{2}$ inches across, of a brilliant crimson-scarlet colour, and produced in massive trusses. This is the richest coloured variety, combined with high quality of flower, that has yet been obtained by Messrs. Veitch, who exhibited it.

ANTHURIUM FERRIERENSE.—A new hybrid variety, raised and exhibited by Mr. Bergman, gardener to Baron A. de Rothschild, Ferrières-en-Brie (Seine-et-Marne), France. It is the result of crossing *A. ornatum*, a species with ivory-white spathes, with *A. Andreanum*, the comparatively new species with brilliant scarlet spathes. It is precisely intermediate between the parents. The foliage is large and heart-shaped, and much resembles that of *A. ornatum*; the flower-spoke just overtops the foliage and carries a heart-shaped spathe, 5 inches long and 4 inches wide, of a bright cherry-red colour, thus forming a most pleasing contrast with the spadix, which is as erect as in *A. ornatum*, and about 4 inches long, and of ivory whiteness.

ANGRÆCUM ARTICULATUM.—A small growing species in the way of the rare *A. Ellisi*. The foliage is small and of leathery texture. The flower-spoke on the plant exhibited was about 9 inches long, and bore eight flowers arranged on a two-rowed spike. The blossom is about 1 inch across, of white waxy texture, and possesses a tail-like spur about 3 inches in length, giving the plant a singularly grotesque appearance. Shown by Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway.

HYACINTH SOUVENIR DE J. H. VEEN.—A very fine new variety somewhat resembling King

of the Blues, but the colour is deeper and the spike much more massive; the bells, too, are larger and of better shape. All the plants shown of it by Messrs. Veitch were uniformly fine. It may be considered as the best of all the deep purple-blue single sorts yet produced.

HYACINTH PINK PERFECTION may likewise be said to be the finest of all the pink coloured sorts; indeed there is no other that at all approaches it, whether it be in size or colour. The spike is unusually large and inclined to be conical, while the blossoms are also very large and of a delicate pink shade. Shown by Messrs. Veitch.

ROSE WILLIAM FRANCIS BENNETT.—A new seedling variety, raised and shown by Mr. H. Bennett, Shepperton. It is a beautiful Rose, particularly in the bud state, the form being admirable, and the colour, a rich crimson-carmine, is most pleasing. It was certificated as a decorative variety, and as such it has but few rivals.

AMARYLLIS BYRON.—A splendid variety quite unlike as regards colour any that have been raised by Messrs. Veitch who exhibited it. The flowers are of the largest size with broad, slightly reflexing segments, forming a handsomely shaped flower. The colour is a rich carmine-magenta as near as it can be described. The plant exhibited bore six flowers on one spike and five were expanded.

AMARYLLIS LADY OF THE LAKE.—Flowers very large and of perfect form, the sepals and petals being unusually broad and of firm texture. The colour is almost a pure white, except that here and there are streaks and dots of crimson. This is by far the finest light-coloured variety yet produced, and it is one of a class that should be encouraged. Messrs. Veitch.

AMARYLLIS TENNYSON.—This has extremely large flowers, measuring nearly 9 inches across. The segments are proportionately broad, so as to make a symmetrical flower, while the colour is of a uniform brilliant scarlet, rendering the flower exceedingly handsome. One spike bore four such huge blossoms. Messrs. Veitch.

AMARYLLIS WORDSWORTH.—Flowers $6\frac{1}{2}$ inches across with wide divisions. The colour, a vivid scarlet, is streaked with white and flushed with a peculiar shade of purple. This splendid variety also came from Messrs. Veitch.

CINERARIA DUKE OF EDINBURGH.—An extremely fine sort, with flowers fully 3 inches across, having broad, overlapping florets of firm texture, and forming a perfectly circular flower. The colour is a rich velvety purple. **C. MRS. HERRIN**.—Flowers as large as those of the preceding, and as fine in form, but of a glowing maroon-crimson. **C. PRINCESS OF WALES**.—With very large flowers, but scarcely so perfect in point of form and substance as the other two. The colour is a bright magenta, very beautiful and pleasing. These are all extremely floriferous, bearing broad clusters of flowers, and are all that can be desired as regards habit of growth. Mr. James.

HYACINTHS, now in the height of perfection, formed the main feature of the show, being represented abundantly by three of the largest growers, Messrs. Veitch, Williams, and Cutbush. The hundreds of spikes not only made a brilliant display, but their perfume pervaded the whole conservatory. The most extensive collection came from Messrs. Veitch, who had no fewer than 240 plants, of which fifty were new kinds. From this large number of novelties the committee selected but two for certificates, though several of the others were of considerable merit and distinct from older varieties. It could be plainly seen among the novelties that the Dutch raisers are aiming at not only obtaining a massive, symmetrical flower-spike, but also large flowers, and the two certificated were remarkable in these respects. Large, bold flowers, not too crowded on a spike, seem to be the most admired now, and among the older varieties the beautiful white *La Grandesse* and *Czar Peter* are noteworthy examples of this style of flower. Messrs. Veitch were awarded a silver-gilt Banksian medal for their fine group, which was the perfection of skilful culture. It also contained about a dozen new varieties of *Amaryllises*.

A very extensive and attractive group came also from Mr. B. S. Williams, Upper Holloway. It consisted of about 150 *Hyacinths*, a similarly fine collection of *Tulips*, a large group of *Cyclamens* admirably grown and flowered, and some uncommonly fine pots (12 inches across) of *Lilies of the Valley*, which were much admired. The *Hyacinths* and *Tulips*, which comprised most of the leading varieties, were remarkable for high quality, and, with the other plants, constituted one of the most attractive parts of the exhibition, and to the exhibitor of which a silver Banksian medal was appropriately awarded.

A similarly large and fine group of *Hyacinths* and *Tulips* was exhibited by Messrs. Cutbush & Sons, Highgate, who for so long have been among the leading exhibitors of spring bulbous plants. Like the others, this collection consisted of a good selection of first-class sorts, and they were finely cultivated. A bronze medal was awarded. In this group was a new variety of *Azalea mollis* called *John Coward*, the flowers of which are of a delicate salmon-pink, distinct, we imagine, from any older variety, and decidedly a beautiful and most desirable spring flowering shrub.

The group of *Roses* exhibited by Messrs. Paul & Son, Cheshunt, was a much admired feature of the show. The plants, about thirty in number, were all admirably flowered, particularly having regard to the early time of year. The most conspicuous of the whole group was a new kind called *Mignonette*, one of the varieties of *Rosa polyantha*. In growth, size, and form of flower it much resembles the *Paquerette* variety shown so finely by Messrs. Paul at the meeting, but the colour, instead of being white, is of a beautiful rose-pink. The blossoms are produced in large clusters, and it is so floriferous that every shoot is terminated by a truss of bloom. Of this charming *Rose* there were some admirably grown specimens about 2 feet across, all literally covered with blossoms. The most prominent amongst the other varieties were, of *Tea-scented* sorts, *President*, *Catherine Mermet*, *Mad. de St. Joseph*, *Souvenir d'Elise*, *Souvenir d'un Ami*, and *Alba Rosea*. Among *Hybrid Perpetuals* were *Mrs. Laxton*, *Marquise de Mortemarte*, *Duke of Teck*, *Mad. Therèse Levet*, *La France*, *Mad. Victor Verdier*, *Annie Laxton*, *Magna Charta*, *Dr. Andry*, *Mad. Montet*, *Marie Rady*, all of which seem to be admirable sorts for forcing into early bloom. A silver-gilt Banksian medal was awarded to the exhibitors.

Some blooms of new seedling *Roses* were shown by Mr. Bennett, Shepperton, which were uncommonly fine for the season; indeed it is doubtful if some of them could be surpassed at midsummer. Among them were such lovely varieties as *Lady Mary Fitzwilliam*, with large, finely-shaped flowers of a pale blush tint; *Earl of Pembroke*, a splendid variety with large, perfect-formed blossoms of a glowing crimson; *Mary Bennett*, of fair size and excellent shape, and of a rich deep rose tint. This trio of new *Roses* undoubtedly has a bright future among rosarians.

A group from Messrs. Carter and Co., High Holborn, was an attractive one, as it consisted for the most part of a brilliant collection of *Cinerarias*, which this firm grows so extensively for seed. *Chinese Primulas* were also shown by Messrs. Carter in great variety, and though rather late for these flowers, the plants were in admirable condition, such beautiful sorts as *Vermilion Queen*, *Holborn Pearl*, *Rosy Morn*, the blue *Holborn Gem*, and the singular yellow-leaved variety called *Golden Leaf* being uncommonly fine. Added to the above were some admirably grown specimens of *Deutzia gracilis* and the graceful *Dielstra spectabilis*, the latter being particularly fine. A bronze Banksian medal was awarded to Messrs. Carter for this group.

CINERARIAS were shown splendidly by Mr. James, the well-known raiser and cultivator of these flowers, who brought an extensive collection, consisting of about seventy plants, from his nursery at Farnham Royal, Slough. Among these there were no fewer than twenty considered of sufficient merit to be named, and from these the committee selected three for certificates, Pro-

bably there never has been such an exhibition of seedling *Cinerarias* of such exceptional merit as these, and Mr. James seems to have reached the climax of perfection in his strain, taking every point into consideration. A bronze medal was deservedly awarded to the exhibitor of this group.

Among the *Orchids* and stove plants sent by Mr. B. S. Williams were the pretty *Odontoglossum Oerstedii*, with small, but pretty pure white, yellow centred flowers; *Dendrobium luteolum chlorocentrum*, the new variety alluded to elsewhere; *Masdevallia Shuttleworthii*, and *Leptotes bicolor serrulata*, a charming little *Orchid* with round fleshy leaves and showy blossoms, having pure white sepals and petals, and a bright amethyst lip; a splendid new *Amaryllis*, named *Shirley Hibberd*, had small, but finely shaped blossoms of an intensely rich crimson-scarlet; and as a contrast to this there was a plant of *A. virginalis* bearing seven flowers on one spike, a most unusual number.

Messrs. Cannell & Sons, Swanley, exhibited three new double *Cinerarias*, viz., *Sir Drummond Wolff*, with large globose flowers of a rich purple; *Miss Simpson*, bright magenta, also large; *Hermia*, deep violet-purple, all of good habit and floriferous. The same firm also showed a plant of a new zonal *Pelargonium* called *Edith George*, which is by far the finest of its colour yet produced. The trusses are immense (to use a relative term), and the pips are of perfect shape and of a pleasing deep rose-pink.

AMHERSTIA NOBILIS, one of the most gorgeous of all tropical plants, was sent by Mr. Speed from the Duke of Devonshire's garden at Chatsworth. The raceme sent was an uncommonly fine one, and the large singularly formed blossoms of a vivid scarlet blotched with yellow a great attraction, the *Amherstia* being so much heard of, but so seldom seen.

HYMENOCALLIS MACROSTEPHANA.—This new bulbous plant, allied to *Pancratium*, was shown in splendid condition by Mr. Woodbridge from the Duke of Northumberland's garden, Syon House, Brentford, where it is grown better than anywhere in the country. It is a most beautiful plant, bearing huge clusters of pure white flowers twice the size of *Pancratium fragrans*, and quite as sweet scented. It is a plant that deserves to be more widely known than it is, although it seems to be gradually becoming distributed.

A large gathering of cut blooms of *Anemone fulgens*, expanded in the genial clime of Southern France, was shown by Messrs. Collins & Gabriel, Waterloo Road. The brilliancy of these scarlet blossoms in such a mass was a very telling feature, and well illustrated what fine effects can be obtained by massing together flowers of one colour. Some uncommonly fine blooms of *Crown Anemones* were also shown, representing a great variety of colours. The large size of these, as well as those of *A. fulgens*, plainly showed to what perfection they attain in a warm congenial climate far finer than we can expect them to be in our gardens here.

Fruit.—Half-a-dozen remarkably fine bunches of *Lady Downes Grape*, large in size, good in colour, and in excellent condition, were exhibited by Mr. Hudson, gardener to Mr. Atkinson, Gunnersbury House, Acton, to whom a cultural commendation was worthily accorded. A like recognition was voted to Mr. G. Summers, Sandbeck Park Gardens, Rotherham, for a fine dish of fruits of *La Grosse Sucré Strawberry*, which were large and highly coloured. A most important exhibit was that from Mr. S. Ford, gardener to Mr. W. E. Hubbard, Leonardslee, Horsham; it consisted of about half a hundred dishes of Apples and Pears, all of which were in excellent condition. The Pears included *Uvedale's St. Germain* and *Allman's variety* of it, *Beurré Rance* and *Beurré Berckmans*. Among the Apples were good examples of *Cockle Pippin*, *Blenheim Pippin*, *Cherry Orchard*, *Mitchell's Seedling*, *Norfolk Beefing*, *Adam's Pearmain*, *Mère de Menage*, *Reinette du Canada*, *Pronger's Pippin*, *Stone Pippin*, and *Scarlet Pearmain*. For this excellent display so late in the season the committee voted to Mr. Ford a cultural commendation.

THE PRIZES FOR AMARYLLISES offered by an amateur were competed for on this occasion. Though the few plants exhibited for the prizes were poor compared with the splendid varieties shown by Messrs. Veitch, they showed a creditable effort on the part of amateur cultivators. There were three classes, the first for the best seedling variety, the second for six varieties, the third for the best light variety and the best dark variety shown in the class for six. There were but two exhibitors of seedlings, Mr. Wiggins, gardener to Mr. Little, Hillingdon Place, Uxbridge, and Messrs. Paul & Son, Cheshunt. The former had seven seedlings, and out of these the judges selected two for the first and second prizes; the first was given to Ameer, a large well-shaped flower, scarlet tipped with white; the second to Queen Mab, a handsome sort of the Leopoldi class, with large scarlet flowers tipped with white. Out of the three shown by Messrs. Paul, the one named Mrs. Hird was selected, it being one of the vittata type. There were two exhibitors of six plants, Mr. Wiggins again being first. He had Mad. Titiens, Iolanthe, Comet, Coronet, Princess Dagmar, and Dr. Masters. The other six were not considered worthy of award. The two best light varieties among the six were Iolanthe, belonging to the Leopoldi class and of good form, and Comet, of a similar stamp, but lighter in colour. The two best dark sorts were Princess Dagmar, a bright scarlet flower of good form, and Dr. Masters, of a vivid uniform scarlet. Mr. Wiggins was the prizetaker in both of these classes.

The prizes for six Cinerarias, offered by Messrs. Sutton & Sons, Reading, were to have been competed for on this occasion, but only one collection was exhibited, and to this the judges only awarded the third prize, as but three of the plants were in a creditable condition.

A lecture on the Amaryllis, delivered during the afternoon by Mr. Shirley Hibberd, will be given at length in our next issue.

Scientific committee.—*Sclerotia of Peronospora infestans*.—Mr. W. G. Smith called attention to the fact that these so-called sclerotia, described in the paper by Mr. Wilson, read at the last meeting, were observed and figured by Von Martins so long ago as 1842 ("Die Kartoffel-Epidemie"), and by Berkeley in his paper on the Potato disease in the first volume of the *Horticultural Journal*. They are also subsequently figured by Broome in 1875 and Professor Buckman. Mr. G. Murray said that from his examination they often seemed to consist of discoloured and disorganised contents of cells which they completely filled, though in Martins' figure two or three were in a cell; but Dr. Masters noticed that they are often outside the cells and of an angular character. The question was raised whether they might not have been expelled from the cells by the covering glass. Martins figured them with coniferous threads proceeding abundantly from them. Further investigations of their true nature appeared to be desirable.

Abutilon and Hibiscus "bigener."—Dr. M. T. Masters described a very dark flowered Abutilon which was said to be due to an original cross between Hibiscus Rosa sinensis and Abutilon striatum. The original plant was a dark flowered seedling, which was fertilised by Mr. George for two or three generations with the pollen of the Hibiscus, and though the character of the flower is that of an Abutilon, it has the truncated column and foliage of Hibiscus. In one plant the leaves were blotched with a dark crimson spot. Hence it is probably a true bigener, or case of generic crossing.

Pelargonium peltatum or *Ivy-leaved cross*.—Mr. George sent foliage of this cross showing reversion to the peltate type, several of the leaves assuming a funnel shape or other irregular form, thus betraying its origin from *P. peltatum*.

Orange diseased by insects.—Mr. McLachlan exhibited stems and leaves of Oranges badly attacked by *Mytilaspes citricola* received from the Bahamas. He read a communication by Messrs. Dunlop & Roker, communicated by the Governor of the Bahamas to the British Government request-

ing information. The insect was therein named *Aspiditis Gloveri*. Mr. McLachlan offered some remarks and suggestions on the method of attack by the insect and remedies to suppress it.

Pilobolus roridos.—Mr. W. G. Smith showed some Geranium leaves covered with the sporangia of this fungus, which had apparently been shot upon it from the fungus in the earth in which the plant grew.

Solanum species.—Sir J. D. Hooker read a communication from Mr. Lemmon, Oakland, California, upon the discovery of three species or varieties of Solanum bearing tubers from the border-land of Arizona and Mexico: "We found them first," writes the author, "on the cool northern slopes of the high peaks of the Huachuca range; then, afterwards, where least expected, invading the few rudely cultivated gardens of the lower foot-hills. One kind is called S. Jamesi. This has white flowers and tubers. Another was S. Fendleri (Gr.). It has smaller purple flowers and flesh-coloured tubers. This Dr. Gray lately concludes to be but a variety of the old Peruvian Potato, and he calls it var. boreale of S. tuberosum. The third form or species, found at 10,000 feet altitude, has mostly simple orbicular leaves, one or two berries only to the umbel, and small pink tubers on long stolons; grows in loose leaf-mould of cool northern-forested slopes. . . . I have great faith in the successful raising of one of these species (or varieties) to a useful size, for the following reasons: (1) while the S. tuberosum var. boreale bears long stolons and but a few tubers, the other kind, S. Jamesi, makes many short stolons, terminated by 4-8 large round white tubers; (2) while the first kind has been partially tried and then given up, the latter species is known to have become enlarged to the size of domestic hens' eggs during the accidental cultivation of three years in the embanking of a rude fish-pond."

ROYAL BOTANIC.

MARCH 28.

THIS was the first spring show held in the Regent's Park Botanic Garden this season. As is always the case here, there was a goodly muster of exhibits, crowded for the most part in a narrow corridor, one of the worst places possible for a large concourse of people to thoroughly enjoy the flowers. It is to be regretted that the society does not see its way clear to make a better arrangement as regards these beautiful spring shows, which, if properly carried out, could be made quite as enjoyable as the large summer exhibitions which have acquired a world-wide reputation for picturesque effect. Instead of cramming such a host of plants into what is little better than a passage, and where the plants can only be arranged in long monotonous rows, why not show them in the conservatory, which is close at hand? there is always sufficient material in these spring shows to convert such a noble building into a perfect floral paradise by tasteful arrangement, and the effort would not entail much additional labour. The exhibition was a very good one on the whole, and some really first-rate exhibits were shown in some of the classes.

CYCLAMENS, for example, have seldom been seen finer than those shown by Mr. Little's gardener (Mr. Wiggins), a veteran in the culture of these fine flowers. From Mr. Little's garden alone there came a hundred or more plants, and this number constitutes but a small portion of the entire collection at Hillingdon Place. The dozen plants shown from this garden for the first prize were simply perfection. The pots (9-inch ones) held a broad spreading tuft of foliage from which arose a perfect sheaf of blossoms, varying from snow white to the intensest crimson. This dozen was shown in the open class, but another scarcely inferior dozen competed for the prizes for amateurs. A poor dozen also shown in this class only served to bring out more prominently the superiority of Mr. Little's plants. A market grower (Mr. Clark, of Tickenham) also grows the Cyclamen to perfection, and had splendid examples of skilful culture, consisting of a group of two or three dozen good

sized plants fairly smothered with bloom. Mr. Clark also carried off second honours in the open class with twelve admirable specimens.

HYACINTHS were, of course, a prominent feature, but there was not a brisk competition either among nurserymen or gardeners, especially considering that the cultivation of this flower is so popular. There were but two amateurs' collections, and, as usual, the first place was taken by that well-known cultivator, Mr. Douglas, now of Great Gearies, Ilford, but still Mr. Whitbourne's gardener. His plants were perfect examples of what Hyacinths should be when the utmost is obtained from good bulbs. All the spikes were massive, dwarf, and firmly beset with bloom (two great points). The selection, too, was good, an important matter in Hyacinth showing. Here are the nine sorts Mr. Douglas had in his doz., viz., General Havelock, fine dark blue; Grandeur à Merveille, one of the finest whites; King of the Blues, a king indeed amongst blues; Lord Derby, pale blue, large bells; Grand Lilas, also a pale blue, but a distinct shade; Von Schiller, deep salmon pink, one of the finest; Ida, a delicate yellow; Vurbaack, bright crimson; Fabiola, rich pink. It is worthy of remark that there is not a double-flowered sort among them, and it seems that Mr. Douglas always prefers the singles and shuns the doubles. His rival collection (shown by Mr. Baxter) was a very creditable one, and was well worthy of second place. There were three nurserymen's collections. The best, from Messrs. Williams & Son, Finchley, was a fine one indeed. It was made up of La Grandesse, white; Gigantea, pink; Lord Derby; Mont Blanc, white; Koh-i-nor, double red; King of the Blues; Grand Lilas. Messrs. Cutbush showed the next best collection, which was also a fine one—a select dozen of some hundreds of plants grown by this firm. That from Mr. Wood, Haverstock Hill, was also a good collection.

TULIPS were even less numerous in the competing classes than the Hyacinths. There were but two collections from amateurs—one from Mr. Easom, the other from Mr. Douglas. Though twelve potfuls have to be shown, the schedule restricts the varieties to four for some reason or other. Mr. Easom's plants were placed first; but if first in the morning when judged, they appeared not to be the best in the afternoon; moreover, his plants were more drawn than those of his rival. The kinds shown were Joost Von Vondel and its white variety, a beautiful sort; Proserpina and Keizer's Kroon, a good four. Mr. Douglas had the same sorts except the white, which was the White Pottebakker, also a beautiful sort, which opens its flowers in a handsome cup-like manner. This dozen was more sturdy in growth, better foliage than the other, but perhaps the judges thought differently.

FORCED ROSES were a great attraction, though the only exhibitor of them were the Messrs. Paul, of Cheshunt, who had in the class for six some really fine specimens profusely covered with blossoms of high quality. The sorts were: Madame Victor Verdier, La France, Caroline Kuster (very fine), Edouard Morren, Mad. Thérèse Levet, and Marquise de Mortemart. All these seem to be admirable for forcing. Besides these Messrs. Paul showed a similarly fine collection as at Kensington the day previous, and were awarded a silver medal.

DEUTZIAS are always shown admirably at these spring shows here, and on this occasion they appeared to be finer than ever. The six Mr. Douglas showed for the first prize were beautiful in the extreme, each of the plants being about 4 feet or 5 feet high and a yard through, and literally smothered with snow-white blossoms. When grown thus, *Deutzia gracilis* is a lovely shrub. Mr. Douglas has certainly the start among London exhibitors, but Mr. Little's gardener follows closely at his heels. Though his plants are not yet so large, the six showed for the second prize were really fine examples. The other six were poor. Narcissi and Lilies of the Valley were not numerous. Of the first, Mr. Douglas was the only exhibitor of nine plants, all of which were fine, the sorts being Mesmerus, Newton, Queen of the

Netherlands, and Bazelman major, all of the Polyanthus class. Why is it that other species of Narcissi are never shown at spring shows? How beautiful would, for instance, potfuls of The Empress and Emperor, Horsfieldi, obvallaris, Bulbocodium look at this season. If grown well they would make a charming display. The schedule does not prohibit them. Among the three collections of six pots of Lily of the Valley there were none that equalled the splendid examples of this flower brought into Covent Garden Market by such growers as Messrs. Hawkins & Bennett, of Twickenham.

AZALEAS as a rule are not remarkable for high quality at these early shows, and the present occasion was no exception, for the best of the collections was scarcely worth notice. Some of the exhibitors seem to aim at forcing as big specimens as they can; consequently they have but ill success. If they were to bring small and profusely flowered plants, or half specimens similar to those Mr. Turner usually exhibits at the summer show, and which everybody admires, then the Azaleas would form an important feature of a spring show. The half dozen showed on this occasion by Mr. Little's gardener were small, untrained, free-looking bushes covered with flowers of high quality. A plant of *A. grandis* with flowers 4 inches across was a remarkable specimen, far better than huge, poorly flowered specimens.

CROCUSES were good, though the only exhibitor of them was Mr. Douglas, who had a dozen admirable potfuls of yellow, purple, and striped sorts, which in the sunshine expanded widely, and were highly attractive. Chinese Primulas could scarcely have been expected in a fine condition, seeing how late the season for them is.

AMARYLLISES were shown by three exhibitors. Among the first six were two splendid varieties, Empress of India, one of Messrs. Veitch's hybrids, and another called Crimson King, which was without exception the richest coloured Amaryllis that has yet come under our notice. The flowers were small, but if their colour could be infused into a larger variety the result would be a great gain. The inferior quality of most of the plants in the competing class showed more plainly the great advance Messrs. Veitch have made in Amaryllis improvement.

HARDY PRIMULAS and herbaceous plants were shown by Mr. Douglas. Amongst his nine Primulas he had capital plants of *P. nivalis*, a perfect mass of white bloom; a similarly fine specimen of the charming *P. rosea*; fairly good lots of *P. cashmeriana*, *marginata*, *intermedia*, *Polyanthus* Cheshire Favourite, a green-edged Auricula, and another called Fanny. The same exhibitor's nine herbaceous plants included a fine potful of a Narcissus called princeps, which is apparently identical with the true single *N. Telemonius*; also good specimens of *Primula rosea*, Solomon's Seal, *Primula Sieboldi* lilacina, *Fritillaria Meleagris* alba, *Pulmonaria virginica*, white and blue Grape Hyacinths (*Muscari botryoides*), and a fine potful of the rarely-seen North American Blood-root (*Sanguinaria canadensis*). There was one other collection in which there was less variety.

NEW PLANTS were abundant, there being no fewer than ninety submitted to the judges. That these were not all absolutely new may be seen from the fact that one exhibitor thought it worth his while to send flowers of the common Corn Marigold (*Chrysanthemum segetum*) to be judged for a certificate. This and numerous others ought to have been vetoed before coming under the judges' notice. Out of these ninety plants there were about thirty selected for certificates. Botanical certificates were awarded to *Anthurium ferriense*, shown by Mr. Bergman; *Andromeda japonica*, by Mr. A. Waterer; *Corylopsis pauciflora*, by Messrs. Veitch; and *Masdevallia Shuttleworthi*, by Mr. B. S. Williams.

Floricultural certificates were awarded to Messrs. Veitch for Amaryllises—Homer, Meteor, Henry Little, Lady of the Lake, Wordsworth, Byron, and Southey; Hyacinths—Pink Perfection, Empress of India, and Souvenir de J. H. Veen; and Rhododendron Triumphans.

To Mr. James, florist, Farnham Royal, Slough, for Cinerarias—Sir P. Rose, Brightness, Mrs. Herrin, Mr. A. F. Barron, Duke of Edinburgh, Lord Beresford, Albert Cox, and Lord Wolseley.

To Messrs. Paul & Son, Cheshunt, for Rose Mignonette. To Mr. H. Bennett for Rose Mary Bennett, Mrs. F. Bennett, Rosa polyantha Anna Maria Montravel. To Mr. Todman, Tooting Common, for Azalea Duchess of Albany and Mrs. J. Connell. To Mr. Coombes for Pansy Exoniensis. To Mr. H. Little for Amaryllis Queen Mab; Cyclamens, Mrs. Little and Amethyst; and Azalea M^{de}. J. N. Verschaffelt.

Besides these the following new plants were exhibited: From Mr. B. S. Williams, *Dendrobium luteolum chlorocentrum*, *Masdevallia xanthina*, *Leptotes bicolor serrulata*, *Odontoglossum Erstedii*, *Angraecum articulatum*, *Cattleya Trianae pulcherrima*. Mr. H. Bennett showed Roses Earl of Pembroke, Duchess of Albany, Princess of Wales. Mr. Little showed Amaryllis Ameer and Irmia, and Azalea W. J. M. Verschaffelt. Messrs. Paul & Son, Amaryllis Mrs. Hird. Messrs. Carter & Co., *Primula Gold Leaf*. Messrs. Cannell & Sons, Cineraria A. F. Barron and Sir Drummond Wolff (both double), and *Pelargonium Edith George*. Messrs. Veitch, Amaryllis Robert Burns, Cowper, Tennyson, Sir B. Seymour, Olivette; Hyacinths Safrano, Mauve Queen, *Balsamiflora*, Duchess of Albany, Lord Wolseley, *Fleur de Parade*, President Grey. Mr. J. James, Cineraria Mr. Herrin, Countess Lonsdale, J. Cox, Captain Williams, Captain Drake, Sir F. Roberts, General Hicks. Mr. Frost, Sir E. Wood. Mr. G. Wright, Capt. Edwards, Colonel Clarke, Mrs. Cox, Princess of Wales, Sir R. Cross. Mr. G. Bolas, *Chrysanthemum segetum*. Mr. Coombes, Pansy W. Coombes. Mr. Baxter, *Mignonette odorata major*.

THE MISCELLANEOUS GROUPS contributed in a great measure to the success of the show. Conspicuous among these were the extensive groups of Hyacinths, Cyclamens, Lily of the Valley, and Tulips from Mr. B. S. Williams, Victoria Nursery, Upper Holloway, similar to that shown at South Kensington the day previous. A large silver medal was awarded to this exhibitor. A similar medal was awarded to Messrs. J. Veitch & Sons, Chelsea, for their large collection of some 250 pots of Hyacinths, all in splendid condition, and a large group of new Amaryllises, which together made an attractive display. Messrs. Cutbush won a silver medal for a grand display of Hyacinths and Tulips, like that shown at South Kensington. Silver medals were also awarded to Messrs. Paul & Son, Cheshunt, for a group of Roses; to Mr. H. Bennett, Shepperton, for a new Rose; to Mr. Wiggins, gardener to Mr. Little, for a group of Cyclamens; to Messrs. Carter & Co., High Holborn, for a group of Cinerarias, *Dielytras*, *Deutzias*, &c.; to Mr. A. Waterer, Knap Hill Nursery, Woking, for an extensive collection, consisting of nearly 200 plants of Primroses and Polyanthus in great variety, and which won a fair share of admirers.

Bronze medals were awarded to Mr. Clark, Twickenham, for Cyclamens, and to Mr. James, Farnham Royal, Slough, for a large collection of about five dozen plants of Cinerarias, two dozen of which were named sorts of great excellence. This group attracted a deal of attention, as Cinerarias have never before been seen so finely. A bronze medal was also awarded to Mr. Douglas, gardener to Mr. Whitbourne, Great Gearies, Ilford, for an uncommonly fine specimen tree of St. Michael's Orange, which bore about a dozen and a half of full-sized fruits, well coloured and said to be of excellent flavour.

A full list of awards will be found in our advertising columns.

The Primrose as an emblem.—An absurd and persistent attempt has been made by a correspondent of the *Times* to connect the Primrose with the memory of the late Lord Beaconsfield. In the endeavour, a great deal of useless derivative erudition has been shown in the way of exhibiting what the writer himself calls barbarous Latin and defective Italian. This point being settled, and it being proved satisfactorily, at least to the writer, that the yellow Primrose, the flower in

question, is capable of being confounded with the Daisy, he enters a strong protest against the yellow Primrose "being degraded to the base purposes of a party badge," the very purpose to which his entire correspondence, if it has any purport at all, would dedicate it. But it is gratifying to feel that this confusion of thought will have no further practical effect than its own exemplification. If the age of chivalry has not closed—Burke notwithstanding—the age of symbolism certainly has. Floral emblems, with many other things, went out with the French *ancienne régime*, and no attempts, however desperate, will in our day make either the Violet or the Primrose individually representative.

Sea weeds and land weeds.—The papers say that "the secretary to the Royal Botanic Society recently tried the novel experiment of planting seaweeds in ordinary earth. It would naturally be supposed that these 'flowers of the ocean' would not flourish away from their native element, but this is not the case, most of the specimens planted having grown admirably in soil which is constantly kept in a moist condition."

* * We should like to see the Society with a few more good houses to grow the beautiful tropical land weeds a little better than they are usually seen in its gardens. The outdoor department is much neglected. The improvement now beginning in many private gardens in hardy plants is as yet unknown here, and more's the pity, for the example of the garden is powerful for good or evil.

Charcoal in Vine borders.—"Constant Reader" may venture to use charcoal in his soil for Vines with safety and derive good results therefrom. With regard to quantity, his border must be taken a little into consideration—as to whether it is elevated and well drained or the reverse. Should it be elevated and well drained, he may put one bushel of charcoal to every six bushels of soil, or one cartload to six cartloads of soil. Should his border be on the level with the walk or garden outside—the same as I have had to contend with—he may put one bushel to every four bushels of soil, or one cartload to four cartloads of soil. If bones are obtainable they should not be left out of his mixture in making a new border; he can add them in the same proportions as the charcoal.—J. HOBBS, *Torquay*.

Exhibition at Ghent (B.).—This commences on the 15th of April next and lasts until the 22nd.

Cinerarias (T. Moss).—The blooms you send represent a fair strain, but much inferior to the best strains, such as those exhibited in London this week. Cinerarias, however, cannot be judged by single blooms sent in a small box through the post.

Hybrid Vines.—At an exhibition held during last autumn at Bordeaux Grapes were shown which were the produce of hybrid Vines obtained by crossing some of the American species with the best wine-producing varieties. The fruit is said to be of good flavour, and it is hoped that these new kinds may resist the attacks of the Phylloxera.—J. C. B.

Names of plants.—*Nemo*.—1, *Clomene comamontana*; 2, too small to name; 3, *Cypripedium hirsutissimum*; 4, *Hebeclinium atrovirens*; 5, *Dendrobium nobile*.—*Mac*.—Common wild Daffodil (*Narcissus Pseudo-Narcissus*).—*C. R. Scrase-Dickins*.—1, *Ilex latifolia*; 2, *Boussingaultia vasselloides*; 3, *Epidendrum vectum*; 4, not an unusual double form of *Narcissus incomparabilis*.—*Anon*. (Orchid flowers in match box).—3 is *Cyrtorchilus Karwinski*; please send better specimens to name and secure numbers; Nos. 1 and 2 were detached.—*J. D. M. (Whiteaway)*.—1, *Nephradium invisum*; 2, *Litobrochia vespertilionis*; 3, *Hypolepis amauro-rachys*; 4, cannot name for want of spores; 5, *Todea pellucida*; 6, cannot name for want of spores.—*B. L.*—*Alpinia nutans*.—*Erin*.—*Narcissus moschatus* (not rare; try Barr & Son, King Street, Covent Garden).—*A. J. H.*.—1, *Narcissus incomparabilis* fl.-pl.; 2, apparently *N. odoratus* fl.-pl., much withered; 3, *N. minor*. *N. Pseudo-Narcissus* is a common English plant, and other species are found less abundantly.

COMMUNICATIONS RECEIVED.

B.—D. W.—J. C.—St. Brigid (next week).—R. B.—A. B.—A. F. B.—J. S.—W.—F. W.—S. H.—G. B.—A. H.—B. W.—J. F.—Alpha.—H. G.—J. S.—J. M.—G. E.—A. S. W.—T. B.—W. E. G.—C. W. D.—A. M. C.—F. N.—J. B. W.—R. A. H. G.—S. D.—T. S.—F. G.—Brockhurst—G. J.—Cor.—R. M.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

NOTES ON BIRDS

In the Garden,* Sheen Lodge, Richmond Park.
BY PROFESSOR OWEN.

AMONG the observations made on birds in my garden* I have noted that those which come to breed migrate from the south, and those which come to feed from the north. The term "feeders" is, of course, used only to express that food is the sole or main object of the visit; the "breeders" are necessarily also feeders. The general conclusion was that all the migrants, flying from their feeding to their breeding latitudes, went from south to north, and from their breeding latitudes to their feeding ones in the reverse direction. The natatorial and grallatorial orders (swimmers and waders) furnished mainly the north-to-south travellers which tarried for subsistence in our latitude and locality, but with them came also the fieldfares and the handsome redwings. The latter are, then, busy in the garden, with short wheeling flights, stripping the Hollies of every scarlet berry, and the Barberry bushes of as many of theirs as our own home thrushes and black-birds had left.

At this, with us, wintry season, the immigrants which came during summer to breed had fled to their warm or tropical feeding-grounds, with their fledged broods, for sustenance during our hard season.

In occasional wintersojourns in Egypt, following the migratory example of my summer feathered friends, I have nodded to the flycatcher busied, in my study at Cairo, in diminishing the insect plague, and have said, "Glad to see you, my little friend! Hope you will repeat your visit to Sheen Lodge next June; you will be very welcome. I duly admired your skilful evolutions, darting from the garden seat to pounce on the fly skimming unconsciously across the lawn, and wheeling back with your prey to your post of observation."

At the opening of the spring season my redwings and fieldfares are off to their more northern and arctic breeding grounds. The season of love there puts the vocal power in tune, and the skilful practice of the instrument has gained for the male *Turdus iliacus* its name of "Swedish nightingale." Occasionally a late tarrier has given me a parting specimen of his notes.

Our larger and more numerous winter immigrants are to be seen in the park (Richmond), and especially in the large sheets of water known as the "Pen Ponds." There in a secluded bay, fringed by the foliage of adjoining preserves, and far from the drives and established walks, might be seen, ere a continued frost had iced over the water, the wild mallard with his mate, and occasionally the teal, the widgeon, and the golden-eye.

In the earlier years of my residence the woodcock could generally be sprung from some tempting shelter at the winter season; and occasionally the peculiar notes, "humming and drumming," with the "peet-peet" of the snipe might be heard. But since the thorough drainage of the park, prior to the visit of Her Majesty to the White

Lodge in 1861, the winter immigrants of the wading and swimming kinds have been few and far between. By the herons from a neighbouring heronry the ponds are visited at all seasons. Angling at early morn, I have always seen those patient waders similarly occupied near the opposite margin.

I can well understand the condition of our latitude and environment which tempts the nightingales to our groves and gardens for their breeding ground.

In the warm or tropical regions which they have left the insect food may be in abundance, but it is mostly in the comparatively dry and chitinous state of the "imago." At least, in Egypt and North Africa, there is not that moisture and other conditions favouring the development of buds and leaves so suitable, as with us, for the sustenance of greedy grubs. When I have come upon strings of fat, green larvæ dangling from branches of the Blackthorn, and at the same time listened to the trill of the father bird from a topmost twig, I have said, "This is the soft nutriment which you and your faithful mate select for the early digestive powers of your callow brood."

And here, I may remark, how rarely I have succeeded in finding a nightingale's nest, though more than one pair annually rear their brood in the garden. On one of these occasions the nest was hidden near the base of a Holly; the soft warm nursing chamber was walled round by a ring of dead and shed Holly leaves stuck upright with their margins overlapping each other.

The variety and abundance of larval food afforded by the gardens and shrubberies in an English spring I deem to be one of the conditions, if not a main one, of the desertion of their warmer and more sunny latitudes by little immigrants with less volant powers than the swifts and swallows which seize their insects on the wing.

For three successive years I have noted the first hearing of the nightingale in my garden on the 15th April. I have not made any observation which affects the belief that the males precede the females in the date of their arrival, and that the sexual migratory flocks are apart or distinct. But, however this may be, the question forces itself, how came these little African or Asiatic birds to know the distant country appropriate to their reproductive needs, and the way to it in the dark? The conjectural biology in vogue may affirm that a primeval pair of nightingales accidentally strayed into a latitude in which they succeeded in rearing and finding fit food for exceptional broods; that this offspring, when winter compelled, followed their parents back to the summer clime. The younger birds repeated the old ones' course northward at the breeding season. Successive generations perfected the ancestral habit or instinct, and thus was selected the migratory songsters.

Returning to prosaic matters of fact, I have to meet a question more commonly asked, Why our nightingale immigrants are subject to the well-known geographical limitation of their nesting work in Great Britain? To this my reply is, I suppose it relates to a corresponding limitation of the numbers annually arriving. The assemblage reaches the south-eastern base of England and finds the needful room without migrating more northward than the Trent, or westward than Devonshire. Exceptions may prove the rule.

I have never witnessed what I could interpret as the first arrival or descent of any immigrant species.

Those naturalists who have enjoyed the opportunity of observing the singular phenomenon testify that the flight is by night, and undertaken by countless numbers of the same species, occasionally associated with similar myriads of the old and young birds of other species. One may comprehend the cause of superstitious interpretations, such as the nocturnal chase of the spectral hunter, by wakeful charcoal burners, foresters, and fishermen, of the strange sounds aloft, sweeping over them in the darkness of the night—sounds due to such invisible passing flocks at the migratory season. The smashed pane of a lighthouse window of thick plate glass, with the fractured beak and skull of the wild duck impinging thereon in its headlong flight, and falling dead upon the floor of the light chamber, is a specimen in the British Museum worth contemplating in attempting to realise the rate at which the migrating bird flies by night. The largest sum of observations on avian migratory phenomena is due to wakeful, keen-eyed residents of the lighthouse island rock of Heligoland.* How far each beat of the wing is an act of volition, or whether the main flight be due to involuntary, automatic reflex, nervo-muscular, actions which do not tire, is a moot question in comparative physiology. The glare of the lighthouse in the mid route to and from an arctic nesting-place attracts and may guide on either hypothesis. The perfection of vision in the keen-sighted, far-seeing bird may be reckoned among the causative conditions of successful arrival at the fitting breeding localities. And while on this track of thought I am reminded of the way of education of the useful carrier pigeon. The young bird is first taken a moderate distance from home; it returns, having noted in such short flight some object which guides its course. The distance is then increased by the trainer before the dove is let free, and guiding objects, still more remote from home, indicate the way back. The distances are again increased until steeples or other conspicuous objects many miles apart are recognised through the carrier's singular instinct as pointing homeward.

Gerard and Parkinson.—In continuation of Mr. Archer-Hind's note (p. 277) it would be very interesting to have fuller information as to the dates and variations of the different editions of Gerard and Parkinson. I fancy that the first edition of Gerard was published in 1598, and not in 1597, on the ground that although "the address to the reader" is dated December 1, 1597, the portrait of the author bears date 1598. Johnson published his edition in 1633, with large additions. Are there any other editions extant? Parkinson's "Paradisus" again appears to have been published in 1629 and republished in 1656. Do these editions vary, and are there any others? There is also Parkinson's "Theatrum Botanicum," published in 1640. Is this book of any value? It seems to make no mention of Narcissus or Daffodil, and is therefore useless on that quest. Johnson's edition of "Gerard" is evidently much more frequent than the original, as nearly all Gerardian references which have lately appeared in THE GARDEN have been taken from the former and are in reality Johnsonian. The editor took great care to avoid any such misapprehension, for he not only prefaced the book with a detailed list of his interpolations, but also marked them in the body of the work by enclosure between [. . .]—the more inexcusable, therefore, the misreference, and although Gerard may have profited by the association with Johnson by the attribution to him of acquaintance with many plants which he never described, he has in another respect suffered a severe loss by the handing down

* See THE GARDEN for February 13, 1875.

* Seeborn's "Siberia in Europe," p. 249.

of his name in the incorrect form "Gerarde." The name is "Gerard." He signs his own name to his dedication and address to the reader as "John Gerard;" but Johnson, on his title-page, terms him "John Gerarde," and so, I presume, laid the foundation for the now widely-accepted mis-spelling of the name, although the reader has but to turn over the next page of Johnson's edition to see the correct form printed at the foot of the dedication. The error should be corrected. Mr. Burbidge, in his work on "The Narcissus" spells Gerard's name correctly until he comes to his list of authors dealing with the subject, and then we find, as usual, "Gerarde's Herbal." The power of association was too great.—RHO.

PLANTS IN FLOWER.

KENNEDYA RUBICUNDA is one of the prettiest of greenhouse climbers now in flower. It has long slender stems clothed with trifoliate leaves, and each little lateral shoot bears a cluster of deep red blossoms like miniature lobster claws. So abundant are the flowers, that the whole plant looks a mass of red. We saw a few days ago a fine plant of it in Messrs. Low's nursery, at Clapton, which is among the few London nurseries where hard wooded stove and greenhouse plants are still grown on a large scale.

THE AMARYLLISES at the Royal Exotic Nursery, Chelsea, are still in great beauty, and since our last note there have been in flower many beautiful seedlings, in many instances eclipsing those that have flowered previously. The houseful of these plants as it is now is one of indescribable beauty, and those who would like to see what Amaryllises really are when grown as well as they can be and represented by the finest varieties should see this exhibition. The collection will be in perfection for quite three weeks yet to come.

DOUBLE YELLOW WALLFLOWER.—In a charming and fresh series of spring flowers from the Manor House, Bessingham, Norwich, we have a fine example of the old double yellow Wallflower, which one would like to see more frequently on dry banks or borders in our gardens. Notwithstanding our recent severe weather, the flowers from Norfolk look quite fair and fresh. There are so many things budding up in the well-stored garden, that a few fine days help to obliterate the marks of the east wind and cold.

AZALEA OBTUSA ALBA.—Of the host of so-called new plants shown at the Regent's Park show last week few were so meritorious as this Azalea, which is chastely beautiful. It is the exact counterpart of the original, except that the flowers instead of being Indian red are snow white. They are borne in profusion even on small plants, and though the individual flowers are small, they cover the plants so thickly as to make them look like masses of snow. It will doubtless prove a valuable decorative plant. It was exhibited by Messrs. Veitch, in whose nursery at Chelsea it may still be seen in perfection.

PRIMULA MULTICOLOR fl.-pl. is the name given to a pretty double Primrose exhibited last week by Messrs. Veitch and Son, and now to be seen in their nursery at Chelsea. Its flowers are produced in umbels on stalks about half a foot high, like a Polyanthus, which indeed it is. Each flower is about the size of a halfpenny, and the duplication of the petals is so complete that the flower is a perfect miniature rosette. The colour is a deep maroon, but the yellow bases of the petals are clearly seen between the folds. It is a free-flowering plant, and one, we presume, that is as hardy as any other Polyanthus.

THE PERSIAN IRIS is just now one of the chief attractions of Mr. Ware's nursery at Tottenham, where it is grown better and more extensively than we have seen it elsewhere. The whole plant when in bloom is only about 6 inches high. The flower is unlike that of most other Irises, inasmuch as the erect sepals or standards are almost suppressed. The colour of the falls is bluish, with a bright yellow

low crest and a heavy blotch of velvety plum tint. The petaloid styles are a pale blue, so that the flower is really an attractive one, and quite unlike any other species. Iris persica is a very old cultivated plant, and is interesting, as being the first plant figured in the *Botanical Magazine*. This was in 1790. It is successfully grown at Tottenham in light soil in raised beds, and if the winter is severe the beds are covered with glass lights. The flowers emit a delightful perfume akin to that of Violets.

SPRING FLOWERS FROM DUBLIN.—In a beautiful series of early bulbous flowers from the College Botanic Gardens we notice with pleasure the white *Scilla bifolia*, large and good in tone; also the double form of the common wild Narcissus, and some of the newer forms of the Greek Grape Hyacinths. Many of these plants are so often disturbed in gardens and nurseries, owing to the desire to increase or distribute them, that one does not often see them at their best in established tufts. But until we see them well and long established in good soil, we shall not be able to fairly judge of their merit.

RONDELETIA AMCENA.—This is very different in appearance from the better known kinds of *Rondeletia*, the flowers being of a different hue, the foliage larger, and the growth more vigorous. The blossoms of this are bluish-coloured, with a quantity of yellow hairs in the centre, and are borne in large, dense clusters. It is now in flower in the Palm house at Kew, and though not so showy as some of the others, is both pretty and interesting, especially as it is but a small, weak plant; well grown it would probably be very ornamental. This *Rondeletia* is also known under the name of *R. macrophylla*.

THE DOUBLE NARCISSUS CERNUUS is sent to us by Mr. W. E. Gumbleton from his garden at Belgrove, Queenstown. It is a lovely flower, larger than the English Daffodil, and with both the sepals and crown of a soft creamy white. The doubleness is confined to the crown, which is filled with petals. Mr. Gumbleton also sends the large double sulphur Daffodil and the charming little Rush-leaved Daffodil (*N. juncifolius*), which is about the tiniest of all the species. The flowers are not 1 inch across, wholly yellow, and the crown forms a perfect cup. It is a delicate little species and needs careful attention to grow it well.

CORYLOPSIS PAUCIFLORA is a singularly pretty species quite out of the ordinary run of hardy flowering shrubs. It at once suggests such shrubs as *Chimonanthus fragrans*, as in its case the flowers are borne on leafless branches, and are, moreover, of the same peculiar yellow tint. They are, however, quite different from *Chimonanthus* flowers in structure. They are produced abundantly all along the branches, which are slender and erect, and these being numerous the whole shrub is a mass of yellow blooms, rendering it quite attractive. Some plants of it in flower at Messrs. Veitch's nursery at Chelsea are dwarf and twiggy in growth, and, we presume, quite hardy.

HEBECLINIUM IANTHINUM AND ATRORUBENS.—These are useful for flowering at the present season, for, though there is a great variety of plants available for conservatory decoration now in bloom, these composites supply a colour which is but sparsely represented. The better known kind, *H. ianthinum*, is a free growing plant requiring much the same treatment as a *Salvia* or a *Eupatorium*, to which it is nearly allied, and its pale lavender *Ageratum*-like flowers are borne freely in large flat terminal corymbs, and last in beauty a long time. *H. atrorubens* is a conspicuous and showy plant. It differs from *H. ianthinum* in having larger leaves, the midrib of which, the leaf-stalk, and the young shoots are densely covered with dark coloured hairs, which also extend over the exterior of the calyx, so that the head of flowers has collectively a much darker appearance than the other kind, although the actual difference in colour is not great. Cuttings of both strike easily, and both are plants of simple culture; the principal point to be observed is that

they do not suffer from want of water when the pots are full of roots. A temperature above that of any ordinary greenhouse during winter is essential to their well-being, the most suitable place being an intermediate house. These two plants are among the most noteworthy now in flower in the conservatory (No. 4) at Kew.

TWO NEW CYCLAMENS named Mrs. Little and Amethyst are probably the finest in their respective colours that have yet been raised. The first has medium-sized flowers, with broad petals of firm texture. The colour is an intensely deep crimson, much deeper than in any that have been raised previously, making it a strikingly beautiful variety. The other is a descendant of that fine purple-flowered variety called Royal Purple, and its alliance to that sort may be seen at a glance, for its flowers have all the refined form of the other, but the colour is even a richer purple. These two fine *Cyclamens* were shown last week at the Regent's Park show by Mr. Wiggins, from Mr. Little's garden at Hillingdon Place, Uxbridge, where both were raised. To each a first-class certificate was awarded by the Royal Botanic Society.

AZALEA J. N. VERSCHAFFELT.—Though the varieties of the Indian Azalea are now almost innumerable, there is still room for a new variety if an advance upon older kinds, and such is, we consider, the one in question, being one of the finest white sorts with which we are acquainted. Its flowers are some 4 inches across, of solid texture, and perfect in form, while the white is pure, with the exception of a dash of green on the upper petal, which, however, does not mar its chasteness. It is a remarkably free flowerer, the plant of it which Mr. Little showed at Regent's Park last week, though only a small specimen, being covered with bloom. The judges rightly awarded it a first-class certificate. Two other new Azaleas exhibited on the same occasion were worthy of note. These were called *Duchess of Albany* and *Mrs. J. Connell*. The first had pure white flowers of small size, but borne in profusion. The other was similar in size and floriferousness, but the colour was a bright Indian red. Both are pretty sorts and particularly useful for forcing. Both were shown by Mr. Todman (gardener to Mr. Connell, Bushey Down, Tooting Common), who has for some years devoted both time and skill in hybridising Azaleas, and has originated some valuable sorts.

Wallflowers in pots well repay the little trouble which they entail in order to have them in bloom in February and March. Their fragrance is much appreciated, and when suitable kinds are grown they are useful either for conservatory or house decoration. Harbinger and Belvoir Castle are the kinds grown here. Their seed is sown in prepared beds outside at the end of May, and as soon as the plants are large enough we plant them out in an open piece of ground facing the west, where they become strong bushy plants with numerous side shoots—a great advantage. If sown later than the time named they do not make side shoots of any service for blooming. Early in October they are taken up and potted in 6-inch or 8-inch pots in rich soil. They are then placed in cold frames, if at hand; if not, then under a north wall, where, if kept moist overhead, they soon recover from the check sustained through lifting. Towards the end of the month I move them into a cool house, give them plenty of air and liquid manure occasionally, and early in February they commence to bloom. This year they have been most useful, as the severe frost which we have recently had has killed nearly all those planted here out-of-doors for spring bedding.—E. MOLYNEUX, *Swanmore Park, Bishop's Waltham*.

Amaryllises.—Allow me to say that the first prize for six Amaryllises at the Royal Botanic Society's show was awarded to me, not to Mr. Wiggins, as stated in your issue of the 31st, he being second. *Crimson King* was raised by me and exhibited in my group.—E. BAXTER, gardener to W. S. Parker, Esq., *White Lodge, East Barnet*

GARDEN IN THE HOUSE.

FILLING FLOWER VASES.

THE subjoined illustration may perhaps afford a hint or two as regards the arrangement of cut flowers and foliage in vases, work that is often done in a tasteless and unskilful manner. The stately majolica vase represented in the annexed woodcut is filled with a variety of flowers and foliage, arranged in what may be termed a free and easy style, the very opposite of the monotonous, insipid arrangements with which one often meets. As

admirably in a cool greenhouse; in fact it is almost hardy. A companion plant to this and one that thrives well in its company is the German Ivy (*Mikania scandens*), the elegant shoots of which look well in vases. These are a few plants not so often used in vases as they might be. Another hardy plant that should always be grown in a garden for cutting from is the Alexandrian Laurel (*Ruscus racemosus*); it has erect stems a yard or more high, and is furnished with small, shining, green foliage which remains on the plant throughout the year, making it a capital subject for cutting

lucida, *Lomatias* of different sorts, *Asplenium bulbiferum*, various *Scolopendriums*, *Farfugium grande*, *Ligularia Kämpferi*, *Pittosporum tenuifolium* and *eugenioides*, *Yucca Whipplei*, *Y. albo-spica* and *angustifolia*; *Choisya ternata* is also a most distinct and accommodating shrub. I have seen various Bamboos tried for indoor decoration, but always with unsatisfactory results. Both forms of *Aspidistra* prefer a shady situation, as of course will the few Ferns mentioned. If these are kept well supplied with water at the root the atmosphere will always be moist enough. Occasional spongings of the foliage is of importance, as also is a good shower bath outside, either with tepid water from a watering-pot or a warm shower of rain.—W.

ARRANGEMENT OF FLOWERS.

FOR a good effect, flowers, whether arranged in bouquets, baskets, or vases, for either the parlour, the dining-table, or the platform, should in all cases be made to appear as if on growing plants. They should appear perfectly natural instead of artificial, as they too commonly seem, especially when arranged by the mechanical florist. But very few persons, relatively, show any taste in the arrangement of flowers. They do not fill a vase or basket in such a manner that it is a pleasure to look at it; on the contrary, the confused way in which flowers are crowded, crushed together, excites your sympathy for the poor, distressed objects. Of all the various mistakes made in floral decorations, the most common is that of putting too many in a vase; and the next to that is the mistake of putting too great a variety of colour into one bouquet or vase. Every flower in a collection should be so placed that its individuality should be determinable without having to pick the bouquet to pieces. The calyx of a Carnation should never be hidden by being plunged into the head of some other flower, however well their colours may harmonise; not more than two varieties of them should be in a vase of loose flowers, and these should be such as afford the greatest contrast of colour, together with the most perfect harmony. Carnations should be cut with long stems, so that their own foliage would furnish sufficient green to give the mass a natural appearance, if any other green is required, and a due proportion is always necessary; in fact, in all arrangement of flowers, appropriate foliage should be in excess of the flowers. With the Carnation there is nothing more beautiful than the fronds of the Maiden-hair Fern. We have never had more satisfaction in the arrangement of flowers, in any design whatever, than by taking the hardy Carnation that is so freely produced in summer, a few stems of flowers and partly opened buds, put in a tall vase with a liberal amount of Maiden-hair Fern, the whole so gracefully united that every flower, bud, and frond of the Fern could be seen in its integrity.

Sweet Peas never look so well in the hand as they do on the plant, amid the boughs over which they climb, because they cannot be carried without crowding them; but put them lightly into a vase with an equal number of Mignonette; or, rather, ornament a vase half full of Mignonette, with a few blooms of Sweet Peas, and you get a charming effect, because you follow the natural arrangement by avoiding crowding the natural blooms, and putting them with the green foliage which they want to set them off. Few people are aware until they try it how easy it is to spoil such a pleasing combination as this. A piece of yellow *Calceolaria*, a truss of scarlet Geranium, or a spray of blue *Salvia* would ruin it effectually. Such decided colours as these require to be grouped in another vase, and should not be placed even on the same table as Sweet Peas. They also require a much larger preponderance of foliage than is wanted by flowers of more delicate colours. When we have a basket of flowers of all shades of colour and variety of form before us to arrange, we know full well the difficulty of resisting the temptation of just putting in this or that flower, because it is such a beauty. A beauty it may be, but beauty is not beautiful when out of place, and



Flower Vase, tastefully arranged.

may be seen by our illustration, free use is made of Fern fronds and other elegant foliage for intermingling with the flowers, and each is so placed as to be seen to the best advantage, not huddled together in a meaningless way. Sprays of slender trailing plants such as *Ficus repens* and *Saxifraga sarmentosa*, it may be observed, fall gracefully over the sides of the vase, and there are hosts of other plants equally well suited for such a purpose. For instance, the common Ivy in certain stages has extremely beautifully tinted foliage, and is all that can be desired as regards elegant growth. This with other hardy trailers is useful for winter decoration. Another elegant plant from which to cut long leafy sprays is *Myrsiphyllum asparagoides*, a slender twining plant that thrives

from to mix with flowers in large vases. There is much to learn, speaking generally, with regard to vase embellishment, but the practical hints given from time to time in THE GARDEN cannot, we think, fail to work good in course of time.

Plants suitable for permanent cultivation in drawing-rooms.—If "West Highlands" will make a selection from the following list pretty and permanent groups will be the result: *Aralia Sieboldi* (two variegated forms), *A. quinquefolia*, *A. q. gracilis*, *A. heteromorpha*, *Dianella tasmanica*, *Aspidistra lurida* and *A. l. variegata*, *Dracaena australis* and *D. a. congesta*, *Rhodea japonica* and the variegated varieties, *Griselinia*

it is not in its proper place when it does not harmonise with its surroundings.

Lilies rarely look well when mixed with other forms, and there are scarcely two varieties of these that look well in the same vase. For large vases each class or variety should be used singly, with sufficient foliage to form a proper natural contrast. With the white Lily (*Lilium candidum*) the most beautiful and pure of all known Lilies, a few sprays of *Delphinium formosum* makes a pleasing contrast, and for foliage in combination with these there is nothing equal to the more delicate species of Ferns; if these cannot be obtained, the *Asparagus*, used sparingly, produces a pleasing effect. For church decorations there can be no arrangement more chaste, beautiful, or appropriate than this. Later in the season the *Lilium lancifolium præcox* can be used in the same manner, and with very nearly the same effect. White and green, happily blended, is the best possible arrangement. Where flowers are to be seen at a great distance, then the flowers should be large and distinct, and in tall vases with some drooping plant to relieve the vase, like the *Passiflora* or German Ivy; the vase should always stand in a mass of Ferns or Lily of the Valley. For the same purpose *Gladioli* make a beautiful display, and in their arrangement harmony of colour is of the greatest importance. Where

Flowers are to be seen at a distance, white and scarlet or crimson varieties only should be used; these colours can be used singly or together. For foliage, either Ferns or *Asparagus* leaves can be used with good effect. The *Eulalia japonica* and *zebrina* harmonise well with the *Gladiolus*, and for large displays it is the best for foliage of anything we have tried. For a basket of flowers in their season, for any purpose whatever, whether for the platform or the parlour, there is nothing more beautiful than Apple blossoms; these should not be mixed with any other flowers. Cut such as are just opening, arrange in such a manner that your basket resembles a miniature Apple tree, and your arrangement is perfect. If the *Viola pedata* can be obtained, place the basket in a mass of these flowers with their own leaves as foliage, and the effect will be very pleasing. The proper arrangement of flowers may be stated in a few words. Never put more than three varieties or colours in the same vase or bouquet, and let those colours be such as perfectly harmonise. Arrange the flowers so that each one can be seen entire. In all your arrangements imitate Nature in hers. [The above extract we take from the *Ladies' Floral Cabinet*, an interesting American monthly, published at 22, Vesey Street, New York.]

PLANTS IN ROOMS.

FROM long experience and always having a growing plant and cut flowers in all my sitting rooms, I can answer your correspondent's inquiry, "What evergreen plants will grow and thrive all the year round in sitting rooms?" I tried Ferns; they looked well for a time, but do not thrive, and require continued changes where a constant nice healthy graceful effect is required, and without this effect better have no plants. I tried Palms; they do fairly well for a time, and look graceful, but when growth commences the lower leaves are sure to show decay; they look best if the base of the plant is surrounded with small Ferns, the fronds of which conceal the naked stem of the Palms. Some years since, in wandering through Covent Garden Market (and in all my London visits I like to go through the markets, the scent and sight of the many flowers and fruits and vegetables is so pleasant) I purchased a small plant of *Aspidistra lurida*; it then had only three leaves of about a foot in length, the leaves rising from hard naked stems quite green, and then expanding into wide, thick, graceful foliage of a dark rich green colour; the flower is peculiar, and would scarcely be noticed, as it is on the surface of the earth. There was a peculiarity about the plant which struck me, and I have not been disappointed. It is the only plant I know which tho-

roughly adapts itself to domestic life, living always with you, the leaves seldom dying, and with the most ordinary care always showing form and colour of the most beautiful kind. The original plant, after three plants have been taken from it by division, has now thirty leaves, the longest about 27 inches and 5 inches in the widest, the whole forming a mass of vegetation which cannot be excelled, considering the conditions to which it is subject, and these conditions it enjoys thoroughly. The glare of the sun it does not like; a shady window and plenty of water it enjoys, and it will bear an occasional open window, which Ferns in a room will not. At certain times the plants are just taken on the terrace and syringed to take off the dust, which, with every care, must accumulate on the leaves. The three plants taken from the original are not quite so large, but in equally good health. I have heard this plant is common on the Continent; it certainly is not in England. Three good nurserymen I applied to could not supply me with it some three years since when I wanted more plants, but I obtained four plants of the variegated sort having long stripes of white with the green. I do not much like them; they do not grow so well, appear more delicate, and are not so well adapted for every-day domestic life; in the conservatory they flourish.—K. K., *Teddysford*.

Room plants may consist of *Arum Lily* (*Calla*), *Aucuba*, *Aspidistra lurida*, New Zealand Holly Fern, and red and green *Dracenas*. A Walnut put into a pot of rich earth as soon as ripe makes a very handsome and uncommon pot plant the next summer, and has a delightful perfume. A Spanish Chestnut, too, is useful planted in the same way. All these plants are kept in good foliage by occasionally sponging the leaves with tepid water and if allowed to get too dry they are recovered by plunging the pot over its rim in water for an hour or so. This drives out the air and lets in the water. Heaths will live in a room for a long time if occasionally thus treated.—R. B.

ROSE GARDEN.

DWARF & STANDARD ROSES.

A MILD winter and a wintry spring are not the most favourable conditions for Roses, but as we must take the seasons as they come, our best way will, I think, be to cultivate our Roses in such a way as to reduce as much as possible the chances of failure through weather, not that we shall succeed in this entirely, but by paying attention to the form of growth and the selection of proper sites, we may do something to mitigate the evils arising from our variable climate. As at present cultivated, no one will deny that the majority of cultivators invite the frost to kill their Roses. They do this unwittingly by giving them too rich feeding, which promotes succulent growth and renders them an easy prey to frost. They also select unsuitable positions for them, perching them high up in the air, as if so placed to show that the cultivator was anxious to give the frost every possible chance to kill them. In the cultivation of the Rose we must pursue a natural course of treatment if we wish to attain success over a long course of years. Standards cannot be said to be a rational mode of culture, and no wonder that Roses grown in this form are the first to suffer from severe cold. I may be told that I am prejudiced against this form of Rose growing, but I may state that when I plant a Rose tree I want it to grow and prosper for a reasonable length of time. If I plant standards I have to renew them frequently, because they die off so mysteriously after being planted a couple of years or so, that I have neither the time to prepare new stations for them nor the opportunity of purchasing relays of trees to keep up the stock. I must, therefore, grow Roses in such a form as will insure their living and flowering for several years without requiring to be renewed. I may here mention that I manage a large garden in which there is not a standard Rose grown in

the open air. It will, therefore, surprise no one to hear that we grow the major part of our Roses

As bushes. A good many are grown in beds pegged down, and some are made to form hedges, which reach a height of 6 feet, but we prefer the bush form to all others, and these on their own roots chiefly. I prefer the latter, because if a severe winter kills all the branches down to the ground line the portions left have such recuperative power that in one season they become re-established. Our beds of pegged-down plants have been planted fifteen years. Every plant was struck from cuttings made in the autumn previous and the plants are as vigorous now as ever they were. Our loss from all causes has not been more than 1 per cent. during all that time. It is, however, only right to say that all the varieties of Hybrid Perpetuals of which I am writing do not grow so well on their own roots as others. In such cases we have to resort to the Manetti as a stock for the weak growers, and as a rule it answers very well. In the case of varieties that do well on their own-roots, I find that they are really more vigorous than when budded on foster roots, a valuable fact, and certainly a strong argument in favour of own-root Roses. The greatest difficulty lies in getting very dark coloured Roses to grow away well, or, in other words, it is found that a greater number of comparatively light coloured Roses are more vigorous on their own roots than dark ones. Our best dark sorts on their own roots are Charles Lefebvre, Maréchal Vaillant, Pierre Notting, Annie Wood, Exposition de Brie, Lord Clyde, Alfred Colomb, and Duke of Wellington. The best light coloured kinds for our own root plants are *Centifolia rosea*, John Hopper, Edouard Morren, Elie Morel, Anna Alexieff, Baronne Pré-vost, M^{me}. Vidot, and Nardy Frères. There are, however, many more in both cases that will grow fairly well on their own roots. We find the following a very good way of growing the more choice and tender varieties of

Tea-scented Roses: Get some strong plants and put them into 8-inch pots. The best time to do this is early in February. Use a compost of half fibrous loam and one quarter each of leaf soil and thoroughly rotted farmyard manure. To keep it porous add a good sprinkling of coarse sand or road-side grit, and pot the roots moderately firm. It is not absolutely necessary to pot the plants in the first instance in February, but in their future management that month ought to be selected. When potted, place them in a cold pit or frame, and keep them secure from frost, and the soil just moist about the roots. On all favourable occasions after the middle of March give them a liberal supply of air, the object being to keep them steadily growing, but, at the same time, the more hardy they are treated without the tender growths being exposed to frost the better. About the end of April they may be taken to a sheltered spot in the open air—either under a warm south wall or some similar place. What may be called their summer treatment should commence in the middle of May; they should then be taken to a warm position either in the frame, ground, or to a warm border in the kitchen garden, where it will be convenient to water them in dry weather. The pots should at once be plunged up to their rims, and then both pots and the surface immediately around them should be mulched with a good thickness of well-rotted manure. This rich mulch will quickly encourage the formation of roots on the surface, and in a few weeks the plants will be growing vigorously, and as good growth means plenty of flowers, the cultivator will reap a rich harvest both of buds and blossoms. Before severe frost sets in in autumn it will be necessary to lift the plants, pots, and all, and take them to some cool light structure, where they will be secure from frost during winter without being in any way excited. A cold pit or Peach house not forced is the right place for them. Throughout the winter very little water need be given to the roots. Early in February the plants should have what little pruning is necessary to keep them in shape, and then about two-thirds of the old soil should be

shaken from the roots, repotting in a fresh compost, and making the same sized pots serve for the first three years, after which they may have pots 2 inches larger. After being potted they should be returned to their winter quarters, giving the preference to a cold pit or frame from which the light can be withdrawn during mild weather, for the less they are excited the better. If from any cause the young growths have not got pretty forward by the end of April they must be kept under cover ten days or a fortnight longer, and when taken from under glass they must be gently dealt with at first, so as to harden them off in a gradual manner. The treatment during succeeding years must be the same as that just described, and if skilfully managed the plants will last in good condition for many years.

Hybrid Teas.—These are for the most part indifferent growers, and but little if any harder than ordinary Tea-scented varieties, to which, as regards growth and form of flowers, they have a strong resemblance, and, like ordinary Teas, they do better under glass than in the open air. The first year we grow them in pots in a cool house, where they did fairly well, but in the open ground they do not seem to take kindly to their new quarters. So far as I have seen of them, the following are the best, viz., the Hon. George Bancroft, Michael Saunders, Jean Sisley, and Viscountess Falmouth. The second and last named gave us some good flowers last year, but as to their being fragrant or deserving to be formed into a distinct section, I cannot see on what merits they claim such a distinction. J. C. C.

CATHERINE MERMET ROSE.

HAVING read with great interest the article in THE GARDEN the other day (p. 268) on this Rose (which, in my opinion, is one of the best of the Tea-scented varieties in cultivation), I take the liberty of describing a mode of growing it which I have adopted, and found to be most successful. Some five years ago I purchased a small plant of this variety budded on the Manetti stock. I being very pleased with it when it came into bloom, I determined to endeavour to grow it as I had grown the Gloire de Dijon and Maréchal Niel. Having successfully struck some cuttings (as I am one of those who prefer Roses on their own roots), I selected one of the strongest, and grew it on in a pot until I got it about 5½ feet to 6 feet high. I then planted it with its roots outside the conservatory and brought the top in—that was in the month of March. That year it made a good deal of wood, and bloomed moderately; the second year it had got half way up the conservatory, and I cut over a hundred Roses from it, and ever since the tree has improved each year. My only difficulty has been that I have been obliged to prune it more severely than I otherwise should to bring it within bounds. As regards the blooming capabilities of this Rose, I need only say that I shall in a few days cut the first Rose, and that for the last three years it has bloomed continuously from March to November. The quality of the blooms, also, far exceeds those grown in pots.

Marshfield, Huddersfield. T. P. CROSLAND.

Autumn transplanting.—Having been obliged to make some alterations on ground on which one of our Rose beds stood, the Roses, dwarfs and standards, had to be taken up on September 21. They were taken into the kitchen garden, and laid in by the heels till they could be finally planted. Having completed our work, we planted a new-made bed with the dwarfs we had plunged, and some own-root Roses put in as cuttings last November. This took place on November 3, and when we came to remove the plants from the kitchen garden we found that they had made fresh roots in great abundance, some more than 1 inch long. When taken up in September the leaves and young shoots flagged a little, but soon recovered. On taking up those struck from cuttings which were still growing, we did not find so many fresh white roots as in the case of those

laid in by the heels, and on examining some old plants in permanent beds we did not find any fresh white roots at the beginning of November. I do not think that Roses suffer through their roots being disturbed early in the autumn, especially if replanted quickly; on the contrary, I believe that in my case had they been planted in their permanent positions at first they would have started and done as well as if they had not been disturbed at all. A few years ago six Roses taken out of the open ground at Bath on August 16 were brought me to place in pots. They were potted, the shoots being green, and hung down, although set in the shade for a week or so and syringed. To my surprise, however, after being pruned back they all yielded three or four good blooms in the May following, having been kept in a cold pit from December to that time.—J. C. F.

When should Roses be pruned?—Great differences of opinion exist as to the time for pruning Roses. If we prune in autumn, do we get better results than if we defer it until spring, or *vice versa*? If we prune in autumn, after the growth is matured, there can be no material harm done—to the roots at all events. And again, if we prune in spring, say the end of March or the beginning of April, the roots are then in action, and the buds perhaps bursting; but, although this is the case, I hold that spring pruning will give the best results, as it retards growth a little at a time when it is liable to be cut back by frost and cold cutting winds. If the situation is good and well sheltered, autumn or winter pruning may be an advantage, but in exposed situations, where Roses have to stand a severe winter, I should recommend spring pruning.—J. B.

THE BLACK FORTNIGHT IN MARCH.

MOST of us had hoped the weather had done its worst from the 6th to the 20th, but this does not seem to have been the case. After the snow melted we had two of the most destructive frosts of the season—that is, on the evenings of the 22nd and 23rd. These seem to have cut deeper into vegetation and to have done more damage than all that had gone before. Roses that had struggled through or up against the frost and snow of the foregoing fortnight succumbed to these clear, biting severities. Violets, such as the Czar, Victoria Regina, Marie Louise, and Neapolitan, and the early Forget-me-nots, especially the larger variety of *M. dissitiflora*, are killed in masses, and seem quite rotten. Even Pear blossoms that appeared to have passed through all the previous frosts now seem black through their centre. These two or three frosts after the snow had melted have also finished the major part of the Broccoli, while Cabbage stumps, so useful for sprouts at this season of the year, are also killed outright.

In looking through our Roses they seem even in a worse plight than we had anticipated. There are, however, some degrees of injury even among them, and the following are among those that have suffered most severely. Among the Perpetuals the darkest varieties seem to have been hit the hardest. Probably this may have arisen in part from their being the more forward in growth. Certain it is that the Duc de Wellington, Sultan of Zanzibar, and Prince Camille de Rohan have suffered very much. Among others most severely punished apparently beyond the average are such popular favourites as Marie Rady, Souvenir de Victor Verdier, Alfred Colomb, Pierre Notting, Madame Victor Verdier, Madame Eugène Verdier, Julie Touvais, Madame Prosper Laugier, Duke of Teck, Jules Chrétien, John Stuart Mill, La France, Mrs. Harry Turner, and Dr. Sewell. The Teas seem to have suffered nearly all alike on this occasion. Even Gloire de Dijon, undoubtedly the hardiest of all the Teas, probably from being more advanced than the others, appears to have suffered as much as any of them. Even plants on walls and protected look half dead. On the other hand, Maréchal Niel seems to have withstood the frost quite as well as any of the other Teas, if indeed it be a Tea, for it has very much of the cha-

racter about it of a Noisette. Among the few of the latter class grown Souvenir de la Malmaison has suffered by far the most, but that is always a tender Rose. In stating that the Teas appear to have suffered about all alike, exception should be made for Homère; this seems to have suffered but little here, and is now, after the storm, the freshest and least injured of all the Teas.

The more the present state of the Roses is examined, the more certain it appears that standards of all sorts have suffered most, and of these immense numbers are so much injured that it seems absolutely impossible that they can recover, for not only are the buds and young shoots killed, but the bark is blackened or browned, and even the wood itself injured. D. T. FISH.

TREES AND SHRUBS.

HEDGES AND SCREENS.

MR. SHEPPARD begins his excellent article on these (see page 263) with the statement that next to walls hedges are the most important fences round a garden. While no practical man would question the correctness of this assertion, yet there can be little doubt that for the purpose of mere shelter hedges or screens are the more efficient. These, as it were, exhaust the force of the wind by a process of fining down or absorption. The wind comes with full force on the exposed side of the hedge, and little or none of it is left to escape on the other side, every branch or twiglet of the hedge having done its part towards baulking or exhausting its energy. The case is widely different when wind hits a solid wall. There is for a time an arrestment and a change of the course of the air in motion, and but little more or better. The air bounds up over the wall, or diverges to one side, and almost immediately after sweeps along afresh, at times apparently with an augmentation of force through the temporary interruption. Destructive whirls or eddies of air are thus formed and intensified, and it is no uncommon thing to find what may with much propriety be termed scathing lines in close proximity to and following the course of solid walls. Now-a-days, and in this age of iron, stone, and brick, the efficiency and power of living shelters are very much underrated. Our not very remote progenitors had but little choice in these matters, and hence largely their more general employment of hedges and belts or screens. It was natural for them to hedge round their gardens with living fences, being so much cheaper than any other, and also, in many cases, the only ones available. To assure more warmth, as well as command greater security, the fences frequently widened out into screens or belts of shrubs or trees.

The wider the living hedge or fence the warmer, on the principle already explained. It by no means followed, however, that the wider the fence the stronger the defence. Often, no doubt, it was far otherwise, and as far as protection from enemies of human kind was concerned, the defence not seldom became also a harbour and a refuge for lurking foes. Possibly for this and other reasons the screen got narrowed into a mere hedge, and by selecting prickly and close-growing plants, such as white Thorn, Holly, and Sloes, the narrow hedge grew into practical impenetrability. The newer, narrower, more stately, and slightly fence, however, was less warm and cosy than the older and more rambling screen, though the trimmest hedge is still in some respects a better and more efficient protection than a brick wall. The late Mr. Thos. Rivers, of Sawbridgeworth, was so keenly alive to the efficient shelter afforded by hedges, that he placed some of his earlier orchard houses against them. The ventilation was so equally diffused through their myriad interstices, that it would be impossible to command a more equable temperature or more genial atmosphere than I have noted in these structures. When the external atmosphere was low at night they parted with their heat slowly; but as the sun shone on the roofs and the air got heated, its greater sub-

tlety and buoyancy cleared numerous passages for it through the myriad living meshes of the hedges. Similar useful results were noticed in a large pit with glass top, and back, side, and front walls formed of Furze. This pit was found to be much warmer in winter and cooler in summer than others with brick walls standing to the right and the left of it. But these may be looked upon as the exceptional uses of vegetable shelters living and dead. Their legitimate use in or near gardens might in many cases be greatly extended, not only to the obtaining of greater warmth, but to the creation of much higher landscape effects. No one, however gifted by genius or inspired by the love of beauty, can make much of a brick or stone wall, or a wooden fence, clothe it how he may. A good deal more may be done with hedges, but let these broaden out into a belt and meander away into a plantation here and there, and the merest novice can hardly fail to create an effective landscape out of such materials. Another great advantage the hedge has over the wall lies in the fact that if we select proper plants, such as the Yew, the older the hedge the more beautiful it becomes. Such is pre-eminently the case with such Yew hedges as are found at Hatfield, in Herts, and Campsey Ash, in Suffolk, the latter referred to by Mr. Sheppard. With ordinary care they live on and renew their youth for century after century, and grow into historic interest, and special artistic and picturesque value. But enough has been said for the present in support of the claims of living hedges and belts as superior in sheltering power and in landscape results to walls.

D. T. FISH.

TRANSPLANTING TREES.

THIS is to many quite a fascinating occupation; possibly, therefore, a few remarks on such methods as tend to secure success in such work may not be uninteresting. It should be borne in mind that plants have an evaporating and an absorbing surface. The surface of the roots and rootlets, in other words the underground portions, absorb moisture, and with the moisture food, but through the surface of the parts above ground moisture evaporates—to a small extent through the bark, and to a very large extent through the leaves. In order that a tree may live and grow well, therefore, these surfaces must bear a suitable proportion to one another. When trees are transplanted it is practically impossible to prevent, to some extent, the breaking of roots and so disturbing somewhat the balance which before existed between the two surfaces, viz., that above and that below ground. Trees, however, when in a healthy condition, are endowed with a certain amount of recuperative vigour, which enables them, if the balance has not been upset to too great an extent, to readjust it by means of the strength stored up within them. Trees which have this recuperative power to a great extent are easy to transplant, and trees which have it in a small degree only are difficult to transplant successfully.

Willows and Poplars may be cited as notable examples of the former, and the common evergreen Oak and the Cedar of Lebanon of the latter class. Pieces of Willow, cut from a tree, and thrust a short distance into tolerably moist ground, usually grow, although in such a case they start without any absorbing surface at all, except their cut section, through which a small quantity of moisture drawn by capillary attraction may serve to prevent exhaustion till roots are formed. Plants having the inherent vitality possessed by the Willow propagate readily by means of cuttings, while those which have but little of it can either not be increased by means of cuttings at all, or only with the exercise of great care and skill. Much care in the transplanting of Willow trees would be thrown away. Trees which have but little of that kind of inherent vitality or recuperative vigour which is required to enable them to restore the balance between their absorbing and evaporating surfaces—their roots and head—should have greater care taken in transplanting them, and economy, of course,

demands that this should be of the proper kind. If a tree which is being transplanted has had (as all trees have more or less in undergoing this operation) a portion of its roots broken off, and has also so much of its head pruned off as will serve to lessen its evaporating surface in the same proportion as the broken off roots lessen its absorbing surface, no further check to its growth need necessarily be experienced by that tree from being transplanted. If the transplanting has been very roughly done, however, although there may be sufficient absorbing surface put into the ground, it is quite possible that this surface will be unable to perform its functions, viz., to absorb food and moisture for the support of the tree. The roots may have been injured in such a manner that the passages for the conveyance of the absorbed material are bruised or broken. Each root and rootlet, so far as possible, should be surrounded with soil. The greater the surface of root which any given tree presents to the soil, the greater the support which it, other things being equal, will be able to derive from it. The wonder is not that so many trees die after being transplanted, but that so many live, seeing the hardships they have to undergo.

The amount of moisture which a tree drains from the soil is infinitely greater than one might suppose to be possible. Experiment has shown that a plant has evaporated from its leaves 300 lb. of water for every single pound of solid matter added to its own tissues. Some plants probably exceed, while others evaporate less than this quantity for every pound of solid matter they permanently incorporate. The Eucalyptus in semi-tropical and the Willow in temperate climates will frequently turn swamps into firm ground by sucking up and evaporating moisture. This characteristic of trees extracting moisture from the earth and pouring it forth into the atmosphere partially explains why counties denuded of trees are so liable to suffer from severe droughts. Although, as a rule, the roots of a tree or plant present an absorbing, and the leaves an evaporating surface, yet experiment has shown that, so far at least as the leaves are concerned, the process can sometimes be reversed, and that a plant whose roots are in a medium from which all the moisture has been extracted may have its vitality to a considerable extent kept up, or even revived by moisture imbibed through the foliage; and for this reason syringings overhead are very beneficial to fresh transplanted trees in dry weather. Allegorically, the roots of a tree may be called collectors of raw material; the spaces between bark and wood the storehouses for the material after collection; the leaves, the workshops in which the raw material is converted into manufactured produce; and the wood of both branches and roots, the manufactured produce itself. When it is taken into consideration what an important factor in the healthy growth of plants a sufficiency of moisture is, and also what an immense amount of moisture growing plants extract from the soil, it can then be well understood what great injury is done to fresh transplanted trees in dry soil if weeds are allowed to grow unchecked. It is not so much the plant food which weeds absorb that does the injury; it is that they take away that without which no tree can consume food, viz., moisture. When a tree once becomes established in a suitable situation and soil, it soon gets the better of annual, biennial, or herbaceous perennial weeds—the yearly decay of these even assists in the formation of a supply of food and moisture for it. In transplanting trees such as Box, Yew, Ash, and many others, if they have been previously transplanted within the space of one or two years, it will be probably impossible and quite unnecessary to spread out the great abundance of fibrous root so that every one is quite surrounded by soil, but the more this is done to a reasonable extent the better will the plant grow after being transplanted; and care taken to prevent rootlets from being strained, sharply bent, or broken when filling in and pressing down the soil will not be thrown away. As before stated, the greater the root surface presented to the soil the better the chance a plant

has of extracting nutriment from it. The tree which in undergoing transplantation has the balance between its absorbing and evaporating surfaces the least upset, other things being equal, will have the best chance of rapidly recovering the shock caused by the operation.

Norwich.

J. E. EWING.

FORESTRY FOR APRIL.

PLANTING operations should now be finished without delay. All recently transplanted trees and shrubs should be examined, and large plants properly staked. For ordinary sized young trees stakes about 2 feet above the surface and one tie will be sufficient; stakes 5 feet or 6 feet long are apt to be blown aside; whereas, trees tied to a 2-foot stake yield to the blast and keep their position much better. Trees of a large size may be kept in their proper position by means of three wires and a collar, the latter fastened round the stem, and the wires stretched out at equal distances from each other and fastened to strong pegs driven into the ground. In exposed situations, newly planted evergreen trees and shrubs will be greatly benefited by being mulched and by having a few Spruce branches stuck into the ground around them, to protect them from cold cutting winds, and also to screen them from the warm noon-day sun. Nothing sets off a place to so much advantage as well-kept roads and well regulated shrubberies; the former should always be kept in thorough repair, and the latter never allowed to become a jungle. All straggling branches should be cut back so as to keep the plants within due bounds and from intermixing. In places in which fine old trees grow near the sides of drives, all scrub and underwood should be cut away, in order to show their trunks off to the best advantage. From conifers, all superfluous leaders should be repressed by pinching out the terminal bud, or cutting back the shoot, or perhaps off altogether as circumstances may dictate. Stunted Deodars may be improved by cutting back straggling branches so as to form a uniform conical top, and in cases in which the lower branches are lying on the ground, such if desired may be removed, and a dressing of well decomposed manure spread on the surface; if it can be applied a good soaking of liquid manure from the farmyard will work wonders in restoring them to health and vigour.

Young plantations of Larch and Scotch Fir should be examined, and such trees as have been cropped over by hares, and are producing several leaders, should be connected by cutting them off, leaving the most central for the future leader. Recently planted moor ground, where the work has been executed by the notch system of planting will require attention, more especially in places where the surface is of a mossy character, as the notches are apt to open, and the sod curl back through drought, thus exposing the roots that in such cases a tread with the foot will prevent a number of deaths. This is also a good time to sow

Tree seeds on bare, rugged, inaccessible places; the following may be introduced with the best results, viz., Scotch Fir, *Pinus Cembra*, *P. montana*, Larch, *Cupressus Lawsoniana*, weeping Birch, *Quercus coccinea rubra*, and mountain Ash. Others to suit different localities and peculiar circumstances may be added to this list. Now is the proper time to collect all dead wood, branches and rubbish in the Pine forest, as the Pine beetle (*Hylurgus piniperda*) and the Pine weevil (*Curculia pini*) hibernate in such during winter, and in the beginning of April commence their subcortical burrows in order to deposit their eggs. The *débris* should be collected into heaps in open places here and there, and burned towards the end of the month; in this way both insects and rubbish will be got rid of at one time. All bridle paths in the deer forest and grouse moors should be examined, and where necessary repaired. I have found it a good plan to sow in loose gravelly places with natural Grasses, the matted deep penetrating roots of which assist to bind the

gravel. For this purpose the following Grasses are very suitable, viz, lime or sand Grass (*Elymus arenarius*), and Sea-reed (*Ammophila arundinacea*). Prepare and construct embankments, viaducts, roads, and bridges that have been torn up and swept away during winter by excessive floods. The ground itself will show the weak points, and provision should be made to guard against a repetition of the evil. Examine and repair fences in forest, field, and park, and see that all gates are in proper working order. Finish nursery work without delay, clean young hedges and keep down weeds everywhere.

J. B. WEBSTER.

WALNUT TREES BLEEDING.

"J. C." (p. 278) asks how a Walnut tree is to be stopped from bleeding. When this or any other tree liable to bleed has had branches removed at a time that does not admit of the cut surface healing up before the sap begins to move, it is next to an impossibility to stop the bleeding. Amongst several instances of a like nature that have come under my notice, one was a large Elm that had a branch of considerable size broken off a short distance from the trunk in felling another tree that stood near it; the flow of sap was so much, that the continual dripping made a hole in a gravel path over which the tree hung, as big as would hold a good sized Cocoa-nut. I had no apprehension that it would do any perceptible harm to the tree; but it afforded an opportunity for testing what could be done in the way of stopping the great force which the rising sap has. I tried burning with a hot iron, collodion, painter's knotting, and the different styptics generally used, applying them both before the burning and afterwards, but without the least effect. I then took some strong bullock's bladder, using it four or five thicknesses, and bound the whole round the stump of the branch with stout twine, laying on under it a coat of thick white lead, but in twenty-four hours it burst the bladder, after distending it to a size that would have been supposed impossible for the material to have stretched to. After this the bleeding went on until enough leaf was made to attract the flow. The natural supposition would be that after this the cells would have healed up; but this was not so, for each ensuing spring for the six years I had to do with the place the bleeding regularly came on to an extent equalling the first year, but it did no apparent harm to the tree. Neither should I suppose any mischief will come to "J. C.'s" Walnut unless several branches of considerable size, proportionate to that of the tree, have been removed, and from which the bleeding is going on.

T. B.

Tree planting by railway companies.

—There being in the United States about 100,000 miles of railway, the advisability of tree planting by railway companies for construction and maintenance has become an important question. There are from 2200 to 3000, and even 3500, ties used in a mile of rails. The average duration of sleepers is from five to eight years, and consequently from 30,000,000 to 50,000,000 a year will be required for 100,000 miles of railway. Putting 500 as the product of an acre of woodland, from 60,000 to 100,000 acres will have to be cut every year, and as it takes thirty years for a tree to grow to the right size, the railways will require from 2,000,000 to 3,000,000 acres—or 3126 to 4687 square miles—of forest to keep up the supply.

Gaultheria Shallon.—For growing under trees or anywhere I find this to be invaluable. It tillers out in the same way as the *Pernettya*, and also grows freely from self-sown seeds and bears beautiful racemes of white Lily of the Valley-shaped flowers on a pink or rather red stem. Both this and the *Pernettya* are perfectly hardy; no kind of weather hurts them, nor do rabbits or insects molest them, and being evergreen they are a perpetual pleasure without alloy. I may say the same of the small *Gaultheria* (American Wintergreen) and the little *Vaccinium*, which both bear white

flowers and red berries, and completely cover the ground.—R. B.

INDOOR GARDEN.

MEXICAN BUTTER-WORT. (*Pinguicula caudata*.)

ONE of the prettiest of all little bog or moisture-loving plants now in bloom in our collection is this little gem of gems, in the floral way, from Mexico and other mountainous provinces in Central America. Its blossoms are solitary, on hairy scapes, 4 inches to 10 inches in height, and are of a vivid magenta colour, most exquisite in its intensity when seen in the sunshine. At present the plant is not often seen in private gardens, but the time will, I hope, soon come when this little species will be grown by the dozen, especially in those now numerous gardens where cool Orchids



Pinguicula caudata.

are already cultivated. The illustration shows the spring aspect of the plant just as its flower-spikes and thin, broad, summer foliage are making their appearance, for, as is the case with our native species, this South American plant also forms a sort of bulb-like mass of thick and fleshy scale-like leaves ere it goes to rest, or rather ceases growing in the autumn. A moderately warm greenhouse temperature is amply sufficient for its requirements during the winter months, but we find that it fully appreciates the return of spring warmth and sunshine together with a little extra artificial heat likewise, as it then begins its summer leafing and the flower-spikes are thrown up in quick succession. The plant has been growing at Kew for a year or two, and also at Chelsea, and the wonder is that a plant so interesting and compact, both in leafage and blossom, should have remained so long ere its distribution becomes general, more especially as its culture and propagation are so easily carried out. As soon as ever my little specimen came to hand from a generous friend—who continually exchanges good things with me—I potted it in a 2½-inch pot, using a compost of living

Sphagnum and small crocks only. This small pot was then plunged in a little shallow Orchid pan to prevent extremes of moisture and hung up at the cool end of a Cattleya house, where it is now flowering quite freely. When I received it the plant reminded me of a bulb of *Lilium superbum*—I mean of a cluster of its fleshy scales torn off the rhizome—and as some of these outer scales were loose, I took them off in order to test for myself a statement I had somewhere seen that this Butter-wort might be increased by means of leaves inserted as cuttings. The result was past all expectation. They were inserted in the living Sphagnum on the surface of an Orchid basket, and we were delighted to see signs of the young plants appearing near the bases of



these leaf cuttings in a few weeks after their insertion. Some of our strongest and most fleshy leaves showed two buds each, but a friend tells me that he has leaves showing four little plants at their bases. Knowing the great liking that all *Pinguiculas* have for living Sphagnum Moss and grit rather than for any mere earthy compost, I did not venture to try any of the leaves in soil, and I am inclined to believe that to the use of Sphagnum Moss instead much of the success in this method of leaf propagation lies. Other cultivators may, however, have observed differently, and of course their records will be most welcome to all lovers of plants, like this, of interesting beauty as well as to myself. The general aspect of the plant and a flower, both of their natural size, are well shown in the accompanying wood engraving, and the leaf cutting as inserted (No. 1) and the appearance of the young plant after an interval of five weeks are also shown (No. 2). I consider this plant one of the most interesting of plants imported for many years, and can only regret that numbers of the other exotic species known to exist are at present unrepresented in our gardens.

F. W. B.

SELECT STRAINS OF CINERARIAS.

THERE can be no doubt that the easiest way to obtain a good display of *Cinerarias* is to grow seedlings, and the seeds may be sown between the months of April and July in order to secure a succession of blooms. We generally sow the seeds from which we get our earliest plants in a shady part of a hotbed, the heat of which is nearly spent. They speedily vegetate, and when the young plants are large enough to handle they may be pricked out, about six or nine of them in a 3-inch pot, still keeping them in a frame where they are not exposed to the direct rays of the sun. In a little while they are potted off singly in small pots, and when repotting on as require they will flower in 6-inch or 8-inch pots about Christmas, earlier or later as the case may be. The later sowings require much the same treatment. Many are not aware that the *Cineraria* may be grown from offsets from the main stem; these are thrown out after flowering is over close to the base, and they may be removed with a portion of roots attached to them. Two or three of them may be planted round the sides of small pots, and as the process of propagation will not take place until about midsummer, the best position for the plants would be under hand-glasses behind a north wall, where they will take hold of the fresh soil slowly, but surely, and make good stout plants before the dark days of the late autumn months set in, when they should be removed to a cool pit or greenhouse, and be treated the same as seedlings. Good useful decorative plants may be grown and flowered well in 6-inch pots. Large specimens adapted for exhibition or

other purposes may be flowered in 8-inch or 9-inch pots. Specimens 2 feet across may be grown, and even larger than that, in such pots if pains are taken to tie the flowering stems out. Weak manure water may be used until the flowers are open; this gives substance and rich colour to the flowers.

This much have I been tempted to write, owing to seeing the fine varieties exhibited by Mr. J. James, of Farnham Royal, Slough, at South Kensington and Regent's Park last week. Mr. James has been a grower for many years, and he has also been the raiser of numerous very fine varieties, but his last exhibits surpassed any that have been shown in previous years. On looking over his collection of sixty or seventy plants it was difficult indeed to make a choice of varieties for purposes of floral distinction. The committee of the Royal Horticultural Society selected three for the highest award given by them to new plants. While from the same batch the judges at the Royal Botanic next day selected seven, and they left out as many more possessing almost equal merit to those certificated. It may be premised to begin with that the flowers are of the largest size (3 in. across) and of the true florist type with broad, well-rounded petals, forming a perfect flower. Duke of Edinburgh, certificated by both societies, was one of the best of them; the colour is a rich bluish purple with a narrow white ring round the disk; Princess of Wales is a rosy red self with a dark disk; Mr. Herrin, a fine crimson self; Brightness, rich crimson-scarlet; Lord Wolsley, a brilliant and distinct purple self with a deep red ring round the disk—this was also certificated by both societies; Lord Beresford, rich reddish purple with a white ring round the disk; Albert Cox, scarlet with a shade of lake; Sir P. Rose, blue with a tinge of red at the base of the petals, and a greyish disk; Mrs. Herrin, rich rosy red with a broad white ring round the disk. Mr. James has been very successful as a propagator of named Cinerarias, and it would be desirable if he would propagate his fine collection for trade purposes; they would undoubtedly be much sought after.

Mr. Cannell, of Swanley, possesses some new varieties of sterling merit, and he seems to have hit upon a method of propagating them very freely indeed. He has also exhibited and obtained certificates for propagated plants, whereas those exhibited by Mr. James were seedling forms merely. Some had a notion that not only the Cineraria, but the Pelargonium had been brought to such a high point of perfection, that future progress could only be expected to be slow. The results of the labours of the last few years have dispelled that delusion and shown us once more that there is no end to the infinite variety to be found in these flowers that have been so long in the hands of those who know how to guide them aright.

J. DOUGLAS.

Steam heating.—Noticing an article in THE GARDEN (p. 178) on steam heating by Mr. Warhurst, I have thought it might possibly interest your readers to know the temperature here. In the present month (March) the mercury has been as follows: 2nd, 2° below zero; 5th, 15° below zero; 8th, 10° below zero; 12th, just zero; 16th, 4° above zero, and we will probably get as low once or twice more before April. When the mercury indicates 40° below zero (Fahr.) outside and the houses are wanted to mark 60° inside, you can imagine it takes some attention in the way of coal and quantities of piping to do it, and leave the fire for from 5 to 6 hours, especially if there is any wind. We maintain the temperature nicely with hot-water pipes (4-inch ones), but can do it much cheaper, both as regards coal and help, by the use of low pressure steam with automatic damper regulators, &c. The pipes can be 1½-inch or 2-inch, or even 3-inch wrought iron, or the present 4-inch cast iron pipes can be used, as there is only an average of 5 pounds to the square inch of steam wanted. Mr. John Thorpe, of Hallock, Son, and Thorpe, Queens, N.Y. (an Englishman), could give you a good practical paper on this

subject, as he uses steam. Mr. E. H. Bochman, of Pittsburgh, Pa., could also give you an article on the subject worth reading. — S. FLETCHER TERVILLIGER, *Saratoga Springs, New York.* [If the gentlemen just named or Mr. Murdock, who wrote in THE GARDEN last week (p. 284), will kindly furnish us with details as to the way in which steam heating is now carried out, we shall be greatly obliged, and will have much pleasure in publishing them.]

CHRYSANTHEMUM ROOTS V. CUTTINGS.

"J. S. W.'s" remarks on this subject (p. 267) are likely to cause a good many gardeners and others who grow Chrysanthemums to differ from him respecting their propagation. I, for one, fail to see the advantage of root propagation as respects economising labour. I think his argument on that point utterly fails, or his mode of propagating by cuttings must be different from that of the majority of growers. The following is the course which I adopt with them: The old plants are generally cut down about the last week in December and removed to a cold frame, where they remain about ten or twelve days in order to allow the young growths to become sturdy and ripened, as when the plants are grouped for effect in the greenhouse or conservatory the young growths at the base are apt to become weak from want of sufficient light. As soon as the cuttings are in good condition they are taken off and inserted in 2½-inch pots, and plunged in a cold frame previously filled with fresh collected leaves, which affords a gentle bottom heat. After being well watered the frame is kept closed until they commence to make roots, when air is gradually admitted. During January and February watering is rarely necessary, and shading seldom required. About the beginning of March they are shifted into 6-inch pots, and afterwards treated in the usual manner.

I propagate generally about 200 plants, and were I to keep those in a cold frame they would occupy six times more space than cuttings would, and I venture to assert take six times more labour than cuttings. They would require covering to protect them from frost the same as cuttings, and the pots being full of roots they would require more watering. The labour involved in breaking up portions of root is much greater than that of taking off cuttings, and who wants to have such work to perform in April when so many other operations make time precious? His argument with regard to the size of the plants may doubtless suit some growers, but the majority, I think, would prefer smaller plants and more of them. There are so many good varieties of Chrysanthemum, that growers generally like to have as many sorts as possible; whereas if the practice which "J. S. W." recommends was adopted, many would require to confine themselves to a few kinds. As to the "pinching and pegging," I never practise either; my plants are staked, and I presume his are the same, especially if they reach the height of 8 feet or more, as plants raised from cuttings do. With regard to the question, is a herbaceous plant cutting stronger than the root? has "J. S. W." ever noted the difference between a Phlox raised from a cutting and a piece of root cut from an old plant? The flowers in the former case are much larger and finer than those in the latter. I think, to quote "J. S. W.'s" own words and apply them inversely, there is no comparison as regards time and trouble in the two cases.

Hall Court, Botley.

A. DEWAR.

Allamanda violacea.—Is this plant in cultivation anywhere? I have made inquiries of the leading London nurserymen, some of whom catalogued it a few years ago, but do not possess it now. Since I saw a painting of it in the possession of a friend some time ago I have been on the look-out for living plants of it. The only figure of it I have been able to find is in Fielding's "Sertum Plantarum," which appears to have been prepared from a dried specimen and the pic-

ture just mentioned. Fielding says, "This is certainly the most beautiful species of the genus, the flowers being large and of a rich violaceous colour not unlike those of *Gloxinia speciosa*. It is mentioned in the supplement to Johnson's "Gardener's Dictionary" that it was introduced in 1859. With a plant so beautiful, free blooming, and moreover blue flowered in a genus essentially yellow-flowered, it seems strange that so little has been done, and it is to be hoped that if lost to cultivation it may soon be reintroduced. In habit and size of flower *A. violacea* is not unlike *A. cathartica*, while the foliage is covered with short downy hairs. It is a native of Brazil.—B.

TOP-HEATING.

SINCE writing last week I have been to Swanley, and I find I was wrong as regards the actual number of pipes which previous descriptions had led me to understand were in use there. Most of the houses have but one pipe on each side of the path, and one smaller one suspended 2 inches or 3 inches below the rafters, and 10 inches to 12 inches from their foot. The chief benefit of this position is that it saves useful space on the stages or beds, and does not dry the row of pots which would be touching the pipe all the way along. The houses are 100 feet long, span-roofed, with top ventilators only, the sides facing about north and south instead of east and west, as is most usual. The reason for this was not asked, but it seems more convenient in the planning of the grounds, though some would choose this because the sun's rays, when wanted, penetrate better, and, when not wanted, one side alone would require shading. A few houses stand the usual way, with slate stages in centre, and side ones having a pipe under and one by the side of the path as flow and return, and a separate top pipe which can be used or not at pleasure. The greater number of houses have inner walls about 2 feet high next the path, with soil filled in up to the sides, which are 3 feet high only, but some had open lath stages in use. On these beds of earth the pots stand, and as an evidence of the course taken by the "column of air" ("A. D." notwithstanding), as explained in my last, it is found that if—owing to a sinking of the bed—some of the pots are an inch or two lower than the others, those plants are as much as two weeks' later than those placed in the sloping line of the heated current from the lower pipe drawn across the plants towards the upper pipe. This top pipe is usually 2 inches in diameter and the lower one 3 inches, but in some the upper pipe on the north side is 3-inch and in others the lower one is 4-inch.

The temperature of the upper pipe (being a continuous rising flow) scarcely differs from that of the lower one, except when the fire heat is low, and except in those cases where the upper pipe is connected by a small 1-inch pipe from the lower one, which checks the circulation considerably. This slower circulation would also take place if the bottom pipe was 2-inch and the top 4-inch, and so lower the general temperature. Even if the present pipes were used in houses double the length there would not be the same results as now, as the top pipe would be nearly cold; while to take the top pipe direct from the main flow it would be very hot, and the lower pipe being simply a return would be comparatively cool. The pit pipes are 2-inch flow at front or low side, with 1-inch near the top or back as a return, but being a falling return and so small, it is not sufficiently hot to draw the warmth all the way up the flat glass, allowing the frost to penetrate about the middle when severe weather sets in. Anyone adopting the same arrangement of beds and pipes as at Mr. Cannell's, in houses with side-lights 2 feet or 3 feet high, would discover with the first severe frost (if not earlier) that the mere copying of another is not sufficient to secure success, and that something more is wanted, that something being the scientific knowledge so much decried by "A. D." which every hot-water engineer ought to possess. B. W. WARHURST.

NOTES.

After the storm.—Surely the Ides of March must now have left us! What a "roaring moon of Daffodils" it has been to us! And yet the Daffodils have withstood the dry east winds "in all their bravery;" indeed, in this season of all others I remember have the winds of March been taken with their beauty. All cultivators of Daffodils will be glad to read an essay on "The Flower of March," which will be found in *Longman's Magazine*, p. 663. "Heigh-ho! the Daffodils." A genial shower or two on the 25th softened the dry clods and revived the shrivelled leaves of Anemones, brightened the blue of the Scillas, washed the dust from the big Saxifrage leaves, and gave additional strength and encouragement to the Lily shoots now spearing up like giant Asparagus in sheltered nooks along our old borders. The song birds are merry, so I trust that the storm has gone.

*

The blue alpine Clematis (*Clematis alpina*) is a favourite here, and presents a curious aspect just now, its tendrils and ash-grey stems appearing to be lifeless as they twist and twine in utter confusion on the stems and twigs of a dead wall shrub. It is not an attractive object, and a stern lover of neatness in a garden might be tempted just now to sweep it away as a dreary, worthless lot of litter. A closer examination, however, shows that at each of its numerous joints or axils a couple of grey-coated buds are bursting forth. They are plump, bold, and in vigorous strength, reminding one of the well ripened Lily of the Valley crowns which the stolid Dutch gardeners taught us how to grow for winter blooms. Very unlovely to a strange eye is our *Clematis alpina* (*Atragene cerulea*, some will call it) just at the present time, but in six or seven weeks' time it will be one of the sights of our garden—a mass of tender young leaflets, amongst which the blue flowers nestle very cosily.

*

Hardy bouquet flowers.—This year of all others hardy flowers have been the most fashionable amongst artistic and tasteful people. All Lenten-tide the Daffodil has been queen of all the blossoms used for personal adornment, and bouquets of the common double variety have been proudly borne away by our friends in preference to Orchids and other tropical blossoms. A well-made bouquet of Daffodils garnished with sprigs of winter Heaths and Asparagus spray is a revelation to most people, and with a black dress is most effective. One of green Hellebores (*H. argutifolius*) and buds of *Cydonia* caused quite a sensation amongst good judges of floral ornaments, and even in the months of January and February a request for half-a-dozen bouquets and a funeral wreath or two does not in the least alarm us, so confident are we in the powers of old-fashioned hardy flowers, Crocus buds, Snowdrops, Scillas, &c., to please, if prettily arranged. Neatly mounted on wire—a necessary evil—with plenty of fresh green wood Moss, we may do most, if not all our decorations with hardy flowers alone.

*

A successful experiment.—It is very pleasant to sit down before an experiment of this kind: In a sheltered yard were two beds in which nothing would grow, and certainly the persistency with which many good plants dwindled away therein was worthy of a better cause. Even if not before (which is best) when things get to their worst a new departure has to be decided upon, and so when some scarlet Geraniums gave out and failed us we awoke to action. Out came the soil in barrowfuls until numerous graves 3 feet deep appeared, and two or three loads of stable and cow manure were next thrown in, then soil from the potting shed yard, until the beds were once more full. This was in October, and Tulip (old cottage garden kinds) and Narcissus bulbs were planted pretty thickly. In March following the surface of both beds was sown with Anemone coronaria seed, this being covered with sifted earth from the potting shed as before. This is two years ago, and the result is a floral display

for six or eight months of the year, and plenty of Anemone flowers for cutting at a time when flowers outside are scarce. A sprinkling of Mignonette and red Flax seed (*Linum grandiflorum*) sown in March girdles the year with flowers for us after the Tulips fade.

*

Helleborus foetidus.—There has been a tendency to despise one of the most graceful of all the Lenten Roses, and yet many greenhouse Aralias are far less graceful in form and in leafage, and when the spreading dark green leaves are crowned by a gracefully towering spire of apple-green buds and bracts, it is of all hardy plants one of the most distinct at this season. Its leafage is an especial feature, being more finely cut than that of other kinds, and admirably adapted for arrangement along with the blossoms of other Lenten and Christmas Roses. One trait possessed by this plant is its hardy vigour, which thus renders it especially suitable for planting here and there among trees and shrubs, alongside woodland walks, or massed in the nooks of old shrubby borders. It may be easily raised by the thousand from seeds sown as soon as they are ripe, and these once well planted will render out-of-the-way parts of the grounds interesting, especially if common Daffodils bear them company, seeing that both bloom together thus early in the year.

*

Broad-leaved Kalmias.—These are now flowering in the greenhouse and yield abundance of their quaint umbrella-shaped flowers and pretty fluted buds which are as fine in their way as any tropical blossoms can well be. Some varieties are of snowy whiteness, others very softly and daintily tipped and flushed with pink or rose colour; and either alone with their own leaves in a shallow vessel of fresh Moss, or in bouquets along with filmy Asparagus or Maiden-hair Fern, they are most lovely. Kalmias are as hardy as Laurels, but they love shelter and a peaty soil, although they grow vigorously in loam fibre and leaf mould in equal parts. We shall never fully know the richness, variety, and beauty which is yielded by hardy herbaceous, evergreen, and shrubby plants alone until we bring their blossoms regularly into the house to live with us. Distance in landscape effects may lend enchantment, but hardy blossoms grow upon us more and more as we bring them indoors and near to the eye.

*

A fragrant weed.—Tobacco is sometimes "a leetle" objectionable, especially to ladies, but a plant of *Nicotiana affinis* is just now perhaps one of the least objectionable of all the forms and phases which Tobacco assumes. I think Mr. Cullingford, who introduced it to our gardens, once said it would rival the Tuberose. So it does. Its fragrance is even more agreeable, and "in the long run" its culture and endurance are far more satisfying. There are not many amateurs who can boldly say that they have propitiated those evil spirits whose duty seems to be to thwart successful Tuberose culture, but anyone who can grow Mignonette or scarlet Geraniums for winter and spring flowering may grow this large-flowered sweet-scented Tobacco to perfection. Just now we have a plant a yard or more in height, with three or four stems and a dozen or more of its big white blossoms. At night or during dull, wet days its odour is delicious, and cut flowers last for several days indoors in fresh water. Sow now for plants to bloom next winter. Mr. Thompson, of Ipswich, sent me seeds last season, and now for some weeks its blossoms have been much admired.

*

Feeding fruit trees under glass.—Now that Vines and Peaches are in bloom under glass roofs, I hope their owners or cultivators will see to their due nourishment. Mr. Meehan has told us many facts relating to the feeding of fruit trees at a time when especial strain is laid upon their energies. To ensure a "good set" of fruit, proper pollen distribution may be, and often undoubtedly is, necessary; but what about root fertilisation? I am convinced a good soaking of diluted liquid

manure, guano, cow manure, and soot, or drainings from the stable yard, applied just now, would make an appreciable difference in the produce of Peach house or vinery, to whichever applied. If more encouragement in this way were given we might hear less of trees refusing to "set" their fruit, and also less of "stoning" and "shanking." Of course, in all good gardens these things are properly attended to, but amateurs often forget these little matters of cultural detail until unproductive trees remind them that a "screw is loose" somewhere.

*

Crown Anemones.—This is the proper time to sow seeds of the Crown or Poppy Windflower for blooming during next autumn, winter, and spring, but the great question is, where can seed of a first-class strain be purchased? The greatest difficulty is to be sure of good seed, for unless seed of a good strain is obtained as a commencement, time, land, and energy are in a manner thrown away. All of us cannot be sure of obtaining good seed from friends, although I have much to be grateful for in that way. Anemones are gross feeders, and before sowing the seed we dig in cow manure and otherwise prepare the bed as if for sowing Onions or Lettuces. The seed soon germinates if not sown too deeply. The best plan is to mix the cottony seeds with sand and sow on the surface of a finely raked bed, covering the seeds afterwards with a sifting of fine soil the eighth of an inch or so in thickness. After germination thin out the seedlings to 3 inches apart, and give good soakings of liquid cow manure in dry weather. So treated, a bed or two of Windflowers forms one of the best features of a garden of hardy blossoms during the dullest part of our year. But, as we have already said, the seed, the seed! that's the question!

*

A rare greenhouse shrub.—Not often seen in flower is *Greyia Sutherlandi*, flowers of which have just been sent to me by Mr. Smith, of Newry, to whom we must look for "notes" on its culture. Its blossoms are very pretty. A spire of deflected orange-scarlet flowers half an inch across terminates a branch. The long-stalked anthers protruding from the short and shining petals give to it quite a peculiar elegance. Previously we have only heard of it as having flowered at Chelsea Botanical Gardens, and at Glasnevin in the late Dr. Moore's time. The spires of ruddy blossoms are so distinct and showy, that the plant would soon become a favourite if we could devise some "dodge" in order to be quite certain of flowering it every year. It comes from South Africa, and is nearly related to the Saxifrage.

VERONICA.

KITCHEN GARDEN.

SOWING AND PLANTING ASPARAGUS.

ALTHOUGH the cultivation of Asparagus has often been referred to in THE GARDEN, it may probably not be out of place just now to offer a few remarks on the seasonable and important operations of sowing and planting. Young Asparagus plants are as easily raised from seed as are Cabbages or Cauliflowers, and all who are inclined to take an interest in Asparagus culture will find seed sowing the most profitable way of securing a stock of healthy plants. The best of seed may be bought for about fourpence per ounce, and from this 100 plants or more may be raised. We lift and force many Asparagus roots annually, and in order to keep up the supply we sow several ounces of seed every spring. We have found this plan to answer so well, that I think its general adoption would be an advantage to all. The seed is sown in the first or second week in April if the weather is favourable. Beds are not formed, but row after row is sown on one of the borders. Previous to this the soil is manured with some slight material such as that of an old Mushroom bed, which is dug in then the surface is broken up fine with a fork, when it is ready for the seed. The drills are opened to the depth of 2 inches, and the seeds are dropped in singly about

3 inches apart; they are then covered over with some light soil from the potting shed and sowing is completed. In one month hence the plants will be visible above ground, and after that Dutch hoeing now and then throughout the season is all the after culture they require during the first year. The situation which we prefer for the young seedlings is one rather sheltered from wind, but fully exposed to the sun. In a windy spot the young growths are apt to be broken over occasionally, a circumstance very injurious to their after success. Plenty of sun, however, matures the buds and crowns, and perfects them for more vigorous growth the following season. We have sown seed in May, but this did not produce such fine roots by October as that sown a month earlier, and no favourable opportunity should now be allowed to pass before sowing. In addition to what has been said, a caution may be given not to sow thickly. When the young plants are only an inch or so apart it is impossible that the roots can have full scope; the consequence is, they are cramped and of a very inferior description by the end of the season. Rather than have such plants as these I would put the seeds in 4 inches or 5 inches apart, but if a space of 3 inches is allowed excellent roots will be the result. Besides this being the time to sow, it is also the

Season to plant. All new plantations of Asparagus should be formed at this time. When the roots are shifted while the buds are quite dormant a good many of them are liable to fail, and if planting is done after the young shoots have become 3 inches or 4 inches high many of them will be checked or killed, but if shifted just when the young stems are beginning to form, which is the case now, success will be the result. It is a great advantage to be able to plant again as soon as the roots have been dug up, and in this way especially home-raised seedling roots have always a much better chance of succeeding than those bought in and brought from a distance. One and two-year-old roots may be transplanted with better results than older ones. Three and four-year-old roots do not transplant well; they get checked just at a time when they should be useful. Plants from seed sown at this time last year are those we will plant now, and as they will not be shifted again, their fruiting or bearing disposition will not be upset, and in two years we will have plenty of good produce from them. Previous to planting

The ground should be well tilled and thoroughly manured, and on a fine day, when the soil is in good working order, the roots should be put in. The rows should not be closer than 3 feet apart, and the plants should stand from 1 foot to 2 feet asunder. Before any planting is done all the rows should be opened up with a spade; they should be taken out the full width of implement, and from 3 inches to 4 inches deep. When all the rows have been opened in this trench-like fashion, the roots which are to go in them should be dug up with a fork, care being taken not to break any of the rootlets, and each one should be carefully laid out in the position which it is to occupy before covering with soil. As the roots spread out naturally this is easily done, and in placing the soil over them it should be worked in about the roots and over the crown with the hand; then fill in with the spade. Should the soil be very dry at the time of planting or become dry immediately afterwards, each root should be watered through a rose-spouted can. If a small quantity of soil in which half-decayed manure, sand, and bones, or any other kind of artificial manure is mixed can be placed around and over the roots, it will induce them to become established earlier than they would do in ordinary soil, and growth of this kind is always to be encouraged, as stems can never be formed too soon or of too large a character. J. MUIR.

Margam.

Red fluid from Vegetable Marrow.—Last summer I had a very productive Vegetable Marrow, and I saved one seed-pod, thinking that I should get a lot of good seed. I had it placed on a shelf in the kitchen, expecting it to dry, and

it laid there until lately, when it began to exude a beautiful lake fluid, and I found that the pod was rotting. It gave out a large wineglassful of the fluid, which, curiously, did not stain or mix in the least with the pulp. On cutting it open I found that it came from the place where the stalk joined the fruit. Has any physiologist discovered the use of this fluid? This seems the more curious, because there is no other red colour observable at any stage of the plant's growth.—J. S. Q.

Chou de Burghley.—Having heard a great deal in praise of this new kind of Cabbage, I am going to grow it rather largely. I have tested its hardiness, for a pot of seedlings, before and since their second leaf, have stood 12° of frost uninjured. I am now desirous to ascertain from those who have partaken of it what are its real qualities on the table. I might indeed write to Mr. Gilbert himself in reference to this matter, but then, as we all know, that to every mother her own babe is the sweetest one in the world, he might not be an impartial judge. That my little mites of plants, without a rag to cover them, should withstand 12° of frost without being killed shows that a very mysterious thing vegetable life is.—H. P. J.

Propagating and growing new or expensive Potatoes.—I received a limited quantity of Cosmopolitan about a month since, as I was anxious to have a Potato that got the first prize amongst so many varieties at Birmingham last year for comparison with other kinds. After receiving it, I cut each into as many sets as eyes, and placed each eye in sandy loam. They are now getting established and I observe no misses. I should have said I put them in long boxes, almost within an inch of each other, as they are only temporarily located there, and then in a back cool room where the temperature must not exceed 50° Fahr. I observe, so far, that as compared with other varieties, such as Eight-weeks, it is a much slower grower, and does not promise to be at all one of the earliest. In this way money, convenience, and quantity of sets are gained.—W. J. M., Clonmel.

Early Cauliflowers in trenches.—Small growers who have neither the advantage of a sunny sheltered border, nor the convenience of hand-glasses or frames wherein to forward a few dozens of these, may gain considerably in point of earliness by planting them in shallow trenches. These should run north and south, allowing 3 feet from centre to centre of each trench, which should be just deep enough to afford protection from the biting spring winds, without depriving the plants of light and full sunshine. They may be prepared in this way. After marking out with a line and spade the space for the trench 15 inches wide, remove a few inches of the top soil, placing it on the left hand or west side; then dig out a good spade's depth of soil, laying it in a little ridge on the east side, and after well mixing some rotten manure with the soil in the bottom of the trench, return that taken from the surface, breaking it up well and in it plant the Cauliflowers, one row down the middle 20 inches apart. It is better instead of leaving the sides of the trench perpendicular, as is usually done in Celery planting, to break the sides down, so that the ground may slope gently back from the middle of the trench; and as the plants progress, the soil can from time to time be replaced around the stems, thus keeping them firm and comfortable. Where such is obtainable, a thick line of Spruce or Laurel boughs pushed firmly and upright into the ground midway between each trench will greatly mitigate the severity of harsh winds from which we do not now-a-days seem secure till the end of May, but they should not be left so high as to interfere with solar influences.—A. MOORE, Cranmore.

Garden screens.—A capital screen may be made as follows: Fix a good post the required height at each end of the space to be shut out, then from their tops strain a strong galvanised wire, also perhaps another half-way down if a rapid covering or a high screen is wanted. Now plant Virginian Creeper at the bottom, 12 feet

apart, and train it up to the top. It will sometimes run along the wires of its own accord, but if not, a very little trouble will cause it to do so; then it will hang down delightfully, swinging to and fro in the wind, and getting thicker and thicker every year. If in a conspicuous position, plant alternately with the Virginian Creeper Clematis Jackmanni or lanuginosa. These, running wildly through the mass of Virginian Creeper, with their lovely flowers peeping out here and there, will soon form a sight worth looking at.

GARDEN FLORA.

PLATE CCCLXXXIII.

AMARYLLIS MRS. GARFIELD.*

THE lovely plant represented in the annexed plate may be looked upon as the forerunner of a new and distinct race of hybrid Amaryllises which have already been brought to a high state of perfection. Amaryllis Mrs. Garfield was obtained by Mr. B. S. Williams by crossing *A. reticulata* and a variety called *Defiance*. The idea of effecting such a cross was a happy one, inasmuch as *A. reticulata* is very distinct from any other type species both in colour and in the season of flowering; moreover, it is an evergreen, while the others are all deciduous. The two great points gained by this cross are delicate colouring and reticulation, as in *A. reticulata*, and the distinct flowering season, which is invariably the autumn; whereas the majority of the other race flower in spring. It is an important step towards the goal which the hybridist has in view, viz., to obtain a race of Amaryllises that will yield flowers the whole year round. We only want now some sorts to flower from, say, about May to the end of August, then the cycle will be complete, for the hybrids of *A. reticulata* usually begin to bloom in September, and continue on till January, when the progeny of *A. aulica* and others come in by way of succession. In all probability some early flowering Mrs. Garfields will soon be obtained to fill up the interval, and the more the better. If the delicate colouring of this variety could be infused into some of the large spring-flowering kinds, it would be a great gain. Those who know the flowers of the typical *A. reticulata* will at once see how much superior this hybrid is to it in point of size and form, and, moreover, it is a wonderfully free flowerer, whereas *A. reticulata* is a notoriously shy bloomer. It was figured so long ago as 1803 in the *Botanical Magazine*, wherein it is stated the plant is a native of the Brazils, and flowers in April. It was first introduced in 1777. In Mrs. Garfield, one of the chief characters of *A. reticulata*, viz., the broad white band running down the middle of each leaf, is distinctly shown, and, as may be seen by the drawing, the beautiful veinings of the flower are very conspicuous.

The other hybrids of the *reticulata* type are very few, though this species was crossed in Dean Herbert's time, but they appear to have become lost. A beautiful hybrid of the same stamp was figured in THE GARDEN in 1879. This was *A. O'Brieni*, raised by Mr. J. O'Brien in the Pine-apple Nursery, Maida Vale. This appears to have been a cross between *A. reticulata* major (*striatifolia*) and *A. pardina rubescens*. It is a beautiful variety, with large well-formed flowers of a deep pink, netted with a deeper colour, and having a broad band of white down the middle of each sepal. Two forms

* Our plate was prepared from a plant in Mr. B. S. Williams' nursery, Upper Holloway, in December last.



are recorded of this hybrid, and these were named *delicata* and *rubescens*. Others in Messrs. Henderson's nursery with white banded foliage (thus showing the parentage of *A. reticulata*) are Henry Little, between *A. picta* and *A. reticulata*; *A. vittata striatifolia*, between *A. reticulata* and *A. vittata*; and *A. Pirloti*, between *A. gandavensis* and *reticulata*. Another new and very beautiful hybrid of this type is

Autumn Beauty. This was raised in Messrs. Veitch's nursery at Chelsea between *A. reticulata* and a seedling of the *A. Leopoldi* type. It resembles Mrs. Garfield, but the colour is darker. Like the latter, it has been frequently exhibited in London, and both have been distinguished by first-class certificates.

The culture of this class of *Amaryllises* is rather different from that of the ordinary type, inasmuch as the plants being evergreen and not deciduous must not be dried off, as in the case of those which annually shed their foliage. A mixture of loam, peat, and decayed manure is a good potting compost, and the plants are all the better if the pots be plunged to the rims in tan or other plunging material. During active growth, which is during spring and summer, the plants require a warm greenhouse temperature and plenty of water at the roots. Towards the close of midsummer, when growth is completed, water should be applied more sparingly, and more air should be given to the plants so as to harden the growths before flowering. W. G.

LECTURE ON THE AMARYLLIS.

At the last meeting of the Royal Horticultural Society, held on Tuesday, March 27, Mr. Shirley Hibberd gave a lecture on the *Amaryllis*. The occasion was made the more interesting by the exhibition of collections of these beautiful flowers, in some cases not for competition, in others for the prizes offered by an amateur desirous of encouraging the production of hybrid *Amaryllises* of high floral quality.

Mr. Hibberd said the name of the flower suggested that its history should begin somewhere in the 106th Olympiad, or, say some 300 years before the Christian era, in order to bring the country girl, *Amaryllis* herself, to furnish the subject of the opening chapter. But there is nothing to be gained for our present purpose from the pleasant verses of Theocritus or the later lines of Virgil, for neither of these poets give aught beyond the name, and as a matter of fact *Amaryllis* does not anywhere in classic poetry rise to the dignity of a heroine. But it is one of the glories of the Linnean nomenclature that by means of symbols selected from imperishable Nature we are brought into contact with the sweet stories of old, the flower of to-day taking us to the very fountain-head of pastoral poetry—the idylls of the poet of Syracuse. The *Amaryllis* in some form was known long before the time of Linnaeus, for John Gerard had the one now known as *Sternbergia lutea*, which he figures at page 113 as *Narcissus autumnalis major*. John Parkinson had this same plant, and figured it at p. 75 of the "Paradisus," and he had another which he figured at p. 71 as *Narcissus indicus*, the Indian Daffodil, with a red flower. This became known as the *Jacobæa Lily*, and was figured in the *Botanical Magazine* (t. 47) as *Amaryllis formosissima*. This *Jacobæa Lily* is now catalogued as *Sprekelia formosissima*, having been so named by the German botanist Heister, in honour of Dr. Sprekel, and not, as is generally supposed, by Dean Herbert, who, however, adopted it and thereby sanctioned it. The plant has been of late years met with in Guatemala, but its native habitat was long unknown. It appears to have been introduced to Spain before the year 1593, in which year, according to Linnaeus, it began to be known generally in Europe.

Linnaeus classed as *Amaryllis* a number of plants that have since been separated under other generic designations. But he made considerable progress, nevertheless, towards a clear definition, preparing the way thereby for the labours of Dean Herbert half a century subsequently. This good churchman devoted to these plants an immensity of labour in determining distinctive characters, raising hybrids, and reducing to order all the *Amaryllids* known in his time. The first publication of his views occurred in the *Botanical Magazine* in the year 1820, under the description of *Amaryllis reticulata* (t. 2, 113). These views were illustrated in a remarkable manner in a paper on "The Production of Hybrid Vegetables," published in "The Transactions of the Horticultural Society" in the year 1882. In a treatise on the order published subsequently, he developed a complete system of classification, one result of which was to give to *Amaryllis Belladonna*, otherwise known as the *Belladonna Lily* of the Cape of Good Hope, the sole honour of representing the classic beauty *Amaryllis*. The South American plants that are nearest allied to the *Belladonna* were classed under *Hippeastrum*, this generic designation being in reality adopted from Linnaeus, who had at least supplied the idea. It is necessary here to be explicit. In the "Paradisus Batavus" of Paul Hermann, published 1698, is a description of a plant called *Lilium americanum puniceo*, the red American Lily. This plant Linnaeus named *Amaryllis equestris*, and it is so entered in the "Hortus Kewensis," and under the same name is figured in the *Botanical Magazine* of the year 1795 (t. 305) and the *Botanical Register*, 1817 (t. 234). The flower of this species is somewhat irregular in form, and the spathe of two leaves stand up like a pair of ears, and thus, according to story number one, the specific name *equestris* refers to a fancied resemblance of the flowers to the head of a horse. But story number two alters the case. In a description of the lovely *Amaryllis reticulata*, by Dr. Sims, in the *Botanical Magazine* of the year 1803 (t. 657), the learned editor says, "We take this opportunity of correcting a mistake of the late Mr. Curtis, in saying that Linnaeus gave the name *equestris* to the *Amaryllis* referred to as such. The fact is, this name was given from the remarkable likeness the front view of it has to a star of some of the orders of knighthood." Thus the Hon. and Rev. William Herbert followed out the suggestion of Linnaeus when he made a bold separation between the *Amaryllises* of Africa and those of America, re-naming the western group *Hippeastrum* (the Equestrian Star), the justification for which will be found at p. 144 *et seq.* of his treatise on the *Amaryllidaceæ*. The distinction is not geographical merely, but is founded on minute details of structure and the order of the leafing. It is proper here to say that to Dean Herbert we are not solely indebted for scientific knowledge of the *Amaryllis*. Of the labours of the professional botanists it is not needful to speak in a special manner, because we must refer to them again and again in the treatment of a subject of this kind. But at this point I feel bound to mention that concurrently with the study of these plants by Dean Herbert they were collected and cultivated with spirit and discretion by Mr. Griffin, of South Lambeth, to whom the *Botanical Register* was often indebted for figures of the more characteristic species. Mr. Ker named the pseudo-genus *Griffinia* in honour of this gentleman. In a few of the references cited it will have been noticed that the *Amaryllis* has been at one time designated a *Narcissus* and at another time a *Lily*, and again the compound term *Lilio-Narcissus* has been used. The distinction between a true *Amaryllis* and a true *Lily* rests on the position of the ovary. For the casual observer—or, say, for a visitor to the flower show—there are some obvious distinctions that will be found of service. The *Lilies* have leafy flower-stems without spathes; the *Amaryllises* have naked flower-stems, and the flowers spring from a spathe such as Parkinson would describe as a "skinny husk." But these distinctions have no scientific value as the orders are at present defined. To give an account of

The several species would needlessly prolong this discourse. But a certain number must be referred to because of their importance as cultivated plants. One of the earliest and most distinct is *Amaryllis Regiæ*, which was flowered by Fairchild, of Hoxton, in the year 1728. A folio pamphlet containing a history of the plant was written by James Douglas, who named it *Lilium Regiæ*. Its first appearance in the *Botanical Magazine* occurred in the year 1799. The flower has a short funnel and a capacious limb, the colour is crimson, and the star is fully displayed. *A. vittata* was first figured in the *Botanical Magazine* in 1788 (t. 128). The flower is always smallish, with a decided funnel, and the petals are elegantly striped, and the progeny, even at two or three removes, partakes of this character. *A. reticulata* was introduced in 1777 by Dr. E. W. Gray, and was figured in the *Botanical Magazine* in the year 1803 (t. 657). It is of the most elegant form, approximating to that of a *Convolvulus*; the tube of moderate length, the limb delicately reticulated in shades of a rich lively rose. *A. equestris* dates from 1710. It is a fine flower of medium size, with short funnel, the limb crimson or scarlet, displaying a bold green star. A variety of this, named *major*, grown by Mr. Griffin, and figured in the *Botanical Register* of 1817 (t. 234), very strikingly resembles some modern hybrids of *A. pardina*, and in place of a green star it has a bold white centre, the outer portions of the limb being of a fiery vermilion colour. The more celebrated *A. aulica* was first figured in the *Botanical Register* in 1820 (t. 444). It was imported from Brazil by Mr. Griffin, and flowered with him at South Lambeth for the first time in December, 1819. In this the elements of a crown are perceptible, and the leafage is peculiar. The form of the flower is far away from what would be termed the florist type, the petals being narrow and separated. But in a variety named *platypetala*, obtained from the Organ Mountains by Mr. Harrison, of Aigburth, near Liverpool, about the year 1825, the most splendid floral characters are developed. The colour of this variety is rich deep crimson with a bold green star that is sometimes prolonged to the extremities of the divisions, which are short, smooth, and so broad as to overlap and form a noble flower. All the foregoing, and many more, that I cannot stay to mention, have been registered as *Amaryllis*. But in the year 1822 the characters of *Hippeastrum* were set forth by Dean Herbert, and the new designation was adopted in the *Botanical Magazine* in the year 1825, when there appeared a figure of *Hippeastrum solandriiflorum* (t. 2573). Some others appeared under the new generic name, as, for example, *H. ambiguum* and *H. breviflorum* in 1837. Now, in

The history of the flower, it is proper to record another episode. In the *Botanical Magazine* it was an *Amaryllis* for a period of about thirty-five years. Then it became a *Hippeastrum* for a period of forty-five years. But in describing a splendid species, discovered in Peru by Messrs. Veitch & Son's collector, Mr. Pearce, in June, 1867, Sir J. D. Hooker named in *Amaryllis pardina*. Having done so, he felt bound to justify the proceeding, and he did so by saying that the differences recognised by Herbert were so slight and variable as to be of no practical value. Therefore the original generic designation was restored; Linnaeus triumphed, and *Amaryllis* is herself again. The introduction of *A. pardina* opens a new chapter in the history of this flower. Its name implies that it is spotted like the leopard, but that quality is not much valued by the florists. It is of more importance to say that this flower is distinguished by great breadth of petal and the absence of a funnel, a fact favourable to the expansion of the flowers to a symmetrical face. More than any of its race introduced up to the year 1867, *A. pardina* stirred the blood of florists and gave new zest to the labours of the hybridists, who, however, soon discovered that, with all its fine qualities, it is not the model for breeding from that they would themselves have created had they been permitted to assist in the work of the third day as recorded in the Book

of Genesis. But the model was ready for all that; like many other desirable things, it was made with the rest on the third day and remained to be discovered. This was secured in Peru by Mr. Pearce. It appears that the King of the Belgians, one of the most generous and enlightened patrons of horticulture in this flowery world, admired the flower when it was shown at South Kensington in the year 1869, and it was named in honour of his visit *Amaryllis Leopoldi*. It is as truly the king of the *Amaryllises* as *Lilium auratum* is the queen of the Lilies. It possesses all the elements of a perfect florist's flower in breadth of petal, depth of colour, a sharply-defined star, and petals superbly tipped with white or an approximation thereto. It is sufficiently defective as a florist's flower to afford work for the hybridist, and excitement to the critics, and to give peculiar interest to the splendid series of varieties that, chiefly by its aid, have been raised by Messrs. Veitch & Sons, of Chelsea. The hybrids figured in the year 1865 in Van Houtte's "*Flore des Serres*" were, in a way, wonders of their time, but we have got far beyond the flowers with funnels and indefinite green stains, and look for expanded flowers of the most perfect symmetry both of form and colour, and with novel markings to give the charm of variety to collections. At this point it seems proper to remark that

In cross-breeding plants varieties occasionally occur that have the individuality, the vigour, and the power of determining the characters of future generations that we associate with species. For all that we know to the contrary they are species, and although brought about by human agency, have, nevertheless, been brought about in Nature's way, and with none but Nature's materials. Some such we have in an *Amaryllis* called *Acramani pulcherrima*, raised by Messrs. Garaway, of Bristol, in 1850, from *A. aulica* platy-petala and *A. Johnsoni*. This *Acramani pulcherrima* is a narrowish flower of fine quality, the colour rich deep crimson with a subdued green star. It has the potentiality of a species for the purposes of the raiser, and has influenced the hybrids immensely. One of the finest varieties in which we see the influence of this plant is that named *Dr. Masters*, in which there is scarcely a trace of green, while the form and colouring are delightful. When we get amongst the varieties, however, it begins to be time to cease talking; therefore, it seems proper to devote the last chapter of this discourse to the general subject of the varieties. And the great question in connection with that general subject is, by what rules are we to judge the hybrids for a code of properties is very much needed. From the point of view of the critical florist, the funnel is objectionable, but happily that is pretty well got rid of. The shorter the flower the more complete, generally speaking, is its expansion, and above all things expansion is requisite to the display of the colour. Now let us, as severe critics, find as many faults as possible with the hybrid *Amaryllis*. The funnel is objectionable, even in its present severe limitation. The petals are unequal, and the front petal especially needs to be remodelled. For our present purpose we may regard all the divisions of the perianth as petals, although we might with propriety call the three outer divisions sepals, and the three inner divisions petals. The length of the lowest of the three is noticeable as a fault in all the varieties. Another fault is the green colour that so frequently occurs, but occasionally this assumes a beautiful form, and therefore I think it would be a mistake to condemn the green colour *in toto*. It will in due time change to white, and a soft creamy white would probably tell with great power if symmetrically associated with high crimson colour. In a good form of *A. Leopoldi* we see a well-defined star, and the petals are tipped with white. A self-coloured flower should be pure throughout, but we may recognise a star of good form and marginal colour corresponding, and thus we may have self-coloured flowers, starred or striped flowers, and tipped flowers. As a matter of fact, we have all these already, but the persistency of

the green colour is a common blemish. A great point in

The new race is the growth of leaves and flowers concurrently. This is an immense gain, and we must make it a point of importance in estimating the merits of a variety. It is likely, too, that as the plant learns to produce leaves and flowers simultaneously, it will also learn that the green star in the flower is no longer needed, and thus improvement of the leafage will operate to the advantage of the flower, and we shall obtain the white, and perhaps the yellow star, that seems to be so much needed for the attainment of perfection. It may be properly urged that there are many beautiful species and varieties that are far removed from the properties thus suggested as desirable. It is no part of my business to condemn any of them; rather, I would say, let us rejoice at the infinite variety of Nature, and feast upon beauty that is as yet "unadorned," and therefore is "adorned the most." We have but to do with these as with other flowers. All the Roses and Pelargoniums and Azaleas that are at once beautiful and useful, and yet wanting in the properties that constitute floral perfection, are classed as "decorative," and are judged as such. These we hand over to the gardeners and the world at large. But all the ugly and useless flowers that Nature appears to have produced for her own private enjoyment we hand over to the botanists, and those learned people appear to appreciate our generosity. We say of such things, "take them upstairs," and they forthwith go to delight the philosophers who dwell in our upper room. There are many beautiful species and varieties of *Amaryllis* that must for ever stand apart from the group that we judge as florists' flowers, and these cannot be disparaged by the operation within a certain circle of laws that have the sanction of experience, because consistent with the aims of Nature and the demands of common sense. The florists are sometimes regarded as a narrow-minded lot. But it will be found that their minds are broad enough to enable them to select for their own enjoyment the most beautiful flowers, and, if other people prefer the kinds that they reject, they are generous enough to leave them to the free exercise of their choice.

SEASONABLE WORK.

FLOWER GARDEN.

Chamæpeuce (Fish-bone Thistle).—Though there are upwards of a dozen varieties of this Thistle, two kinds only are worthy of note, viz., *C. Cassabonæ* and *C. diacantha*; the former has glossy green spiny foliage, and the latter white, both being equally deserving of culture, particularly for sub-tropical and foliage arrangements. No plant can excel the green variety for use as a marginal band or edging to light coloured or variegated foliaged plants, such as *Abutilon Thompsoni* or *Solanum argenteum*, and the white and longer leaved variety is equally pleasing in the same positions, but in association with dark coloured tall growers, such as *Ricinus Gibsoni* and the dark-leaved *Cannas*, we have also used them with excellent effect as dot plants in what is termed panel painting in formal or geometrical designs, and in such arrangements the most appropriate groundwork for the green variety is *Mesembryanthemum cordifolium variegatum*, and for the white variety, *Alternanthera* or the green *Sedums*. Both have proved perfectly hardy here, but as the second season they continuously run to seed, it is necessary to have fresh plants every year, which, to be in time for the summer bedding, should be sown in heat early in February. Our seedlings of this year are already fit to plant, and will be planted as soon as arrangements are completed.

Sowing and pricking out annuals.—The common varieties of annuals may now be sown in the open borders. Sweet Peas, Mignonette, Virginian Stocks, *Bartonia aurea*, Candytufts, *Clarkias*, Larkspurs, *Eschscholtzias*, Lupines, *Nemophilas*, Scabious, *Silenes*, and Sweet Sultans are amongst those that we usually sow in small

patches amongst Roses or on vacant spots in mixed borders, where most of the varieties not only do good service in filling up blanks, but are also invaluable for cutting. Though we sow annuals amongst Roses, it is only because, from want of space, we have no choice in the matter, as we would much prefer the ground being kept for the Roses alone, and any who are compelled to follow our practice in this respect would do well to sow the annuals at long distances apart, and as far removed from the Roses as under the circumstances is possible. It is also now time that ornamental Grasses were sown. These we find quite indispensable for winter decoration, and hitherto have had the best success with them when sown where they are to grow much in the same way as the flowers just named. A still better plan, however, is to sow them altogether in some sheltered border, arranged, as to distance of drills, according to the height to which each variety attains. The drills being drawn, as here indicated, fine soil should be sprinkled in them, and the seeds should be covered with the same material; if dry, they should be well watered. The soil drawn out of the drills should be left to serve as a protection to the young seedlings, and by-and-by, as soon as they have been thinned out, it should be levelled down with the hand, to serve as a mulching to the roots. Asters, Stocks, Zinnias, and *Phlox Drummondii* should be pricked off as soon as they can be handled, as, except for the germination of the seeds, glass cannot be spared here for these classes of plants. We have recourse to turf pits and coverings of hurdles or mats, and under such conditions they invariably do well. They are pricked out in light vegetable soil, half light loam, and half leaf soil. About 4 inches in thickness we find ample, and as this rests on a hard bottom, the plants lift with such an abundance of earth, that they scarcely feel the check occasioned by removal.

KITCHEN GARDEN.

We are just now planting Cauliflowers out of pots. The cold winds we have experienced have been even worse than frost; but it is surprising how soon a large breadth may be sheltered if we only set about it in the right way. In our case we use the prunings of Laurels, placing a single piece to each plant—a plan which appears to suit them admirably. Our spring plants sown in February are now ready for pricking out in cold frames. Outside Mushroom beds should now be bearing good crops. Winds soon dry their surface, in which case they should be watered with lukewarm water through a fine rose. It is important to allow 1 inch or 2 inches in depth of straw to be on the bed while it is being watered, as in that case the water soaks into the bed instead of running away. Late Celery may now be sown outside, also Brussels Sprouts, Savoy, and curled Greens, and, above all, do not forget plenty of Parsley. All kinds of Broccoli—except *Veitch's Autumn*—should be sown later on. Our first early Potatoes are planted close under south walls. Three hundred feet have been put in this day. The soil is slightly broken, the Potatoes planted shallow, and a covering, consisting of burnt refuse and sand 3 inches in thickness, is placed upon the sets. The variety planted is the true *Myatt's*—undoubtedly the best of all early Potatoes if £ s. d. is a consideration. Earth up and water sparingly. Potatoes in pits and frames. Asparagus may be planted directly it begins to shoot. We have a large breadth to plant this season. We shall draw wide drills 3 feet apart, lay the plants in flat at the bottom, and cover them 2 inches deep with sand and burnt refuse. As regards Seakale, we are now cutting excellent heads from young plants planted last season, over the crowns of which we put a couple of forkfuls of half-rotten leaves. Just now is a capital time to form new beds. Seedling plants are better than cuttings. Vegetable Marrows and Gherkin Cucumber beds may now be formed by taking out a trench 3 feet wide and 12 inches deep. Any old material from Seakale or Rhubarb beds now done with may be advanta-

geously used with a little fresh material from the stables. Mix up all together, and earth up from the sides; place hand-lights on the top, and sow the seeds at once.

FRUIT.

Cherries.—While it is difficult to imagine a more lovely sight than a house of Cherry trees in full bloom it is impossible to name a crop which can be brought to maturity at so little cost in everything, with the exception of patience, and of this the successful cultivator, be he professional or amateur, must have a good stock, as the temperature of the house under artificial treatment should not exceed 40° at night and 10° to 15° higher by day, and even then a stagnant atmosphere should be avoided by having the ventilators a little open. It sometimes happens, as has been the case this season, that the temperature of the open air is many degrees above these figures, when a constant circulation of air gives the trees all the advantages, minus the risk attendant upon culture on open walls. These favourable conditions have brought about a bold blossom, a good set, and rapid growth, so far free from insects, but the everlasting grub which never fails is sure to put in an appearance which cannot be mistaken, and the first curled leaf must be the signal for daily examination and handpicking. When the fruit begins to swell the inside borders may be nicely mulched and well supplied with water at a temperature of 70°, and the trees will require good syringing twice a day, always with the ventilators closed, as it is the warm, genial atmosphere resembling that of a fine April day, which helps the fruit along. After the first syringing give air at 50°, gradually increase it to 60° under moisture, with a circulation of air, and ventilate to the full extent when sun-heat raises the house above these figures. Reduce in a similar way, syringe and kept close for a time, and reopen the ventilators for the night.

Orchard house.—Since our last notes appeared the trees in this department have made great progress, and the fruit on many of the most forward Peaches and Nectarines is now set. Later kinds, also Plums and Cherries still in flower, will require abundant ventilation when the external temperature is not below 40°, and to prevent disappointment a few minutes devoted to daily fertilisation with a bunch of soft feathers will be necessary. Continue the usual treatment with regard to watering, as dryness at the roots will be fatal, and while avoiding the wetting of the flowers damp the floors and other available surfaces, also the stems of the trees, once or twice on fine days, and keep the house dry and cool in damp, dull weather. When the fruit on all the trees is set, let the daily syringing be resumed, aim at a night temperature of 50°, run up to 10° by day, and shut up before the sun is off the house where hot-water pipes have not been introduced. Commence disbudding and shortening back where this has been deferred and plenty of fruit has set near the base of the shoots; also thin the fruit where set in triples or clusters, leaving, as a matter of course, an abundance of the finest on the upper sides of the shoots for future selection. Although the house may have been well fumigated before the trees came into flower, green fly is sure to be present, particularly amongst the Plums, and as these are the first to suffer, another smoking will save much disappointment. As trees in pots now commencing to swell off a crop of fruit cannot be overfed, lose no time in getting them top-dressed with some rich compost consisting of strong loam, good rotten manure, previously dusted with soot to destroy worms, and twelve per cent. of bone dust. Mix well together in a shed, apply it when tolerably dry, and if any is left over it will improve with keeping. Examine trees which have been planted in the borders, top-dress with half-rotted manure, and give plenty of water at the mean temperature of the house.

Vines.—Assuming that former directions have been followed, the Vines in the latest houses will now be ready for disbudding. If they have been

suspended in a horizontal position get them tied up to the wires before the young growths are too far advanced, syringe regularly until the bunches become prominent, and close with sun-heat at 75°. Attend to disbudding and tying down in succession houses, and remove all superfluous bunches from free setting kinds as soon as the most compact and best placed can be selected for the crop; fertilise when ready with Hamburg pollen, and thin out the berries when the size of No. 6 shot. When all the bunches have been thinned allow the laterals to extend over vacant parts of the trellis before they are again pinched, give the inside borders a good supply of warm diluted liquid, and add more fresh, but well worked, manure where the surface is not well covered. Keep up a circulation of warm air in houses where Grapes are in flower, and fertilise when the heat has reached the maximum on fine days. Maintain a minimum of 65° for Hamburgs, and allow 5° more for Muscats when the weather is mild and air can be admitted with the aid of moderate firing, but on no account abide by these figures when external conditions are unfavourable. Although I do not approve of syringing Vines when in flower, some Grape growers do, and attribute their success to the application of water, which is doubtful, as Grapes that will set with the syringe would, in all probability, set just as well, if not better, without it, provided the roots are in a warm, well-drained border, and sufficient atmospheric moisture to support the delicate organs is produced by damping the stems and floors on bright days. When the fermenting material has been removed from the inside of the early house, and the berries begin to show signs of colouring, pass the scissors over them for the last time and remove any stoneless berries where they can be spared, as their presence always detracts from the appearance of an otherwise perfect bunch. Give the borders the final watering with water at a temperature of 80°, and if necessary add a little more short stable manure to keep in moisture and throw off ammonia when the house is closed for a short time every afternoon. Maintain a constant circulation of warm air with moderate moisture where pot Vines are ripening up their fruit, and while reducing the supply of stimulating liquid to the roots see that they do not receive a check by going to the extreme of dryness, and add more covering to the surface roots to prevent the escape of moisture. Get vines which have been cut back and shaken out shifted into their fruiting pots as they become ready, plunge in a sweet bottom-heat and shade slightly for a few days. Train the young canes near the glass and insure short-jointed growth by giving plenty of light and air. Where spring planting is contemplated April is the best month in which to turn out growing Vines. These should always be planted in internal borders, and the compost should be made warm by the absorption of sun-heat before it is placed about the tender roots. Settle the soil as soon as they are planted by giving a little water at a temperature of 80°; shade slightly for two or three days, and then treat as has just been advised for pot Vines.

Melons.—When the roots of the earliest Melons begin to work round the insides of the pots, and a bottom heat of 85° is maintained, other conditions being favourable, a quick and vigorous growth will soon show whether the first laterals are capable of carrying a crop of fruit. Victory of Bath, the best we have met with for early work, throws out an abundance of side shoots laden with female blossoms by the time the leaders have covered two-thirds of the trellis, and earliness being the first consideration, these should be pinched in order to throw vigour into the side shoots. When the female blossoms begin to open keep the atmosphere dry, and give air on all favourable occasions, as a means of keeping the foliage stout and firm, and at the same time assisting the setting of the fruit. Having secured a sufficient number of Melons on each plant by artificial fertilisation, stop at the second joint, mulch with stiff loam and manure, and gradually increase the supply of stimulating food and atmospheric moisture. Keep the foliage clean by

good syringing on fine afternoons, but avoid wetting it on bright mornings. Aim at a night temperature of 70°, give a little air at 76°, run up to 80° or 85° under sun-heat, and a few degrees higher after closing. Keep a stock of healthy young plants by sowing once a fortnight, and throw away previous sowings before the confined state of the roots produces spider.

Cucumbers.—Old plants that have been in bearing throughout the winter will require very liberal feeding and copious syringing to keep them in a healthy and productive state. New compost, consisting of moderately strong loam and lime rubble, with a covering of short Mushroom manure, will also help them. Fill the evaporating pans with liquid manure, syringe the surface of the bed with the same, crop lightly, and give the the young growths plenty of room. If a compartment can be spared, clear out to the bottom, thoroughly cleanse every part of the structure, and make a new start with spring-sown plants. The varieties of Cucumbers are now very numerous, and the lover of novelties may grow as many kinds as he has room for plants; but for general all-round purposes a good strain of Telegraph is not easily surpassed. Young plants now growing freely should be pinched to secure as many vines as may be required. Avoid rich feeding until they begin to bear; run the blinds down at night to economise fire-heat, and, if possible, dispense with shading. Keep up the linings round frames, earth the plants with good dry loam previously warmed, make it very firm, peg out the growths, and run up to 90° with sun heat and moisture after closing; cover well with mats, and give a little night air. Make a sowing of some hardy kind for planting in frames after forced vegetables.

Pines.—The past winter having been against early Queens, the fruit in many places will be later than usual, at least through the early stages, but when fairly out of flower, the swelling of the first batch may be considerably accelerated by closing early under bright sunshine, with a corresponding supply of moisture, and stimulating the roots with alternate supplies of clear diluted liquid and weak guano water. Aim at a temperature of 70° at night, 80° by day, and 5° to 10° more after shutting up on fine afternoons. Keep the plants in a moderately moist growing state at the root, and prevent the plunging material immediately over the hot-water pipes from becoming dry by watering between the pots with tepid water at a temperature equal to that of the house. Many of the plants from which a successional supply of fruit, consisting of Queens, Cayennes, and Rothschilds, will be obtained will now be making growth before they throw up. Give them a good bottom heat of 85° to 90°; water sparingly until they show, but keep the atmosphere of the house well supplied with moisture, and dew them over after closing for the day. If any of the young stock remain unpotted, lose no time in getting it finished, using good loam, which must be firmly rammed when in a dry state. In some soils Pines do not root so freely as in others, and where this is the case, small pots answer better than large ones, as the swelling of the fruit is mainly dependent upon the stem roots, and a small quantity of soil made solid is more lasting and less liable to become sour than when used in larger quantities. If not already done, remove the remains of winter fruiters to a pit by themselves, or where they can have a dry, warm atmosphere when ripening. If wanted to keep for a long time, the plants may be removed to a dry, warm room. Propagate shy kinds by trimming off the leaves and laying the old stools in shallow boxes of leaf-mould plunged in a bottom heat of 90°. Keep plants in every stage of growth near the glass; give them plenty of room in the bed; if possible, dispense with shading, and secure stout growth by airing early on fine days.

Hardy fruit.—Enforced delay in the open-air departments will have given time for the completion of all pruning and training, and if not already taken in hand the nailing of Peaches may be proceeded with. The blossom buds on these

and Apricots are very backward, and it remains to be seen whether many of the flower-buds on Apricots have not been seriously injured by the intense frost. Get all temporary copings, poles, and protecting material ready for fixing upon the walls as the blossoms begin to open. If thick and opaque, some ready method of removing it by day must be provided; but a covering, consisting of several folds of piling netting, may remain undisturbed until the fruit is set. If recent high winds from east and west have disturbed any of the newly-planted trees, see that the supports are readjusted, and ram the compost firmly when moderately dry. Cut back all stocks intended for grafting, and keep scions ready when the sap begins to ascend. Remove the old foliage from established Strawberries, thin the crowns if necessary, and give the beds a liberal dusting with soot prior to mulching with stable manure; the latter should be placed between the rows before the tender young leaves begin to push from the crowns. Autumn-planted beds have suffered severely; so much so, that in many places one row will have to be taken up to mend another. Where the formation of the new beds is anticipated the ground should be deeply trenched, heavily manured, and made very firm before planting. If strong runners of last season have been preserved in nursery beds defer planting until they are on the point of starting into growth, and if new heavy loam is at command give each young plant a good spadeful to start with. Tread very firm, mulch with short manure, and water in dry weather. Where a batch of strong plants were put out last August for giving the annual supply of runners for forcing, they should be well watered and mulched to encourage early growth, and all flowers should be removed before they open. Some growers obtain their first runners from early forced plants, but we have never succeeded in getting them so early or so strong as from maiden plants, which should be placed near the margin of walks and in proximity to a good supply of water.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 279.)

Athyrium.—A handsome genus of deciduous Ferns, well represented by the numerous varieties of our Lady Fern or *Athyrium Filix-fœmina*, of which more than one hundred forms are catalogued by firms making a speciality of British Ferns. Although our native species has produced so many crested, depauperated, and cruciated forms, there is only one exotic species up to the present which is worthy of cultivation. It is the Japanese *A. Goringianum* tricolor, or *pictum*, as it is sometimes called. This remarkably pretty Fern, with foliage as brightly coloured as that of the better known, but more delicate, *Pteris tricolor*, is, like our own species, entirely deciduous. The fronds, which are lanceolate in form, are produced from an underground creeping rhizome; they are pendulous, and rarely exceed 15 inches in length. The stalk, reddish in its entire length, contrasts strongly with the bright grey colour of the pinnæ next to it on each side, which disposition forms a central grey band running through the whole length and is very effective. It is perfectly hardy, and has withstood without receiving the least injury the winters of 1879 and 1880 planted in an open rockery and without any protection; but to have it in perfection so that none of its beautifully coloured foliage should be affected by late frosts, cold winds, &c., it is necessary to grow it in a cold frame with simply glass protection. The soil that suits it best is a compost of two parts of leaf mould if procurable, one of fibrous loam, and one of silver sand. If any difficulty is experienced in procuring leaf mould, good fibrous peat may be substituted for it, but in any case great care must be taken that the compost be very porous and the drainage perfect.

Balanium.—This genus contains but one solitary species, *B. Culcita*, but it is a grand, conspicuous-looking Fern from Madeira and the

Azores, where it is found growing at considerable elevations, but at the same time in very swampy places, as is testified by the fact that most of the imported crowns of it arrive here covered entirely with *Hymenophyllum tunbridgense*. Year after year hundreds of crowns or clumps of *Balanium Culcita* are brought home from Madeira, and every time the little tiny Filmy Fern is brought with them. It is commonly called the Cushion Fern, on account of the densely hairy nature of the decumbent stem which produces noble, gigantic, bold-looking fronds from 4 feet to 6 feet in height; they are tripinnate, deltoid in shape, and of a bright shining dark green colour. It could not be strictly called a Tree Fern, inasmuch as the stem seldom, if ever, rises more than a few inches above the ground, but it is as highly decorative and as effective as any arborescent kind. Although a strong grower, it makes comparatively very few roots, which are very wiry, and seem to delight in an open compost of a soft nature, made of two parts peat and one part of chopped Sphagnum, without any sand, which should at all times be kept very moist. Greenhouse.

2 feet to 4 feet in length; they are lanceolate in form, rather inclined to be pendulous, getting with age into a nearly horizontal position; they are pinnate with pinnæ decurrent, and from 6 inches to 8 inches in length. Stove.

B. brasiliense var. corcovadense.—This variety differs essentially from the above-named species by its fronds being of a beautiful metallic hue when in a young state, by their being much more substantial, and of a more upright habit. It forms a stem attaining about the same dimensions as those of the type, and has quite a distinct appearance from it. Stove.

B. cartilagineum.—A very handsome Australian species of a highly decorative habit. It is a strong-growing kind, attaining the height of 4 feet to 5 feet, and forming with age a stem of smaller dimensions than the Brazilian species does. It is, however, quite an arborescent Fern, the crown and stalks of which are profusely clothed with long, black, chaffy scales. The fronds are pinnate, with pinnæ sessile, ovate-lanceolate in form, and of a bright light green. Greenhouse.



Blechnum brasiliense.

Blechnum.—This genus is composed of mostly handsome-growing plants, very useful for decorative purposes, although there are also included in it several dwarf-habited kinds particularly well adapted for growing in Fern cases. Like the *Lomarias*, to which they are nearly allied, but from which they differ in not producing separate fertile fronds, they are most of them of hardy, robust constitutions and of more rapid growth. Like them, also, they have a particular dislike to water over the fronds, which causes them to turn first brown and then black in a very short time unless the plants are in a very light, warm, and well-ventilated place, which, to a certain extent, counterbalances the effects of the extra moisture by not allowing it to remain on the foliage long enough to injure it. They are not at all fastidious as to their food, and will grow in almost any compost, but their fronds are stouter and of more consistency if grown in a mixture of two parts peat, one of loam, and one of sand, with good drainage, taking care that the roots never suffer from want of water.

B. brasiliense.—An evergreen species from Brazil of arborescent habit, the stem attaining an average height of 3 feet, but of rather slender dimensions in proportion to its height. The fronds, which it produces in great abundance, vary from

B. Lanceola (trifoliatum).—A dwarf growing Brazilian species, very useful for planting in a Fern case, where it thrives admirably and soon makes a beautiful little specimen. The fronds, which are produced in great numbers from underground rhizomes, are simple, about 6 inches long, and of a bright dark green on the upper surface, while the whole length of their underside is ornamented by a continuous central band of deep brown formed by the sori, of a most conspicuous nature. Greenhouse.

B. longifolium var. gracile.—A distinct and very pretty variety from Tropical America, making a very good companion to the above described species. The treatment suitable for them will suit it. It somewhat resembles in habit the last named kind, but it greatly differs from it in having its fronds pinnate instead of entire, and of a rich deep green colour. They also grow longer and often attain 12 inches in length, besides having their rachis of a beautiful red. Like the preceding one, it is an evergreen plant. Greenhouse.

B. occidentale.—This West Indian evergreen species is one of the best known and most appreciated among Ferns of dwarf habit, probably on account of its easy cultivation, as also from the lasting qualities of its elegant fronds, which re-

main fresh a very long time in water when used for mixing with cut flowers. Besides, it has been for years grown amongst Orchids, to which it forms a very effective background, the more so that it is a plant not given to insects of any sort, and that it grows as well in coarse sand, gravel, or Moss as in the best compost. The fronds, produced in great profusion from underground rhizomes, are somewhat pendulous, pinnate and lanceolate in form; they rarely exceed 15 inches in length, and are of a bright rich green colour. There exists also a beautiful variety called *B. occidentale multifidum*, which appears to be very rare. Its very elegant fronds grow to about a foot in length; they are pinnate, the pinnae being twice or three times forked at the extremity, giving to the whole plant a handsome tasselled appearance. The general habit is similar to that of the species, but the weight of the tassels makes the fronds more pendulous still. Stove.

B. orientale.—A very handsome species from the East Indies and the Malayan Archipelago and no doubt the most interesting of the whole genus. The fronds are produced from creeping underground rhizomes, and when fully grown they attain the length of 3 feet; they are leathery, pinnate, with pinnae set rather widely apart, and when young are of a most beautiful copper colour, changing with age to light green; they are of a drooping habit, which makes the plant a very valuable addition where Ferns are required for hanging baskets of good dimensions. Stove.

PELLEA.

FLOWER GARDEN.

ST. BRIGID'S CHRISTMAS ROSE.

NOT unfitting does the graceful title of "St. Brigid's Christmas Rose," given to *Helleborus niger angustifolius* in honour of the famous saint of that green isle where "F. W. B." first saw its shining leaves and snowy blossoms, seem when we remember how long this plant has lived and flourished not many miles distant from the shrine of St. Brigid, in the old town of Kildare, whose name originated from that of the church founded by her about the year 495, which was called, from a great Oak tree close by, Cilldara, "Church of the Oak," the name extending to the monastery and then to the town that gradually sprang up around it, and finally to the country, of which it is the chief spot of interest and legendary lore. Such was the veneration of the Irish nation for St. Brigid, that in early times she was frequently called the "Mary of the Gaels," while the name of Brigid or Bride was to be met with in every part of Ireland. Scotland is full of commemorations of St. Bride. England has two Kilbrides in Camberland. Near her most ancient monastery of Glastonbury was the church of Bride-hay. St. Bride's, in Fleet Street, London, received its dedication from the Irish saint, while in many parts of Europe there existed churches which bore St. Brigid's name.

Having read in *THE GARDEN* lately how some floral authorities were endeavouring to trace back the history of *Helleborus niger angustifolius*, I thought when in Kildare last week that I would enquire from the lady who gave me some years ago the first plant of *H. niger angustifolius* that I ever possessed what she knew of its origin. Her answer to me was, "When I came to reside in my present home, thirty years ago, I found the Christmas Rose here, and was then told that this old garden was famous for three things—its Christmas Roses, its Lent Lilies (*Narcissus minor*), and its yellow Cabbage Roses. The last have disappeared, but the Christmas Roses and Lent Lilies remain."

This lady's garden is one of those spots sacred to flower life. Here no ignorant hand has flung out at fashion's bidding the old treasures of bygone days; no ruthless spade, no piercing fork has torn and wounded the bulbs and roots that become lost to sight in transient slumber. No week is there in the whole year in which bright blossoms and graceful foliage are not to be found in the fine old borders of hardy plants; while,

when fullest of blossom, happy marriages and tender friendships follow this sweet companionship of colour and fragrance as the flowers lean side by side. We cannot tell how many years are needed to make a garden "famous" for any special favourite, but if my friend found *Helleborus niger angustifolius* in full possession of her garden thirty years ago, we may well suppose it has lived there for not much less than half a century.

On my own behalf, I would like to say a few words as to its hardness, for I am specially grateful to St. Brigid's Christmas Rose for its grand power of endurance and its vigour in resisting the ills of life. I have a garden in the county of Kildare. Alas, what was once fine Oak forests is now cut out turf bogs and swamps with stagnant water, and these extending wastes make the climate so cold and damp, that the air feels like a wet blanket wrapped around one. Yet here, in January last, amid all the desolation wrought by "Boycotting," where the Strawberry beds are lost in Couch Grass and Docks, the Gooseberry plot an impassable prickly thicket, the Raspberries a jungle of canes and nettles, the young fruit trees fallen from the walls as their fastenings rotted, the old espalier trees with unpruned shoots of 3 feet or 4 feet long straggling in all directions, the vines hanging down in a tangle of two summers' growth untouched, the borders and walks covered with Moss and weeds and hollow trampings of cattle—the one welcome sight, the little oasis of happy life and health in my deserted garden was the luxuriant clumps of St. Brigid's Christmas Rose, tossing aloft and spreading their noble glossy leaves till the plants measured a yard across, while within lay the snowdrift of hundreds of blossoms, so thick that my fingers could scarcely press through to gather them. Though I have not found that the Christmas Rose likes shade especially (the clump with finest foliage and largest blossoms being in full sunshine), yet shelter it does enjoy, and demands somewhat imperiously, and given this it will retain its deep shining leaves in perfection for an entire year. Subjected to any strong blast or cold currents, the leaves grow weary and worn and lose their great charm—constant freshness.—ST. BRIGID.

—If Mr. Brockbank is inclined to be just, and will reflect on what he has written (p. 281), I think he must allow that I have equal rights with himself, i.e., I may justly claim the right to name any plant I know for a certainty to be popularly nameless, and my title to do this is quite as clear as is his right to protest against such a practise. In speaking of St. Brigid's Christmas Rose, Mr. Brockbank says, "I trust it may simply retain its own name the Christmas Rose, but this name already belongs to the typical *Helleborus niger*, figured ninety-seven years ago (see *Botanical Magazine*, 1786, vol. i., t. 8), which is with us a wretched weed in comparison with this lovely pure white variety with blossoms "as large and as fine as *Eucharis Lilies*," and which, despite any little opposition Mr. Brockbank may feel disposed to offer, will henceforth be known in English as St. Brigid's Christmas Rose, being, as it undoubtedly is, the queen of all Christmas Roses whatever.

Miss Hope, no doubt, may have cultivated this variety about Edinburgh, but I have evidence that it flourished in Ireland long, long before Miss Hope was born. Mr. Lindsey tells me in a letter just received that he believes the variety to be abundant round Edinburgh. I hope it is, for when flowers of the true variety were sent to several of the principal hardy plant nurserymen in London and elsewhere, the avidity with which they offered to purchase roots of it did not suggest to me its very great abundance anywhere outside private gardens where it is here and there known, and where it is also a great favourite. Mr. Archer-Hind acknowledges its distinctness and noble port as contrasted with the Christmas Rose (*H. niger*), and he also agrees with me that St. Brigid's Christmas Rose is a good name for it in English, although he prefers—and mayhap rightly so—to call it in Latin *H. niger major* rather than

H. niger angustifolius. As I have said, the common or typical Christmas Rose is a wretched weed on our own soil as compared with St. Brigid's variety, and as we have here many visitors from all parts of Europe, and not one of them ever saw this particular variety before, I think I have good right and reason to sketch and describe it under a good and pretty English name; at any rate, as I have said, my right to do so is just as good as Mr. Brockbank's right to protest; hence so far we are equal. As to Mr. Brockbank's objection to tutelary dedication, does he object to St. Bruno's Lily, or to the genus *Veronica*, or, to put it in a familiar form, to his parish church because it is dedicated to a saint? Much correspondence and many observations of interest on *Hellebores* generally have come to me on this subject. One fact mentioned in Mr. Lindsey's letter is worth noting, namely, that while Miss Hope gathered abundant crops of seed from *H. niger angustifolius*, she never could find a single seed on her abundant stock of *H. altifolius*. It would be interesting if other cultivators could throw some light on this matter, and one would especially like to know if this great Christmas Rose ever produces seed in Holland, where it has recently been largely grown for exportation to English gardens. Mr. Archer-Hind kindly sends me (along with the finest leaves of *H. altifolius* I ever saw) foliage of a seedling raised from seeds of *H. niger* which seems to have the erect port, noble leafage, absence of red colouring matter, &c., so characteristic of St. Brigid's variety, and which suggests its origin, although, so far as I could judge by the direct comparison of leaves alone, it is distinct from that fine variety. The study of *Hellebores*, like that of the *Daffodils*, must ever be a difficult and critical one, since intermarriages, or natural, if not artificial, hybridism and selection, have in both cases been going on for ages. As to wild plant species or varieties in both genera, Mr. Baker's papers are most valuable; but garden forms we must work out, and describe, and illustrate for ourselves.—F. W. B.

LARGE SULPHUR HOOPED PETTICOAT DAFFODIL.

(*NARCISSUS BULBOCODIUM* VAR. *CITRINUS*.)

Now some years ago (I fancy it was in 1869), when Mr. J. G. Baker wrote his "Review of the Genus *Narcissus*," he placed *N. Bulbocodium* (the *Corbularia* of Haworth) and all its sub-varieties into his Group I, *Magnicoronatæ*—the large trunked Daffodils (or false *Narcissus*) of Parkinson. Of the *Narcissi* which have the crown in the middle of the flower as long as the divisions of the perianth, there are only three (I sometimes think only two, since I exclude *N. calathinus*) well marked species. These two are as follows:—

Tube inversely conical, varying from as long to twice as long as broad, with the stamens springing from the bottom; divisions of the flower more or less distinctly ascending. Filaments and style curved, divisions of the perianth linear-lanceolate, a line to the eighth of an inch broad at the base.

N. Bulbocodium (*Corbularia* of Haworth).—Of this plant Mr. Baker describes the type of the species *N. Bulbocodium*, the plant not uncommonly now grown in pots for early spring flowering in the conservatory, from Dutch grown bulbs. Now and then in the south of England, in the Isle of Wight, and in Ireland it becomes established as a hardy plant, but the failures are far more than the successes as to its general open-air culture. It is, however, not only quite possible, but indeed quite easy to grow it in pots if thoroughly dried off by turning the pots over on their sides as the flowers fade, and so ripening up the little brown bulbs, after which they should be wintered in a cold frame, or under the stage in a cold house, being top-dressed as they start into growth late in autumn or early in winter, and placed on a sunny shelf near the glass to bloom. All *Narcissi* are excellent early blooming plants when so treated; indeed, it is quite a waste of power and of trouble to throw them away, or to plant them out in the open borders after flowering, since all pot Nar-

cissi flower earlier and better the second year than they do the first. I remember this is even true of *N. poeticus* which Mr. H. Bailey, of the Feltham Nursery, used to force for early flowers; and about Christmas last year Mr. Smith, of Newry, sent me flowers of *N. Jonquilla* the produce of pot roots the second year after forcing. Grown on in pots year after year, *N. major*, *N. maximus*, *N. obvallaris*, *N. bicolor* Horsfieldi, *N. Emperor*, *N. minor*, *N. odoratus*, *N. Jonquilla*, and the different varieties of *N. Bulbocodium* are indeed the most beautiful of all early flowering cold house bulbous plants, flowering as they do just before *Iris* (*Moræa*) *chinensis* (or *I. fimbriata*), *Lachenalias*, and those lovely orange throated *Freesias* with fresh Grass-like leaves. But to return to our text, Mr. Baker in his "Review" describes

Five varieties only of *N. Bulbocodium*. These are, *N. Bulbocodium*, the type; 1, *N. conspicuus* (the showy); 2, *N. tenuifolius* (the long leaved); 3, *N. obesus* (the inflated or ventricose); 4, *N. nivalis* (the pale or snowy white); and 5, *N. monophyllus* (the one-leaved white from Algiers); at the time he wrote, in 1869, the "large sulphur" was unknown. A few years later Mr. J. D. Llewellyn found it, however, at Biarritz and brought over bulbs, and now, although yet rare, it is found in some if not many good gardens. Quite recently Miss Gertrude Jekyll, after whom one of the most boldly beautiful in form and softly beautiful in colour of all seedling Daffodils is named, sent me a tracing of a sketch in colour which she had made from some bulbs in a pot of this fine variety which had bloomed in her greenhouse at Munstead. It is a fine lemon-yellow or sulphur Hooped Petticoat; indeed, the largest of all in size; hence some of us think that Haworth may have had it in his mind's eye when he named his variety *Corbularia gigas*. *N. B. citrinus* was originally described by Mr. Baker in the *Florist* for 1880, with a woodcut sketch, and quite recently I noted that Herr Max Leichtlin, of Baden-Baden, offers bulbs of it. Naturally it flowers at Biarritz in January or February in the hot sunshine of that rocky shore where both this *Narcissus* and its beautiful associates bask in the hot spring sunshine, and are nourished by extremely heavy nightly dews. The glowing light sulphur colour of the flower is beyond description. It is indeed the largest and most beautiful of all of this particular section of *Narcissus*, and is said to be quite common on the Western Pyrenees. It may interest Daffodil lovers to know that the pretty little species or variety *N. minimus* is wild on rocky ledges and declivities above Pancorbo, in Spain. In Spain, also, are many distinct varieties of *N. Bulbocodium*; indeed, this species will prove, I believe, quite as variable as is the common Daffodil. ECHO.

MARCH FLOWERS.

OF these I have a few, though even in the milder parts of the country the weather has been severe enough to test the hardiness of spring plants, at least as regards impairing the beauty of their blossoms. Snowdrops and Crocuses escaped fairly well by being nearly out of flower before very hard weather set in. *Crocus aureus* is one of the earliest as well as one of the latest here. *Rhododendron ciliatum* shows how completely its beauty has been destroyed; but when the season is in its favour, its waxy pink-tinted white flowers are quite beautiful enough to make it well worth growing in spite of occasional failure from bad weather. Probably much might be done to save its blossoms by having the plants sheltered with Evergreen boughs during severe frost in winter or harsh weather in spring. The flowers of *Anemone fulgens* are much smaller and usually of paler tints than in milder weather; and although we have already had several hundred blossoms, hardly any have been as fine as they usually are at this time of the year. *Narcissus minor*, grown chiefly as borders to small beds, and *Scilla sibirica* have held their own through all the late hard weather, and brightened the garden more than any other flowers. Small beds of this *Scilla* bordered with *N. minor*

are especially pretty. As a mass of blue, perhaps even *Chionodoxa* will never eclipse *S. sibirica* in beauty. Flowers of *Narcissus cernuus* and of *N. odoratus* fl.-pl., our earliest *Narcissus* this year, except *N. minor*, have been plentiful, as have also been those of the Tenby Daffodil (at least, the early kind we have under that name). This time last year we had many April, and almost May, flowers in blossom, but in a March such as this, with several degrees of frost every night, hail and snow showers, bitter winds, and intervals of sunshine (to make all else still more trying to the plants), to have any spring flowers at all proves their value. Of course we have little to complain of in the weather here as compared with some parts of the country (I heard yesterday of 3° below zero in Northampton on the 9th), but the very wet winter has left plants badly prepared to encounter even such weather as we have here.

Knockmullen, Gorey, Ireland. C. M. OWEN.

Cheiranthus alpinus one would suppose hardy enough, but in every case where it has been fully exposed to the north and east winds, which have recently prevailed, it is blighted. All the leaves are shrivelled and many of the plants completely destroyed. It appears capable of enduring extremes of frost, but not the east winds.—BROCKHURST.

Hardy plant portraits.—Can any of your readers inform me if the plates which were issued in Curtis's *Botanical Magazine* and Sweet's "Flower Garden" are still obtainable? In Curtis's time they were issued separately with a fly-leaf attached, containing a full description of the plate, and with many valuable notes and references. These plates are most truthful representations of the plants, and are probably still to be obtained if one only knew where.—BROCKHURST.

Myosotis dissitiflora is not hardy in Lancashire, except it be placed in very sheltered situations. We used it largely for spring bedding this season, and the late frosts and cold winds have shrivelled it up and killed two-thirds of the plants, so that we have had to replace it all with *M. sylvatica* from the reserve garden. The fault of the latter is its over-rank growth, which we have to keep somewhat in check.—BROCKHURST.

Narcissus tortuosus (*Narcissus moschat* (*d*), smaller white Spanish Daffodil).—I find there is an excellent portrait of this Daffodil in Curtis, plate 1300. It is there represented as it comes when just opened, but after a few days the perianth segments begin to twist, and thus become shortened considerably, and they then bulge out stiffly like a fair lady in the costume which now again prevails. It is this feature which led Haworth to give the name *tortuosus*. Curtis states, "A much rarer plant in our gardens than the one already published (No. 924, *Narcissus moschat* (*a*), the white long-flowered Daffodil). We are indebted to Mr. Haworth, of Little Chelsea, for the specimen from which our drawing was made." Curtis also classes it as Parkinson's Pseudo-*Narcissus hispanicus minor albus*, and I see it is given with its peculiar twisted perianth segments in plate 101, fig. 4 ("Paradisus"). I have had a good many blooms sent me for identification, but the only true one is from Guernsey.—WM. BROCKBANK, *Brockhurst, Didsbury*.

Hardiness of *Dracæna indivisa*.—The locality in which this plant has proved hardy Mr. Ramshaw tells me is Perrystone, Ross, Herefordshire. The thermometer there during the present month has registered 17° of frost; therefore this *Dracæna* should be able to withstand our ordinary winters. Shelter from the north and east is the great point to aim at, and, above all, the soil should be well drained. Ours is, however, a fickle climate, and anyone wishing to have this handsome-leaved plant in perfection should give it the shelter of a glass roof. It is not altogether a question of hardiness whether it will live through our very trying winters or not, but whether it will be really ornamental under such conditions. There is no question as to the hardiness

of Snowdrops and many common border flowers, yet the gales and frost which we had during the early part of this month completely cut off not only the flowers, but the foliage as well. Phloxes and other plants that had made all their growth in the open air were completely blackened. We are on the extreme southern coast, but the country being quite level, there are no sheltered nooks or corners where plants like this *Dracæna* could be placed to save them from the withering blasts to which they are exposed. The merits of any open-air decorative plant cannot always be measured by its power to withstand a certain degree of cold. Although the thermometer seldom sinks very low here, we cannot hope to grow many comparatively tender trees, shrubs, and plants that attain large proportions in more inland situations. It is the wind, not the frost, that is our unconquerable enemy.—JAMES GROOM, *Seaford Nursery, Gosport*. [*Dracæna indivisa* will withstand ordinary winters, but not severe ones. Several plants of it were killed at Chiswick during a severe winter some years ago, though sheltered and in a well-drained position.]

Effect of cold winds on *Chionodoxa Luciliæ*.—The keen winds which we have recently experienced completely ruined the flowers of this plant, but a clump of *Scilla sibirica* growing close by was quite uninjured. True, my plants were in a somewhat exposed position, where the wind at times was very powerful, and the *Scilla*, in my opinion, owed its immunity to its sturdy growth, against which the wind made no impression. The flower-stalks of the *Chionodoxa*, being of a weaker habit, swayed about to such an extent as to completely spoil their beauty. This fact alone is greatly in favour of the older plant, which has also the merit of remaining longer in flower than the *Chionodoxa*, even when both are in a sheltered nook. The *Scilla* is easily forced into bloom too soon after Christmas, and so also, I should think, would be the *Chionodoxa*, but of that I have had no experience.—H. P.

The Tenby Daffodil.—In THE GARDEN (July 16, 1881, p. 57) I certainly did, as Mr. Brockbank observes (p. 281), offer a copper kettle to whomsoever should first send me a Daffodil having perianth and crown of exactly the same tint or shade of yellow. The kettle is here, but, alas! the Daffodil never came. *N. obvallaris* does not fulfil my conditions, not even when "viewed from the stalk," and on p. 281 Mr. Brockbank cuts short the argument on which he rests by himself speaking of "shades of yellow" in that flower, thus saving me the trouble of proving that the flowers are, in reality, not of one shade or true self. Mr. Brockbank is, perhaps unconsciously, unjust in trying to limit my testing his flower in my own way. Why should I be limited to a back-door view of the flower—a flower especially reared under artificial conditions, be it observed? If, as he asserts, *N. obvallaris* is all of one shade of yellow, no method of looking at it will alter that fact. My simple test (p. 281) will satisfy any unbiassed observer that there is no such thing as a Daffodil yet known which has perianth divisions and crown both of exactly the same tint or shade.—F. W. B.

SHORT NOTES.—FLOWER.

Native country of the white Lily.—One of the Lazarist fathers of the College of Antoura, Lebanon, writes: "The mountains of Lebanon are covered in certain regions with this Lily. The Lilies are as fine as those cultivated in gardens."

Chionodoxa Luciliæ—I enclose two blooms of the flower-spoke of a seedling *Chionodoxa Luciliæ*. The spike bears nine bells, and is unusually robust. You will note the size of the bloom and its very rich colour.—H. STUART WORTLEY (Col.), *Rosstyn House, Grove End Road*. [A very fine variety.]

Paris Daisies (A. L. Patton).—The insects infesting your Paris Daisies are the grubs of a fly nearly allied to the Celery fly. Hold the leaves up to the light, and pinch them wherever you see the grubs. Though this will not save the leaves already attacked, by killing all the grubs possible the next generation of the flies will be much diminished in numbers.—G. S. S.

FRUIT GARDEN.

VARIABILITY OF GRAPE SEEDLINGS.

I AM surprised at the tone of Mr. Barron's reply as regards this subject, and his attempt to mystify the matter by raising side issues and making unfounded charges of misrepresentation that do not in the least help his case or affect the question between us. Allow me to say that I have not misrepresented Mr. Barron in the least, nor omitted qualifying sentences anywhere. If I did, why does he not restore them when he makes the charge? He says I "deliberately misrepresented" him in saying that he described cross-fertilisation as "a ticklish operation," and asserts that "he has stated nothing of the sort." I reiterate that he has, and here are his words in full:—

To hybridise, therefore, or to cross-fertilise one variety with another, it is necessary to take measures in advance of natural development, so that self-fertilisation may not be effected. To accomplish this, select, some days previously to the opening of the first flowers, the bunch which is to be operated on as the female or seed-bearing parent. Cut away all the flowers, with the exception of ten or a dozen, and have these enclosed in a thin muslin bag, which must be sufficiently close in texture to keep out all foreign pollen. It is necessary to watch and examine these flowers minutely until they appear as in fig. 6 b; then, being provided with a pair of finely pointed scissors or pincers, pull off the cap by force, and immediately cut away the stamens, as shown in fig. 6 d. This is rather a ticklish operation; it requires the greatest care and patience, all the parts being so small, and, as a rule, difficult to get at. It is, indeed, a very arduous task to do all this without injury to the pistil or ovary. To add to the difficulty, the bunch to be operated upon is in many cases difficult to reach, and the operation has always to be carried out in the forenoon of the brightest and hottest of days, so that, what with the perspiration almost blinding one, and the reaching and straining, it is one of the most trying of garden operations.

If the above passage is not an enumeration of the difficulties of cross-fertilisation, will he tell us what it does mean? His distinction between "the *modus operandi* of preparing the flowers for the purposes of cross fertilisation" and the final and simple operation of touching the stigma with a camel's-hair pencil—"fertilisation"—is too fine by half and a mere quibble. There are just two or three of Mr. Barron's statements that demand attention. He repudiates the idea that he ever supposed white Grapes turned black. Well, will he specify the "many varieties" that have turned out old sorts? (p. 25 of his book). Secondly, he now says "every intelligent grower knows that cross-fertilisation may, and often does, take place by natural agencies, and is the work of an instant." Exactly; I assent to this, and so will others; but in his book Mr. Barron states exactly the contrary. At p. 25 we read, "Excepting great care has been taken to properly cross or fertilise the flowers, the chances are a hundred to one that nothing new will be obtained. Is a hundred to one "often?" and how are these two conflicting statements to be reconciled? And another to the effect (p. 28) that "if a single flower may be allowed to expand naturally it may ruin the whole experiment." In short, Mr. Barron in his book makes it out that cross-fertilisation is almost impossible without artificial aid bestowed under the great difficulties described, but in the face of discussion he now finds it needful to widen his views.

In support of his opinion that varieties "do not sport or vary" from seed he names three or four old varieties, the identity of which with other sorts is very doubtful, such as the Abercainey Seedling, for example. I take leave to doubt if Mr. Barron could vouch for the history of any of them. Nobody doubts for a moment that Vines may occasionally reproduce themselves from seed, but that is not the question, which is whether Mr. Barron is correct in stating in his book that varieties "do not sport or vary, or but to a very limited extent." This is the point at issue, and it is the point he does not answer. I thought, and I have no doubt many others thought also who have read "Vines and Vine Culture," that the new and original matter there on seedlings and fertilisation was the result of the author's own experiments

during the twenty-three years he has been at work in the great vineyard at Chiswick, where he has had such ample materials at his disposal; and it is disappointing now to find him referring us to such ancient sorts as Abercainey Seedling, Josling's St. Albans, Horsforth's Seedling, &c., in support of his views, and offering not a scrap of information of his own, all the while completely overlooking recent experience on the subject ready to his hand. The reputed history of the three old varieties named he is not able to tell us more about than we already know, and it is of little or no value for his purpose. In a book of the pretensions of "Vines and Vine Culture" the public look for something better than mere theories, assertions that have not a leg to stand upon. In order to prevent Mr. Barron from seeking to escape the consequences of his statements by charging me with misrepresentations, permit me again to state the case against him on the subject of seedling Vines. It is this—First, that his assertion that "varieties of Vines do not sport or vary, or but to a very limited extent," is contrary to general experience and opinion, and, although authoritatively asserted in "Vines and Vine Culture," is not vouched for by a scrap of evidence of any kind. Secondly, that the difficulties of cross-fertilisation are greatly exaggerated, and his opinions on self-fertilisation opposed to those of the most eminent authorities on such subjects, while he advances no proof in support of his views. In conclusion, I may just state that I have assisted at the fertilising, raising, growing, and forcing of scores of seedling Vines, witnessed every step of their culture from beginning to end, and taken ample notes, and I cannot remember any of the straining, osculating processes of fertilisation, described by Mr. Barron as absolutely necessary, being resorted to once. The seedlings consisted of crosses and seminal varieties, probably most of the latter, and, I think, almost every Vine was distinct in habit and fruit, and few like the parents, while the reputed crosses, with several of which Grape growers are now very well acquainted, I thought at the time, and still think, were *bona fide*, because they showed it in their fruit and foliage. Cases like this, I venture to think, are worth much more than Mr. Barron's unsupported statements.

GROWER.

STRAWBERRIES WORTH GROWING.

STRAWBERRIES used to be divided into three in Loudon's days—scarlet, black, green Pines, Hautbois, and alpine, but all these have been so much crossed and intermixed, that such a classification hardly any longer answers the purpose. The earlier grown varieties which are still distinct are the Hautbois and alpine, which we may say a word or two about first. The old Hautbois is rarely or never seen now-a-days, but old cultivators still speak of the variety and of its excellent quality and peculiarly agreeable flavour, which has probably, in some degree, been communicated by crossing to some of our newer kinds. This variety had the peculiarity of ripening two crops in the year—one in July and another in October. The fruit was about the size of our yet cultivated Black Prince, solid fleshed and delightfully flavoured. The plants did not occupy much room and were very prolific. As to the alpine Strawberry, although not commonly cultivated now-a-days, it still finds a place in many large gardens, and the wonder is it is not more popular than it is. It is not a large variety, the largest sized fruits seldom exceeding the bulk of an ordinary Filbert, but they are borne in great profusion, and the crop comes in during August, September, and October, when other Strawberries are over. The Paris market gardeners still grow alpine extensively, and piles of beautiful fruit are to be seen in the Paris markets in autumn. The usual plan of growing alpine is to sow seed in autumn or spring and plant out on a north border or slope, though the plants will succeed in any other aspect, and renew the plantations periodically. Seed sown in autumn will produce a fine crop the following year. A light, rich soil suits them best.

An old variety of the Strawberry is Cuthill's Black Prince, commonly call Black Prince, not half so

much esteemed as it should be, for it is both an excellent and an early cropper and bears most abundantly. In a general way the berries are not very big, not exceeding 1 inch in diameter on the average, but want of size is compensated for by quantity, and the quality and colour is good. Grown on a sunny bank, or at the foot of a south wall, and well done to, it comes in long before any other kind at present in cultivation, and is valuable on that account alone. We grow nothing else here for preserving purposes, and always force a good quantity of the same variety.

A good sort for filling baskets for market purposes is James Veitch, a comparatively new kind which we have not tried yet; but a friend in the trade who grows fruit for market near a large provincial town told the writer last year that he had made more money out of it than any other sort. The berries are all large and fine looking, and he put them in separate punnets of convenient size in the form of nice dishes and sold all at 1s. per lb. during the whole season. No doubt this is a good way of disposing of fine fruit, for look has much to do with selling, and few care to buy Strawberries for dessert off the heap on the shop counter where they are generally partially bruised and spoiled and besides of very unequal quality. Madame Héricart de Thury is at present the most popular Strawberry in general culture; being a prodigious cropper, certain in almost any soil or situation to bear, a good preserver as well as a fine forcer, it should be extensively grown. Keen's Seedling is an old sort, which for fertility is ill to beat, and it is an almost fail-me-never as a bearer. A grand forcer too, and good for preserving, one of the best, in fact. Perhaps no Strawberry has stood the test of time so well as Keen's; it is a fine sort, fruit large, round, bright coloured, and well flavoured, a variety well worth growing, and some of the finest crops of it we ever seen were grown in the sandy soils of Nottingham. Sir Charles Napier is another good-looking sort if not the best flavoured, and it sells well, and makes a prime looking basket in the window of the fruiterer who is partial to it. Wizard of the North is large also, but a shy bearer. In fact, in estimating good sorts one must always take the bearing qualities of a variety into consideration first, for unless a Strawberry is a good bearer it will not do for general culture, and that varieties differ greatly in this respect is well known. There are some generally good sorts, like two or three of the first sorts named in this paper, but many of the other sorts are not to be trusted, and we strongly advise growers before they go into Strawberry culture on any great scale to mark the sorts that succeed best in their own locality, or rather soil, for soil affects the bearing qualities of Strawberries more almost than any other other class of fruits.

H.

STRAWBERRIES FROM PREVIOUS YEAR'S RUNNERS.

INSTEAD of layering runners of the current season for this purpose in the way generally practised, we have for the past three seasons reverted to the plan of securing our supply of plants from runners of the previous year, and the results have been so gratifying that we intend for the future to adhere to this system. It is the most efficient and in the end the most economical. One great advantage of this method is that, independent of late or hot and dry seasons, early potting can be assured, and consequently pots well filled with roots and plump matured heart buds, conditions which, if unfulfilled, render satisfactory returns uncertain. Again, in June a multitude of matters of equal import require attention, and therefore the layering of runners not infrequently gets delayed until too late; then comes the preparation of the soil, pots, and pegs, along with the work of plunging and layering, all operations consuming a good deal of time; there is also the subsequent attention to watering, not to mention the inconvenience if the pots are plunged in fruiting quarters, and it is only in some of the larger places in which time and space can be devoted to plantations for the special purpose of supplying early runners for forc-

ing. Now all this can be obviated by the system just alluded to. Our practice in regard to obtaining runners for potting is as follows: Towards the end of April all out-door plantations are thickly mulched with long stable litter. This is done partly to retain moisture, which in dry seasons soon escapes from our shallow soil, and partly to form a bed for the ripe fruit to rest on; for, by the middle of June, the litter becomes, through repeated rain washings, clean. As soon after the crop is gathered as time permits all runners are cut, their removal being a very easy matter, as the thickness of the mulch prevents their rooting into the soil. The decaying straw is allowed to remain, except on that portion (always the youngest and best) from which runners are meant to be taken. From this all the strawy material is cleared and a light dressing of rotten manure is substituted. Thus treated, we find that a few rows of Vicomtesse Héricart de Thury will invariably throw out late runners more than sufficient for our wants, and that they root strongly before winter. Here they remain till March, when they are lifted and laid in about 4 inches or 5 inches apart in any spare border; the space and time occupied in doing this is trifling compared with the usual layering business. All the attention these runners require till potted the last week in June is pinching out any flower-stems they send up. After potting we place them on ashes in square blocks, gradually spreading them out to ripen as autumn advances. I may add that out of fifteen sorts tried only two really succeed here out-of-doors; these are Vicomtesse Héricart de Thury, or Garibaldi and Eleanor. We do not force a great number, but the Vicomtesse is used for that purpose almost exclusively, as we find no other so good. Its prolificacy outside, too, is wonderful; after the regular crop is over it will continue to throw up strong scapes all through the summer and autumn.

A. MOORE.

Cranmore.

Dates of introduction of Grapes.—Will someone inform me by whom and in what year the following sorts of Grapes were introduced, viz.: Alicante, West's St. Peter's, Trebbiano, and Black Prince?—O. [According to Mr. Barron's new work on the Vine, there is no authoritative record as regards the introduction of the Alicante variety. The origin also of West's St. Peter's seems somewhat obscure, but Mr. Barron says, "A number of spurious varieties at one time existed; hence to distinguish it it was by some called Oldaker's West's St. Peter's, from its having been extensively grown by Sir Joseph Bank's gardener, Mr. Oldaker, at Spring Grove, while others named it Money's West's St. Peters. Some thirty years ago this variety was considered the best late Grape grown, and was extensively planted." The history of Trebbiano, says Mr. Barron, is unknown. Black Prince is said to be a very old variety, but no mention is made of its origin. We can give no information on the other subject.—ED.]

Charcoal for a Vine border.—The benefit likely to be derived from adding charcoal to a border for Vines depends on the nature of the soil to be used. Vines like strong soil rather than light. If that which "Constant Reader" is about to use is of the latter description, charcoal, by making it still more open, will do more harm than good; but if the soil is heavy and inclined to be adhesive, charcoal in moderate quantities will help it. What the proportion should be will depend on the more or less heavy nature of the loam; if very close in texture, a wheel-barrowful to a cartload of soil will be an assistance, but it is well to keep on the right side in the use of such material. At one time it was no uncommon thing to see brick rubbish added to Vine borders made of heavy soil to an extent that was not relished by the Vines. I have tried charcoal varied in quantity for many plants, Vines included, but never found it of much benefit except through its mechanical agency in keeping the soil more open for such things as require a porous soil. It no doubt acts to some extent as a storage medium for the manurial elements applied to the soil, and in this

way may assist some plants; but if gross feeders like Vines had to depend for sustenance on what they were able to get from any reasonable quantity of this material added to the soil in which their roots were placed, they would soon show the effects of short commons.—T. B.

STEVENSONIA GRANDIFOLIA.

MR. SMITH's remarks (p. 233) with regard to this grand Palm call to my mind a fine specimen of it which I once grew over a tank of water, which was always warm, in the central bed of a span-roofed

this treatment, as I expected it would do, grew more vigorously than ever, till at last we were compelled to remove it altogether. For a little while we kept it in a somewhat lower temperature, but it quickly showed signs of suffering through the change. The *Stevensonia* is a grand Palm for a hot, moist stove where there is sufficient room for its perfect development. It does not succeed in a house that is often lower than 60°; on the contrary, coming as it does from the Seychelle Islands, it requires a high temperature in which to grow it successfully. Want of warmth has doubtless caused the premature death of many a



Stevensonia grandifolia.

stove, the temperature of which hardly ever dropped lower than 60° during the winter months. In the summer time the temperature was kept somewhat high, in order to suit a general collection of fine foliated plants that required a warm, moist atmosphere. In this position, and under these circumstances, the *Stevensonia* succeeded most satisfactorily, having foliage nearly as long, but broader than that of those under Mr. Smith's charge, viz., "a height of 8 feet and a breadth of 4 feet." As the specimen in question attained nearly these dimensions, we were obliged to lower it into the tank in order to keep the glass from injuring the leaves. At first it was kept just clear of the water, but later on we dropped it about 6 inches into the water, which generally stood at about 85° or 90°. To my surprise, the plant, instead of suffering from

goodly plant of this species. *Verschaffeltia splendida* and *V. melanochætes*, from the same regions, are also similar in habit and character, but rather more disposed to become elongated in the stem. *Areca nobilis* (*Oncosperma Van Houtteana*), also from the Seychelles, is another Palm that is best grown in a high temperature. It makes a beautiful dinner-table plant, but for reasons just given it should be used with caution. We always found these Palms to succeed best when grown in nearly all peat; their roots, being more hard and wiry than those of many other kinds, causes them (at least so we found it) to take more kindly to peat than to loam. Red spider is troublesome to them, so also is a small kind of scale, but frequent applications of the syringe and sponging the foliage with an insecticide will destroy these troublesome

pests. Avoid overpotting at all times, relying rather on artificial stimulants to keep the plants in vigour; always water freely, and never allow them to become dry at the root.

Gunnersbury House.

JAMES HUDSON.

ORCHIDS.

CALANTHES AND THEIR CULTURE.

READING the remarks of your correspondents as to the length of spikes and number of flowers on their *Calanthes* has induced me to furnish you with some brief details of *Calanthes* grown by me at Castle Hill, Devon. The variety to which I allude is *Calanthe Veitchi*, which has just finished flowering. Two bulbs were potted in a 6 inch pot, the largest measuring as follows last January: Length of bulb 14 inches, circumference at its base $9\frac{1}{2}$ inches, length of spike from the bulb to the terminal point 4 feet 9 inches, number of flowers over fifty and large in size. Many authorities who have seen my plants last season have pronounced them as not an every-day occurrence as regards culture. But few Orchids equal *Calanthes* as decorative plants, and none surpass them for room embellishment during the four dull winter months, every point being taken into consideration. Indoors *Calanthes* can be used and arranged in many different and effective ways. The spikes are so flexible, they may be trained and twisted in different ways to suit positions, either vertical, horizontal, or drooping. In a group by themselves they are effective and last for a long time. They may be mixed with other flowers. *Calanthes*, being deciduous, or almost so, require while flowering other things to hide their fading leaves, and also to furnish them with foliage and colour. Ivies in small pots, with their green, silver, and golden leaves, together with *Panicum variegatum* and *Tradescantias* artistically twisted round the stakes to hide them are very effective. For places at long distances off, or where it is inconvenient to change these plants, often combinations of this kind are invaluable. *Calanthes* are also equally useful in a cut state; their long graceful spikes look at all times conspicuous in promiscuous groups of cut flowers.

Resting the bulbs.—This is very important as regards the successful culture of these plants. During this period the flower-spikes are forming. As soon as the bulbs have ceased flowering they should be stored on a dry shelf and kept perfectly dry until repotted. The bulbs ought to be kept in a stove temperature during the resting period, and not in an intermediate house, so often and erroneously recommended. The soil which we find best is good friable loam a little decomposed with the fibre intact. About four-fifths of loam to one-fifth of fibrous peat, leaf mould, and silver sand will be found to answer.

Potting.—There are two ways of potting the bulbs of *Calanthes*; one is to elevate them above the rim, the other to place the bulbs below it. Of the two ways the latter is the best and preferable. As regards potting, I use the soil in good condition—neither too wet nor too dry. Make it very firm before the bulbs are placed in it, and pot them so that they do not get loose; the pots should be well drained, but unnecessary crocks only fill up the pots and yield no nutriment to the plants. About 1 inch of crocks is sufficient for all purposes, and over them place a little dry Moss. After potting only give sufficient water to keep the soil moist, for if over-watered at first the soil becomes soured, and unhealthy growth is the result. When this happens the young shoots show a yellow spotted appearance. Drought, too, is equally detrimental, for if the soil becomes baked water runs through it without moistening it. After the roots get to the sides of the pots water may be given more liberally, and after the young bulbs have grown to half their size water copiously, as *Calanthes* at this stage want a good deal of water. Any quantity of liquid manure judiciously applied at proper seasons may also be given, but not until

the roots have got to the sides of the pots, and then it should only be administered in a weak state at first, gradually increasing it in strength until the pots are full of roots. When the young bulbs are half their size and the plants are inured to it, it may be given very strong with safety. It is best to continue its use during the whole season at intervals of, say, twice or thrice a week until the first flowers begin to expand. Sheep's manure diluted is one of the best for these plants, and cow manure is also good.

Temperature.—The East India house or hot stove is the proper place in which to grow *Calanthes*, as they delight in a high temperature. During the latter part of the summer and autumn keep the maximum day temperature at from 80° to 90° , and make it a rule to close early, when the temperature may reach from 95° to 100° for a short time after closing with adequate dampings. Under this treatment large bulbs will be produced, and consequently large flower-spikes. A shelf about from 1 foot to 18 inches from the roof where they can get abundance of light is the best situation for them. A three-quarter span-roof suits them admirably, i.e., if they can be placed on a shelf on the back wall, but any other position will answer, provided they are exposed to plenty of light and kept close to the glass.

Propagation.—*C. Veitchi* is readily increased; a strong bulb generally makes two side bulbs every season. After these are somewhat advanced and the bulb well established, the old bulb may be cut in two in the centre. The top half, if placed in a little good sandy soil and kept close for a few weeks, readily makes a nice bulb for the following year's flowering. I started seven or eight years ago with a few bulbs, and now I find that they number 190, counting all sizes.

D. WILSON.

PHALÆNOPSIS SANDERIANA.

WE saw the other day in Sir Nathaniel Rothschild's garden at Tring Park a flowering plant of this new Orchid, which promises to rival even the loveliest in the genus. The plant in question represents a much finer variety than that described at p. 255, which was the first produced in cultivation, and also flowered in this garden. The plant now in bloom has four flowers on a spike, each 3 inches in diameter. The two lateral petals are $1\frac{1}{2}$ inches in width, rounded in form, and together with the sepals make a symmetrical, well-formed flower. The labellum resembles that of *P. amabilis*, but has more colour. The side wings are highly coloured with yellow, and in the interior are copious spots and freckles of crimson. The colour of the sepals and petals constitutes, however, its most beautiful and distinctive feature. This is a delicate mauve-purple such as no other *Phalænopsis* flower possesses. The foliage is apparently midway between that of *P. amabilis* and *P. Schilleriana*, being slightly mottled and having a purplish metallic lustre. The roots, moreover, are round, not flat as in *Schilleriana*. It is, in short, a lovely plant and a valuable addition to cultivated Orchids. It is grown successfully by Mr. Hill in company with the general collection of *Phalænopsis* in a small span-roofed house, specially set apart for the genus, and constructed with a view to the requirements of the plants. The stages are high, so as to bring the plants close under the roof, and they are covered with crushed flint, which looks neat and cleanly, and retains an abundance of moisture which is continually, but slowly given off. The house is provided with means for heating the spaces beneath the stages, and ample provision is made for ventilating, the importance of which in *Phalænopsis* culture is fully recognised here. Besides the ventilation in the ridge of the roof there are ventilators both at the back and front, in both cases arranged so that the inrush of air passes over the hot-water pipes. The outside air is admitted as much as the weather will permit, and to this free ventilation is ascribed the vigorous constitution of the plants. The majority are grown on wood cylinders 1 foot or $1\frac{1}{2}$ feet in height, constructed of strips of Teak

wood. Near the base of the cylinders are cross strips in order to prevent the crocks and soil from falling out. The cylinders are filled with broken crocks and charcoal for a good depth, on which is placed a mixture of Sphagnum Moss and fibry peat placed around the plants. Under this treatment they luxuriate, as may be seen by the long healthy roots thrown out in all directions, and which cling firmly to the wood of the cylinder and even try to reach the moist gravel on the stage. The collection of *Phalænopsis* comprises some fine specimens of *Schilleriana*, a great favourite here; *P. amabilis* and *P. grandiflora*, together with such rarities as *P. intermedia* Portei (of which there is a luxuriant plant with five fine leaves), *P. Reichenbachiana*, *P. Stuartiana*, and *P. leucorhoda*. There is also a plant of *P. Schilleriana* with leaves 17 inches in length, and one of *P. grandiflora* in bloom with flowers $3\frac{1}{2}$ inches across and petals $1\frac{1}{2}$ inches wide, forming one of the most perfectly formed blossoms we have ever seen.

W. G.

LONGEVITY OF ODONTOGLOSSUM CRISPUM.

REFERENCE is made to this species in *THE GARDEN* (p. 246), and it is there supposed that the imported plants do not retain their vigour for many years; in fact that they dwindle away, and that the stock of them has to be kept up by fresh importations. I do not think there is any reason to suppose that this is the case. Mr. Stevens, of Trentham, and some others could, I think, tell another tale. Our own collection is not a large one, but it is upwards of twelve years since the first of its contents was purchased, and I am not aware that we have lost a single plant during the whole of that period. The plants do not make more than one growth in a year, but I have not observed that they decline in vigour. Indeed, we have now an example in flower, one of the plants first introduced, and it formed a larger bulb last year than any it had previously made, while on the vigorous branched spike there are forty-four flowers open, the largest number we have ever had on one spike. I fancy some growers err in using too much peat in the compost, and eager to form large specimens quickly; the plants are also over-potted. The compost I use has been frequently described in *THE GARDEN*. It consists of peat, Sphagnum, and clean broken potsherds in about equal parts. Imported plants ought to be placed in as small pots as will fit the base of the bulbs, and the potting material should be well pressed round them; they will not require repotting for less than twelve or eighteen months, and then only a small shift is necessary. If the old compost is decayed it ought to be removed at the time of potting. Under ordinary treatment they will succeed well for many years, and the sure road to attain success is by taking care that the roots are kept healthy by not allowing any decayed compost to come into contact with them for a long period. When any plants show signs of waning vigour it may be necessary to shake the whole of the compost from the roots and wash them with clean tepid rain water, repotting again in clean compost and in smaller pots.

J. DOUGLAS.

The *Phalænopsis* house in Messrs. Low's nursery at Clapton is now and has been for several weeks past a most beautiful sight, such as one seldom sees; indeed, it is doubtful if any parallel exists, for nowhere are *Phalænopsis* grown in such enormous quantities as here. The house, a capacious span-roofed structure, contains thousands of plants, the majority of which are in bloom, forming a lovely floral display. The plants are all grown in square wood baskets placed on high flat stages, and looking over these one sees a perfect thicket of flower-spikes, as graceful in growth as they are lovely in colour. The bulk of the collection consists of *P. Schilleriana* and *P. amabilis*, but there are many of the choicest rarities besides. Of the two named, every conceivable variation may be seen from ordinary forms to those remarkable for large size and flower, and, in the case of *P. Schilleriana*, for depth and richness of tint. Ever since last November

this house has been gay with bloom, but the fogs did much injury to the spikes; in fact out them in two in many instances. Those spikes, however, that were cut off have since broken again from below the injured part, and these secondary spikes are carrying a good many flowers of uncommonly high quality, large in size, and of firm texture, a circumstance no doubt attributable to a purer atmosphere at this season, and sun, light, and heat. In several instances Mr. Casey informed us he purposely cut back the primary flower-spike in order to induce it to break later in the season, and the experiment has been successful, for every spike so shortened produced a secondary spike much finer than the first one would have been if allowed to develop so early in the fog season. This hint is well worth taking a note of by cultivators of *Phalænopsis*, particularly if they are situated within the precincts of foggy London or any other great town. *P. amabilis* has chiefly been the object of these experiments.

Odontoglossum Halli.—Mr. Satow, of Stamford Hill, a successful cultivator of *Phalænopsis* and *Odontoglossums*, has at present in flower an uncommonly fine example of *O. Halli*. It bears a spike carrying no fewer than twenty-nine blooms, representing one of the finest forms of this handsome species.

Dendrobium Wardianum.—We have received some very large flowers of this Orchid from Mrs. Freeman's garden at Thirleston Hall, Cheltenham. They measure fully $4\frac{1}{2}$ inches across the sepals, which, with the labellum, are $1\frac{1}{2}$ inches wide. Each segment of the flower is tipped with a deep rich magenta-purple. The flowers were cut from a plant imported some few months ago. If it will in future yield such fine flowers, it will be a valuable variety.

Pruning Orchids.—By way of fulfilling a promise, I herewith send you two bulbs in flower of *Dendrobium Wardianum*, the larger bearing thirty-seven flowers and the lesser one twenty-nine. They are from the pruned plant several times referred to in THE GARDEN, and there are six proportionately well-flowered bulbs left. I have sent you only the flowering portion of the bulbs. I may just note here that the maximum number of flowers on a bulb, as given by Mr. Spyer, who has discussed this matter with me, is thirty. On our pruned plant the number of flowers on the eight bulbs is respectively 37, 29, 25, 18, 15, 13, and 6, and the plant is quite young.—J. S. W. [Two glorious spikes fully bearing out all "J. S. W." has said in reference to pruned Orchids.]

Odontoglossum Edwardi.—A flowering spray of this somewhat new and little-known Orchid, from Mr. Peacock's garden, Sudbury House, Hammersmith, shows admirably what a lovely plant it is when well grown. The flowers are not large, but they are produced in such numbers on a tall branching spike that deficiency in size is amply compensated. The colour of the blooms (which are about an inch across) is a cheerful violet colour, which, with the golden crest on the labellum, is highly attractive. The flowers emit a delightful fragrance akin to that of *Mignonette*, which is a most desirable property. It is grown at Sudbury House in a rather cool and moist house. It is a native of Ecuador, and was discovered by the brothers Klapproth, after one of whom it was named by Prof. Reichenbach.

Odontoglossum mulus.—Of this Orchid we saw the other day a cut spike at Stevens' Rooms which is the finest specimen of it that we have yet seen. It came from Mr. Lee's garden at Downside, Leatherhead. The spike was $2\frac{1}{2}$ feet high, and had four branches spreading for about 2 feet at almost right angles. There were thirty-six flowers on the spike, each of which was 3 inches across; the sepals and petals were a primrose-yellow, heavily blotched with chestnut-brown, while the labellum was of a lighter shade, also deeply spotted with reddish brown. Such a huge and gracefully arching spike as this was highly attractive, for rarely has the variety been seen to such perfection, and it shows how finely Orchids

are grown by Mr. Lee's gardener. Though named *O. mulus*, this plant does not agree with what we had previously known under that name, and if anything was handsomer. Be the name what it may, the Orchid is one of the finest of its class.

Among Dendrobium flowers received from Mr. Peacock are excellent specimens of the pretty *D. litiflorum* and its variety *Freemanni*, both of which must be ranked among the choicest *Dendrobiums*. They are very similar in flower, but quite distinct in growth. The original has slender, pendulous growths, while that of *Freemanni* variety is stouter and erect. Both flowers have the cornet-shaped lip characteristic of the species, and are some 3 inches or 4 inches across, and of a deep rosy lilac and a deep violet labellum edged with white. It is more brilliant than the well-known *D. nobile*, and quite as easily grown. Some splendid forms of *D. Wardianum*, crassinode, and other species indicate that Mr. Peacock appreciates the finest varieties.

Sale of Orchids.—On Wednesday last the collection of Orchids belonging to the late Mr. Dodgson, Beardwood, Blackburn, was sold at Stevens'. There were in all 385 lots, which realised about £1970. Some extraordinary prices were given for a few of the greatest rarities; for example, Mr. B. S. Williams bought *Cattleya Trianae Osmani*—a splendid variety—for 215 guineas. It was a fine specimen, in good health, and is unquestionably one of the finest of all *Cattleyas*. This was the highest amount ever paid for an Orchid at an auction. For the fine original plant of *C. Trianae Dodgsoni*, also a magnificent variety, Mr. Lee, of Downside, Leatherhead, paid 185 guineas. Others bringing high prices were *Dendrobium Griffithianum*, 15 guineas; *D. Ainsworthii*, 66 guineas; *Lelia anceps Dawsoni*, 82 guineas; *Cattleya exoniensis*, 56 guineas; *Odontoglossum pulchellum majus*, 20 guineas; *O. radiatum*, $12\frac{1}{2}$ guineas; *O. triumphans*, $11\frac{1}{2}$ guineas; *Vanda tricolor Dodgsoni*, 20 guineas; *Cattleya labiata pallida*, 19 gns.; *C. Warneri*, $10\frac{1}{2}$ guineas; *Cypripedium superbiens*, $10\frac{1}{2}$ guineas; *C. Stonei*, 17 guineas; *C. Harrisianum*, 10 guineas; and *Calanthe veratrifolia*, $10\frac{1}{2}$ guineas. The collection was, on the whole, in excellent condition, particularly the cool Orchids, such as *Masdevallias*.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

April 10.—South Kensington: Meetings of the Scientific Floral and Fruit Committees of the Royal Horticultural Society, and spring show.

EXHIBITION AT ST. PETERSBURG.—We learn that the International Horticultural Exhibition which was to have been held in St. Petersburg during the ensuing May is postponed until next year.

SALE OF FLOWERS IN PARIS.—It is estimated that the daily sale of flowers in Paris realises some £4000. The flowers most in fashion at present are the *Gardenia*, which sells at 4s. each flower; the *Lily of the Valley*, worth 8s. the pot; the queen *Rose* and the purple *Rose*, the Spanish *Carnation* and the *Violet*. Of the latter a large quantity comes from Nice, but they have not the perfume of those grown round Paris. The *Camellia*, at one time so much prized, is now out of fashion.

A SALE of Orchids, Ferns, stove and greenhouse shrubs, decorative plants, &c., is announced to take place at Mount Annville Park, near Dublin, on April 23 and following days. Among noteworthy plants are two very fine *Lapagerias*, red and white *Beaucarnea recurvata*, *Eucharis*, and *Pancratiums*, large and fine, so also *Draenas* and other choice foliage shrubs. Catalogues may be had on application to Mr. Fisher, the gardener, who, we hope, may soon meet with another suitable appointment. Mr. Fisher was some years at Drumlanrig as foreman, and served the late Lord Haldon as head gardener. We are quite sure so good a gardener will not long await the superintendence of a good garden.

REAFFORESTING IRELAND.—On Friday last a beginning as regards this matter was made by planting at Glencolumbkille, Donegal, some hundreds of thousands of trees, part of gifts kindly placed at Dr. Lyons' disposal by Scottish, English, and some Irish foresters. It is but a small effort in a gigantic enterprise, but it is a step in a direction which is daily being more and more recognised in its wide importance for the future of Ireland. Large scopes of land are, we hear, being placed at Dr. Lyons' disposal in various parts of Ireland, and we cannot doubt that the work will continue to progress.

STOVE AND GREENHOUSE FLOWERING PLANTS.—We have received the third edition of this book by Mr. B. S. Williams, Victoria Nursery, Upper Holloway. Its present form has been considerably enlarged and revised, and contains descriptions of 1300 species and varieties of plants, with notes on their culture, propagation, &c. It is illustrated by no fewer than fifty woodcuts—a valuable addition. Mr. Williams is so well known to be an excellent cultivator, that his instructions may be implicitly followed, and therefore his book should be in the hands of every young gardener in the country. The enumeration of choice plants is brought down to the present date, and the book altogether deserves unqualified praise.

NEW PALACE AT BATTERSEA.—This is to be erected in the Battersea Park Road by the Albert Exhibition Company, of which the Duke of Teck is president. It is proposed to erect something like a smaller Crystal Palace, 477 feet long and 100 feet broad, a large portion of the material for which has already arrived in this country from Dublin. The company have also purchased the Leinster Hall, and this is to be re-erected as an annexe for concerts and lectures. It is intended to hold industrial and other exhibitions in the palace. The building will not, it is said, be opened on Sundays, and it is to be closed at ten o'clock each evening. The company hold the ground from Her Majesty's Office of Works on a lease for 999 years.

TEA GROWING IN RUSSIA.—The Free Economic Society of St. Petersburg warmly advocates the cultivation of the Tea plant in the Caucasus. At Soukhoun, it appears, some Tea is already raised in the open air, notably in the botanic garden and in a garden belonging to a private gentleman. The experiment so far has proved successful, and the Economic Society thinks that in time Russia should compete with China and India in supplying the western nations with Tea. In the western parts of Trans-Caucasia the climate is said to resemble very much that of China. The *Novoe Vremya* newspaper, in referring to the subject, recommends the encouragement of Chinese immigration into the Caucasus to meet the demand for the necessary skilled labour.

NATIONAL DAHLIA SHOW.—The treasurer's report for last year, just sent to us, is as follows: Considering the number of years during which Metropolitan Dahlia shows had been in abeyance, the effort of 1882 may be regarded as fairly successful, though the subscriptions, aided by the Crystal Palace contribution of £50, did not quite cover the amount of prize money awarded. The object of the promoters was to secure a grand show, and, with this object, prizes amounting to £128 10s. were offered, of which sum £117 were awarded. The total amount of the fund raised was £123 12s. 6d., namely, by subscriptions £73 12s. 6d., and by contribution from the Crystal Palace Company, £50. After paying the various expenses incidental to the show, amounting to £13 13s. 6d., there was found to be a deficit of £7 1s., which was divided proportionally between the two largest prize-takers, Mr. Turner and Messrs. Keynes, and deducted from the amounts paid to them respectively, Mr. Turner losing £4 8s. 8d. and Messrs. Keynes £2 12s. 4d. It is to be hoped, therefore, that in future the funds provided shall be ample for the purpose, so as to relieve the executive officers from the unpleasant task of offering to the winners apologies instead of prizes. It is also further to be hoped that amateurs will more generally

take part in the competition under the several classes provided for them. The Crystal Palace Company, we learn, will provide, as before, a sum of £50 towards the prize fund. It has, therefore, been determined to hold a Dahlia show this year at the Palace on August 31 and following day on a scale at least equal to that of last year, and contributions in aid of the same are requested to be sent to Mr. Thos. Moore, Botanic Garden, Chelsea, London, S.W., from whom schedules of prizes may shortly be had.

EXHIBITION OF FOREST PRODUCTS IN EDINBURGH.—At a meeting held on the 29th ult., under the presidency of the Marquis of Lothian, it was resolved that an international exhibition of forest products and other objects of interest connected with forestry should be held in Edinburgh during the year 1884. Mr. Hutchison, of Carlisle, who had called the meeting, stated that such an exhibition would be important, not only in its relation to the question of arboriculture in this country and the colonies, but also to the proposed establishment of a National School of Forestry in Scotland. He also stated that the year 1884 in Edinburgh would otherwise be memorable as being the tercentenary of the University, the centenary of the Highland and Agricultural Society, and the thirtieth anniversary of the Scottish Arboricultural Society.

"THE FOREST FLORA OF SOUTH AUSTRALIA," by Mr. J. E. Brown, Government Conservator of Forests for that colony, promises to be a noble work. In the first part, just received, the following trees are described and figured in colour, viz., *Eucalyptus Gunni* and *E. obliqua*, *Banksia ornata* and *B. marginata*, and *Casuarina quadrivalvis*. The author's object is evidently to make the work a popular and useful one, and to form a collection of illustrations of the principal arborescent plants of that portion of the Australian continent. The names of the plants are adopted from the "*Flora Australiensis*." Even to European horticulturists the work is full of interest, describing and illustrating, as it does, many of our garden plants. For instance, the *Banksias* just named were once familiar objects in botanical gardens. The plates are excellent, nature-like, and artistic, and show that the art of colour printing at the Antipodes is not behind that in Europe. The paper and type too are good; we are pleased to note also that a popular name accompanies each plant described. For example, the *Banksias* are called Honeysuckle trees, *Casuarina* the Sheoak, and the *Eucalyptus* the Gum tree. It is published in Adelaide.

PHYLOXERA IN FRENCH VINEYARDS.—At a recent meeting of the committee appointed by the Minister of Agriculture to report upon the condition of the French vineyards, M. Tisserand, the Director of Agriculture, gave some interesting information as to the ravages of the *Phylloxera* up to the present time. It would appear that nearly two million acres of Vines have been destroyed, and that 1,500,000 acres more have been attacked, and are more or less affected in their yield. About 50,000 acres have within the last year or two been replanted, and the young Vines dosed with sulphate of carbon, while 30,000 acres newly planted have been protected by submersion; 40,000 acres more have been planted with American Vines, but though there has within the last year or so been a slight increase in the area of newly-planted vineyards, the total is very trifling compared to what has been destroyed. M. Tisserand mentions, however, as an encouraging circumstance that vine-growers are forming many associations for the purpose of conducting experiments as to the best mode of combating the *Phylloxera*; that these associations now have 12,338 members, and that they received last year subsidies amounting to £43,000 from the Government. The committee has decided that no remedy has yet been discovered entitling the inventor to the premium of £12,000 offered by the Government some years ago, but recommends the use of sulpho-carbonates and the submersion of the Vines as palliatives of the disease. The cultivation of the American Vine is authorised in twenty-three arrondissements, and it

was mentioned incidentally in the course of the meeting that seventeen fresh districts were invaded last year. The committee has prepared a Bill which will be introduced into the Chambers this session for guarding against the invasion of the Algerian Vines by the dreaded insect.

AUSTRALASIAN FRUITS.—In the neighbourhood of Sydney such fruits as the Peach, Nectarine, Apricot, Plum, Fig, Grape, Cherry, and Orange are as plentiful as Blackberries. The orangeries and orchards of New South Wales are among its sights; and in the neighbourhood of Sydney and round Port Jackson there are beautiful groves of Orange trees, which extend in some places down to the water's edge. Individual settlers have groves which yield as many as 30,000 dozen Oranges per annum. One may there literally "sit under his own Vine and Fig tree." If a Peach stone is thrown down in almost any part of Australia where there is a little moisture, a tree will spring up, which in a few years will yield handsomely. A well-known botanist used formerly to carry with him, during extensive travels, a small bag of Peach stones to plant in suitable places, and many a wandering settler has blessed him since. Pigs were formerly often fed on Peaches, as was done in California, a country much resembling Southern Australia; it is only of late years they have been utilised in both places by drying or otherwise preserving. A basket-load may be obtained in the Sydney markets during the season for a few pence. The summer heat of Sydney is about that of Naples, while its winter corresponds with that of Sicily.

QUESTIONS

Roses.—Will some of the readers of THE GARDEN kindly inform me if there is a Rose called Nelly Curtis.—W.

Rabbits and Berberis japonica.—Would some of your readers be so kind as to say if rabbits eat this *Berberis*?—H. F. C.

Gun licences.—Can any of your readers inform me if it is necessary to take a gun licence in order to enable me to kill vermin in my employer's garden?—SUBSCRIBER.

Slag sand.—Will "R. C." kindly inform me of whom this can be purchased, and whether or not he is of opinion that it is superior to Cocoa-nut fibre for hothouse staging?—EDWIN LUCKRAFT, Mannamed, Plymouth.

Pipes for heating.—I should be glad if any of your readers who have used the downcast pipes and spouting for heating a greenhouse will give me their experience of the result, as I think of trying them.—W. G. L.

Fire balls.—Will anyone kindly state how these balls, composed of culm or anthracite dust mixed with clay, are made? what are the proportions used? and could coke dust be used instead of anthracite dust?—K.

—Would "W. C. T." kindly say where the Pembroke shire fire balls, which he recommends, are to be procured? I, for one, and I am sure many others of your readers would be glad to try them if we knew where to get them.—M. D.

Anthurium Warocquianum.—I have a very good plant of this with seven fine leaves, but the plant has grown up high and I wish to cut down. Can I do so safely in a small, well-treated propagating house if shaded? It has already in the Sphagnum up the stem made some good roots.—H. H. C.

Decaying Willow.—I have a very old curled-leaved Willow in the garden here beginning to decay, and my employer is anxious to keep it alive as long as possible. I shall be glad if any of your readers will state their views on the matter, and also tell me how to propagate it; cuttings of it have been rooted, but they all go off in the second year.—T. P., Newark.

Lilies of the Valley not flowering.—Will some of your correspondents kindly tell me the reason why my Lilies of the Valley never produce blooms? They have been in a south border for a number of years, and the year previous to last we lifted all the crowns, gave the ground a good coat of manure, and replanted them, but we experienced the same result, namely, all leaves and no flowers. I lifted a quantity of them this year and forced them, but we only had two spikes on each plant, although plants received from the nursery grounds about the same size averaged from twenty to thirty spikes on a plant. Under a south wall we have more Lilies which flower fairly well, though precisely in the same kind of soil, which is black and rather heavy.—E. N. T.

PLANT ADAPTATIONS.

THE Rev. Prof. Henslow delivered the other evening a lecture before the members of the Ealing Gardeners' Society, entitled "*Plant Adaptations: Climbing, Propagation, Defence*," of which the following is an abridged report. The chair was occupied by Mr. R. Dean, one of the vice-presidents of the society, and there was a numerous attendance, especially of gardeners.

The Rev. G. Henslow commenced his lecture by calling attention to the infinite variety of forms of foliage, flowers, fruit, and stems prevailing in the vegetable kingdom. Nevertheless on a closer inspection, plants were found capable of being divided into groups which had various characters in common; hence, botanists could classify plants into families, genera, and species. The question then arose as to whether such had ever been the same since each came into existence, or had this diversity come about by some innate powers of adaptation impressed upon plants by the Creator, so that in successive generation the offspring had become more and more altered in form, and better adapted to the ever changing conditions about them. The lecturer said that the probability of the latter having been the case was so great, that the opposite view was now quite unthinkable by anyone who could appreciate the many lines of evidence in favour of what is called evolution. The object of the present lecture was to show one particular, though indirect, phase of that evidence, namely, the adaptability exhibited by the various organs of plants to acquire different functions, and then to assume different forms from what might be called the normal ones. Cases of interchange of functions are so numerous in plants, that all he proposed doing was to select one or two for each kind of organ. The word "member" is used to signify any member or part of a plant which has some special function or work to do; and all the organs can be grouped as stem-structures and leaf-structures; the former embracing roots, stems, branches, flowering stem, &c.; the latter are leaf and bud scales, true leaves, stipules, bracts, and the parts of flowers. Commencing with

The root, its normal function is to absorb mineral food, such as water with various salts dissolved in it, for the use of the plant, while the stem has to convey such crude sap up to the leaves, there to undergo certain chemical processes, which convert it into elaborated sap, out of which, like blood in an animal, the plant is nourished and grows. Roots, however, were often used by plants as reservoirs of nourishment, as in *Dahlia*, *Beet*, &c., while in *Ivy* and *Orchids* they are converted into climbing processes. Stems also could be utilised as reservoirs of nutriment, as in the *Flag* and *Sago Palm*, and often as a propagation organ as well, as in the *Potato* and *Crocus*. Another power added to many was that of climbing, as in such stem twiners as the *Convolvulus* and *Honeysuckle*; or, again the flowering branch might become a tendril, as in the *Virginian Creeper* and *Vine*. Once more, branches may be flattened out so as to resemble and to take on all the proper functions of leaves. Coming to

Foliar organs, leaf-scales, or underground stems, were of two kinds—protective, as in the *Lily* of the Valley, or as reservoirs of nutriment, as in bulbs. In both cases they constituted the base of a leaf, only on its leaf-stalk. Similarly, bud scales, which protected the delicate unformed leaves in winter, might be leaf-stalks, blades, or stipules. The typical leaf consists of stalk and blade, and either part might be modified to acquire new functions. Thus the former might become a phyllode, as in the Australian *Acacias*, or spine, as in the *Gum Tragacanth* plant or a tendril. The blade, too, may become a tendrill, a pitcher or other contrivance for catching insects, or a spine, or become a propagative organ, as in *Ferns* and *Bryophyllum*, &c. Bracts are rudimentary leaves, found associated with flowers. They are either the entire leaf reduced in size, or else the blade or petiole. Being often brightly coloured, they then acquire the attractive functions of petals to invite insects to effect fertilisation of

flowers. Stipules, which often accompany leaves might be leaf-like, as in the Pea; or become bud-scales, as in the Lime or Elm; spines, as in the Acacia, or tendrils, as in the Sarsaparilla. Lastly, all the

Parts of a flower were modified leaves; in fact, they often did grow out as leaves, as in the green Rose, thus proving their origin; while each of the four floral whorls or calyx, corolla, stamens, and pistil, could more or less assume the character and functions of any other. A most important case of such to gardeners was the production of double flowers. This is arrived at by the conversion of stamens and carpels into petals, and the gardener must look out for any tendency to change which the plant may exhibit, and then propagate from that flower. From the few instances given in the lecture, and very many more might have been adduced, Prof. Henslow hoped he had satisfied his hearers in showing how the organs of a plant could, under certain circumstances, first acquire other properties, and, second, change their form in accordance with the new acquirements of their descendants. In conclusion, he could now return to his starting point, and say it was upon such like evidence that the process of evolution was believed to have been the method which the Deity had followed in peopling the world with an ever varying succession of animal and vegetable forms.

At the close of the lecture, a hearty vote of thanks was given to Prof. Henslow, and in response to a suggestion made by the chairman he expressed his willingness to continue the subject on some future occasion.

SOCIETIES.

EXHIBITION OF SPRING FLOWERS IN PARIS.

THE National and Central Horticultural Society of France opened its second exhibition of spring flowers on Wednesday last, March 28, in the Municipal Pavilion of the City of Paris, close to the Palais de l'Industrie, in the Champs Elysées, a building admirably adapted for such a purpose, and where the many beautiful exhibits were seen to the very best advantage.

This exhibition is in every way far in advance of last year's show, held by the Society in its own premises, No. 84, Rue de Grenelle, St. Honoré, which proved quite inadequate for the proper display of the exhibits or for the fitting accommodation of the numbers of the public who came to see them. The principal features of the exhibition were undoubtedly the fine beds of Indian Azaleas (in pots plunged to the rim so as to be invisible), and shown in nice medium-sized, naturally-grown plants, which are at all times so infinitely preferable to the stiff, unnaturally trained, pyramidal cones usually seen at our principal exhibitions in London and elsewhere in England. The newer varieties of these beautiful flowers were represented by nicely bloomed small plants of the following hybrid seedlings, Antigone, Elise Liebe, Docteur de Mil, Phœbus, Conte Charles de Kerchove, J. E. Planchon. Lovers of these plants will find well executed coloured portraits of most of these fine varieties in M. A. Van Geert's "Iconographie des Azalées d'Inde," a work of which the cessation, on completion of the first volume, is to be regretted. Unnamed seedling Cinerarias of an exceptionally fine strain and good dwarf habit of growth were shown in great perfection, filling several large beds most effectively arranged as to colour by the well-known firm of Vilmorin-Andrieux & Co., of Paris, and a specially interesting and effective bed was filled with fine, well bloomed specimens of some twenty seedling varieties of that handsome and free blooming Amaryllid, *Imantophyllum miniatum*, raised and sent out by M. L. Duval, of Versailles. To this collection the jury awarded a large silver medal. Orchids were represented by a small stand of some twenty-four well-bloomed plants, consisting principally of *Phalenopsis Schilleriana*, *P. amabilis*, and *P. grandiflora aurea*, *Miltonia cu-*

neata, *Dendrobium chrysotoxum*, &c., sent by M. Alfred Bleu. One of the large beds was most effectively filled with well-bloomed and neatly grown bushes of different varieties of *Azalea mollis* and the pretty little rose-coloured *A. amœna*, varied with *Andromeda japonica*, *Skimmia fragrans*, *Magnolia Halleana* and *Lennel hybrida*, and edged with small plants of different kinds of gold and silver variegated *Euonymus*, forming altogether a very handsome bed. Fruit was represented by two banks of well-berried forced Strawberries of the varieties *Marguerite Lebreton* and *Dr. Morel*, which on the Moss with which the bank in which they were plunged was covered looked very well. They were backed by some half-dozen finely-fruited specimens of Pine-apple. Some very fine unnamed seedling Pansies with blooms of great size were shown by M. Falaïse, of Billancourt, which on the plants as they grew plunged in a bed had a very pleasing effect. A very pretty bank near the entrance was composed of some fifty well-bloomed plants of the charming sweet-scented hardy shrub *Choisya ternata*, which exhaled its delicious Hawthorn-like perfume all around it, and showed how well adapted this free-blooming shrub is for forcing for the decoration of drawing-room stands or the early greenhouse. These plants were sent by M. Vyeux-Duvaux. Two well-bloomed and good-sized specimens in pots of the curious and still scarce hardy South American flowering shrub *Neviusia alabamensis*, or the Snow-wreath of Alabama, the blooms of which resemble those of Myrtle, whose petals have been removed (as they consist entirely of bunches of whitish stamens enclosed in a green calyx), and which is only found wild in a single locality even in its native state, were among the most interesting exhibits at the show, as this is probably the first occasion on which this rare American shrub has been publicly exhibited in Europe. Two large bedsful of rather indifferently-bloomed Roses in pots were sent by Messrs. Levêque, of Ivry, but not for competition. Hyacinths were well shown plunged in raised tier beds by Messrs. Vilmorin-Andrieux & Co. and Messrs. Dupanloup, of Paris. Several large beds were also well filled with forced hybrid *Rhododendra* and well berried bushes of *Aucuba japonica*. A very interesting collection of new hybrid varieties of Agave, many of them in bloom, was sent by M. E. Simon, of St. Omer, near Paris, being entirely of his own raising, and reflecting much credit on his powers as a hybridiser and successful cultivator of these curious plants. The most distinct and noticeable varieties in the collection were named *A. xylinaeaulis*, a cross between *A. arborescens* and *A. ferox*; *A. albo-cincta rosea*, a very handsome plant with a large branched bunch of pale-yellow flowers like those of a small *Blandfordia*; *A. spinosa*, a cross between *A. humilis* and *A. arborescens*; *A. flava* var. *longifolia*. All these plants were exceedingly well grown and in vigorous health, and were deservedly awarded a silver medal by the jury. An interesting and well-bloomed collection of hardy herbaceous and bulbous plants in pots plunged in tiers in a bank on one side of the entrance formed a pleasing feature of the show, and consisted of a fine double row of seedling double Wallflowers at the back with numerous plants of *Doronicum caucasicum*, *Anemone fulgens*, various varieties of Daffodils, various coloured Primroses, *Aubrietia*, *Iberis*, Van Thol Tulips, *Crocus*, &c., in front. These were sent by Messrs. Vilmorin-Andrieux & Co.

The exhibition was visited during the afternoon by Monsieur Jules Grévy, President of the French Republic, and suite, who were received by Monsieur Alphonse Lavallée, president of the society, and several other members of the council who accompanied him round the exhibition, with which he appeared to be much interested. The exhibition remained open till April 1 inclusive, and may in every respect be considered a credit to the society.

W. E. G.

Deadly effects of flue gases.—On the 6th of January, at Glossop, Derbyshire, two domestic servants retired to rest in their usual health. The next morning they were both found

dead. Medical evidence having been given at the inquest, the jury found that death was caused by asphyxia, produced by inhaling carbonic acid gas admitted into the sleeping apartment through defective joinings in the flue or chimney. Young gardeners whose lodgings are often near stove-holes must take care that their sleeping apartments are free from this deadly gas.—C. W. T.

Lambeth Palace grounds.—The Archbishop of Canterbury received at Lambeth Palace last night a deputation from the Lambeth Vestry, to ask his Grace to open a part of the meadow grounds adjacent to the Palace, for the benefit of the poor of the immediate neighbourhood, so far as it could be done without interfering with the residential portion of the palace. Mr. George Howlett, who spoke on behalf of the deputation, read a correspondence on the subject with Mr. Gladstone, who replied to the effect that he thought it was a matter for the Metropolitan Board of Works, and that the Government could not interfere. Mr. Howlett pointed out that the vestry looked upon it as very important for the health and benefit of the large number of poor waifs and strays of the immediate neighbourhood that they should have ready access to the grounds. There was at present no public place for recreation for children. The views of the vestry had been supported by a large public meeting, attended by about 3000 persons. While admitting that the grounds were used by cricket clubs, volunteers, and schools, he contended that the advantage those classes might obtain thereby would be far outweighed if the grounds were thrown open entirely free to the public. The Archbishop then put a series of questions to Mr. Howlett as to the proceedings of the vestry, and elicited that the resolution of the vestry in favour of the objects of the deputation was only carried by twenty-four votes to seventeen, and that the Metropolitan Board of Works had not pledged themselves to maintain the grounds, even if they were secured to the public as the deputation desired. Referring to the question of the alienation of the grounds his Grace stated that, being simply a trustee for the See of Canterbury, he had no power whatever to alienate the grounds, even if it were desirable so to do. He could do nothing of that kind without the consent of the Ecclesiastical Commissioners. The question, he said, was how could the limited area of nine acres be best utilised? and it seemed to him that his predecessor had endeavoured to do the best he could for the good of the people, and he desired to follow in that direction.

OBITUARY.

MR. GEORGE SMITH, of the Tollington Nursery, Hornsey Road, died on the 26th ult. in his 71st year. He was well known as a raiser of many fine florists' flowers, especially zonal Pelargoniums and Fuchsias. The Pelargonium *Le Grand*, raised by him, was the forerunner of other fine sorts in that direction. He was an excellent judge of florists' flowers, and a man much esteemed by all who knew him.

Mrs. L.—A villa near Rome.

Royal Botanic Garden, Edinburgh (B.)—Appl. to Mr. Lindsay, the newly-appointed curator.

Tar varnish (*Subscriber*, p. 282).—Wash your hot-water pipes with spirits of turpentine.—K.

Names of plants.—*Amersham*.—The white flowered shrub is *Choisya ternata*, a native of Mexico. We do not name varieties of *Azalea*.—*A. B. C.*—*Dendrobium aggregatum majus*.—*Ovar*.—1, *Cypripedium longifolium*; 2, *Oncidium sarcodes*; 3, *Epidendrum cochleatum*.—*Chambers*.—*Gomphrena globosa*.—*A. N.*—1, *Diosma ericoides*; 2, *Alonsoa incisa*.—*W. C. Walker*.—*Gongora portentosa*.—*J. Probert*.—*Santolina viridis*.—*R. D. Taylor*.—*Lopez coronata*.—*A. C.*—*Vanda teres* variety. An appropriate name for which would be delicate, as the colour is so much lighter than that of the type.—*Fern*.—Next week.—*S. D. R.*—*Narcissus nanus*.—*H. A. Spurrell*.—*Narcissus nanus*, a variety of *N. minor* of Linnaeus.—*Young & Co.*—*Coltsfoot* (*Tussilago Farfara*

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

CARNATIONS AT TRING PARK.

THE Carnation is largely grown in Sir Nathaniel Rothschild's garden at Tring Park, where it is a great favourite. At the present time the perpetual or tree flowering class forms one of the attractions of the place; a capacious span-roofed house solely devoted to them is gay with bloom, and has been so since last September. Indeed, it is the aim here to have Carnation flowers the whole year round, the duller time being about August, after the border kinds are past and before the tree varieties come in. The house in question seems to have been specially planned for Carnation culture. It is span-roofed and admits abundance of light and air, two important points in the successful culture of these plants. A wide stage, high enough to hold the plants close up to the roof, occupies the centre, and similar wide stages run round the sides. These side stages are occupied by some few hundreds of plants of that fine variety *Souvenir de la Malmaison*, now commencing to flower, succeeding the general stock of tree sorts that have bloomed the winter through. The *Souvenirs* carry the flowering season on until blooms out-of-doors come in, and these flower from August to the end of September, thus completing the cycle. In order to keep up this succession Mr. Hill's plan is to strike the main bulk of the collection in February in heat; when well rooted, the young plants are gradually hardened off and kept in frames, potting them on until placed in the Carnation house in September for supplying the winter bloom. Some, however, are struck later than February in order to have a late successional crop to flower about this time and onwards for a few weeks until the *Souvenirs* are well in bloom. After the plants have done service for one season they are thrown away, except those required for stock. A similar systematic course of propagation and culture is carried on with the border kinds, planted on a warm south border, and mainly relied on for furnishing the summer supply of bloom. The border kinds include all sections, Cloves, selfs, and edged varieties, as well as Picotees.

The collection of perpetual flowering kinds comprises a choice selection of the very best sorts. At the head of the list must be placed a beautiful new kind which probably could be only found here at present. It is called *Valencia*. The flowers are large and full, deep rich crimson, and endowed with all the delightful aromatic perfume of the old Clove, a characteristic which at once makes it remarkable, as the majority of the tree kinds are scentless. It is a valuable sort, and possesses the desirable advantage of having a robust constitution and of being a prolific flowerer. There are several beautiful white sorts grown. The best of all is considered to be *l'Hermine*, which has flowers of the purest white, and is an exceptionally free bloomer. *La Belle* is similar to it, but inferior in every way. *Ville de Nancy*, *Lady Sefton*, and *Empress of Germany* are all lovely white kinds; but one called *The Queen* is a great favourite here. Its flowers are snow white, and the edges of the petals so smooth as to give them a refined look. *Lady Musgrave* is a brilliant crimson, also *Sir George*, *Le Grenadier*, and *A. Alegatière*, which last has flower-stalks so rigid as not to require support. *Jean Sisley*, a large flower with a yellow ground and flesh-tinted edges, is a pretty sort, and so is *Mazeppa*, which is quite a bizarre. *Belle Rose* and *Governor Wood* are likewise well spoken of. One of the greatest beauties, however, is *Andalusia*, a variety first known in this country in this garden. It has large, full flowers of a beautiful sulphur colour tinted with pink. It has a robust constitution, and is remarkably floriferous. This was awarded a first-

class certificate last year by the Royal Horticultural Society, and has been put in commerce by Messrs. Veitch, Chelsea. W. G.

NOTES FROM BERWICKSHIRE.

In the beginning of March the weather was fine and mild, and many spring flowers began to bloom, being considerably later than last year. Snowdrops, winter Aconites, Christmas and Lenten Roses, Hepaticas, spring flowering Heaths, *Primula caschmeriana*, *Primula pulcherrima*, *Saxifraga Burseriana*, *Polygala Chamæbuxus purpurea*, and Dean's rich coloured Primroses were all in full bloom in my garden on the 5th, when on the two following days a severe storm of wind, hail, and snow from the north occurred. The keen, frosty wind on these two days completely withered up all the early flowers, even such hardy ones as Snowdrops and Lenten Roses succumbing to its rigour. Several inches of snow fell on the 9th and laid for about ten days, which served to protect plants from the effects of the frosty wind. For twenty-five nights during the month, the thermometer registered from 5° to 11° of frost, and such was the continued severity of the weather, that people in this district do not remember the like, during the month of March, for the last thirty-one years. Fruit buds of Apricots and Pears are very much damaged, and Currant and Gooseberry buds are blighted, while all vegetable crops, such as Cabbages, Broccoli, Greens, &c., are greatly injured. Roses have suffered much from the effects of the cutting frosty wind, especially in cases where winter protection in the shape of Spruce Fir branches had been removed. Even Tea Roses on walls, with a protection of Spruce Fir branches, have had their shoots blackened by the frosty blasts. Spring flowering plants, such as *Arabis*, *Aubrietia*, *Silene pendula*, *Myosotis dissitiflora*, Primroses, Daisies, &c., put into beds in the mild weather at the beginning of the month are all much hurt, their outside leaves being destroyed, and in some cases the plants have been killed.

HELLEBORUS NIGER MAXIMUS.—This plant begins to bloom with me about the middle of November, and continues to throw up its large white flowers in great profusion until about the middle of January. I protect the blooms from severe frost and heavy rains by placing a number of ordinary bricks around the plants in the form of a square to the height of about 9 inches, and then putting a hand-glass on the top of the bricks, giving air in fine weather. By this means I get the flowers of snowy whiteness at Christmas. My experience is that the flowers of *H. niger maximus* do not come tinged with red or pink unless they are exposed to cold.

HELLEBORUS NIGER MAJOR OR H. ANGUSTIFOLIUS.—I have read with great interest the recent notes on this variety of the Christmas Rose in THE GARDEN. Mr. Brockbank has very kindly sent me a plant of the true variety, which will enable me to compare it with *H. n. maximus*.

HELLEBORUS NIGER.—This is never seen to greater advantage than in old farm gardens, where it has been allowed to grow undisturbed for perhaps twenty years in succession. It is then found 2 feet or more in diameter, and with hundreds of flowers. It does not come into full bloom in this country until about the end of January, and its flowers are consequently not available at Christmas. This circumstance renders *H. n. maximus* doubly valuable here.

H. NIGER MINOR.—I saw a plant so labelled in a garden in this district lately. The foliage seemed smaller than that of the ordinary kind, but I could not find any flowers on the plant. Can anyone give me information about this variety?

HEPATICAS.—I perused with much pleasure Mr. Brockbank's notes on these in THE GARDEN of the 10th ult. For a number of years there have been nine kinds in my garden here—the single blue, the single white, the single pink, also carnea, splendens, and Barlowi, the double pink, the double blue, and angulosa. I observe where some large clumps of Hepaticas are grown

under the shade of trees they retain their old leaves in a green state until they are done flowering, when the new leaves take the place of the old ones. This adds much to their beauty. In the open they lose all their old leaves, and flower before the new ones are developed, in which case the flowers have not such a rich and beautiful appearance. The Hepatica thrives best in the shade in good deep soil, where it is allowed to remain undisturbed for many years in succession. I have never seen a double white Hepatica, but a friend of mine told me lately that one of his double blue plants threw a double white sport in the autumn of 1881. It is to be hoped that a permanent double white variety may yet be obtained in this way.

CALCEOLARIA PLANTAGINEA.—Upwards of twenty years ago, when I cultivated alpine and herbaceous plants in East Lothian, this hardy Calceolaria was to be seen growing in the herbaceous borders of old gardens there, and I had several large plants of it. It used to grow with its light green leaves lying flat upon the surface of the ground, from the centre of which in summer it threw up several straight, slender flower-stems, about 9 inches high, which bore four or five pure yellow unspotted flowers. I have made numerous inquiries in East Lothian of late years about this plant, but have not been successful in hearing of it being found in any of the gardens in that county at the present time. I am afraid that some of the severe winters about ten or twelve years ago must have destroyed all the plants of it. I have not seen any for fourteen or fifteen years.

IRIS RETICULATA.—Notwithstanding the unusual severity of the weather here, I lately gathered some flowers of this lovely Iris from my rock border where it is planted in large clumps, the roots not being disturbed for several years in succession. I frequently purchased the imported roots of this Iris, but never succeeded in establishing it in my garden until I got a supply of plants from a neighbouring nursery where I found it growing in clumps from year to year like an ordinary hardy herbaceous plant. The imported roots used to flower and then disappear. *I. reticulata* is excellent as a cut flower for the table, remaining fresh for a week or longer.

NARCISSUS BULBOCODIUM.—I find that imported bulbs do not live in my garden beyond a year or so, although they flower well the first year; whereas seedlings given to me by a friend in 1877 grow luxuriantly and flower every year. They are never disturbed. GEORGE MUIRHEAD.

Paxton, Berwickshire.

PLANTS IN FLOWER.

FORTUNE'S YELLOW ROSE at Westonbert, Gloucester, has for some time past been one of the chief attractions of the garden. One specimen of it has borne no fewer than a thousand blooms, and the plant is still bearing blossoms. The peculiar tint of yellow of this Rose makes it a lovely object, and particularly so when the flowers are so abundant as they are in Mr. Holford's garden. The plant under notice is growing in a Rose house, and is trained under the roof about a foot from the glass.

DIANTHUS NAPOLEON THE THIRD is one of the brightest and most useful of all the hybrid Pinks, particularly for pot culture. It grows about 9 inches high, and bears numbers of rosette-like flowers of a brilliant carmine-magenta. We were much struck with its beauty the other day in Messrs. Veitch's nursery, Chelsea, where it is grown along with Tree Carnations for a winter and early spring supply of blooms. Besides being so valuable for pot culture, it is also one of the prettiest of border Pinks.

THE GUELDER ROSE (*Viburnum Opulus*) forced into flower at this season forms a beautiful object in the greenhouse. Dwarf bushy plants of it are admirable for intermixing with other plants on stages, and it is an uncommon and beautiful object grown as tall standards, such as we saw the

other day in the conservatory at the Royal Exotic Nursery, Chelsea, where some care is taken to get these into a fine flowering state early in spring. These standards range from 3 feet to 5 feet high, and their wide-spreading bushy heads are completely covered with snow-white balls of blossom. For forcing they are taken up from the open ground in autumn, potted in loamy soil, and kept protected from frosts till March, when they are gradually inured to a warm house, where in a very short time they develop foliage and flowers.

A NEW DOUBLE MARGUERITE, called *Aurora*, has been sent to us by Messrs. Cannell & Sons, Swanley, who are now distributing it. It is said to be a variety of the common annual Corn Marigold (*Chrysanthemum segetum*), which, however, is doubtful. The flowers form a semi-globose head as circular and double as can be, and the whole rosette is of a clear, bright yellow. It will undoubtedly become a popular plant, particularly for cutting from, as the flower-heads last for so many days in perfection when cut and put in water.

IXORA PARVIFLORA.—The ordinary species and varieties of *Ixora* are, as a rule, characterised by brilliantly-coloured blossoms borne in close heads, but this one which is now flowering in the Palm house at Kew is quite different from all others both in habit of growth and flowers. The latter are exceedingly small, but are produced in myriads on long and wide-spreading feather-like panicles, more resembling some of our native Bedstraws (*Galium*) than any other plant with which we can compare it. Owing to the flowers being so numerous, they have a pretty effect, and they emit a pleasant perfume. It would be worth growing for cutting alone, as small delicate sprays of it would be useful for small vases.

OUT-DOOR HYACINTHS.—Finding a general impression to prevail that garden Hyacinths are not worth keeping beyond the first year, I send you a few from my border, where they have been exposed to the full severity of the winter and spring frosts. I plant out not less than 1000 of them, and they make a great show during March and the early part of April. They consist of bulbs which I have grown regularly, none of them less than five years old and from that to forty years, and I see no deterioration; they are not quite so large as usual this year, on account of the wet season, but of course they vary a little.—T. H. ARCHER-HIND, *South Devon*. [Very fine spikes for out-door plants.]

NARCISSI IN LONDON.—We have received from Colonel Stuart-Wortley a very charming bunch of various kinds of Daffodils which thrive very well in his garden in the north-west district; the clay soil is not in the least against success in the culture of these hardy bulbs. These are among the most useful flowers for London gardens, owing partly to the long rest, during which they escape a good deal of the evils of the London atmosphere. Certainly it is not well to try Evergreens, Vines, Roses, &c., where the atmosphere is so much against them, but we should make up by greater attention to the many things that do not mind the London atmosphere.

VARIETIES OF TRUMPET DAFFODILS.—From Mr. Wolley Dod's garden at Edge Hall comes an interesting gathering of Narcissi of the Ajax section. The Tenby Daffodil (*N. obvallaris*) is one of the finest and also one of the most distinct; it is easily recognised by the firm-textured sepals and petals, both ovate in shape, but the latter narrower than the sepals and scarcely so long as the firmly-set corona, the rim of which is deeply lobed and crisped and decidedly reflexed. It is almost a self-coloured Daffodil, but the stouter texture of the crown renders the shade of yellow therein deeper than that of the segments. Another strikingly handsome kind is *N. maximus* of Sweet, which Mr. Wolley Dod sends under the name of *N. obvallaris maximus* of Barr, but the first name is superfluous, as there can be only one variety of Pseudo-Narcissus called *obvallaris*, and a multiplicity of names only tends to confuse. *N. maximus* is a large bold flower with a large recurved

inmed crown and wide spreading segments of almost as bright a yellow as that of the crown. As regards the size and form of the flower, we fail to see any difference between this and the *N. major* figured in the *Botanical Magazine* (tab. 51), and it is doubtful if it is really distinct. A similar kind called *N. spurius* is apparently identical with *N. propinquus* of Haworth. It has not such a reflexed crown as typical *major*, and the segments are broader. Another form is what we consider to be the single form of the common double *Telamonius*. Some flowers are also sent of what Mr. Dod calls an intermediate form of *N. cambricus*, but no doubt their larger size is owing to good culture. *N. cambricus* may be best described as a magnified form of the common *N. Pseudo-Narcissus*, and one that flowers contemporary with *N. obvallaris*; we have seen it in bloom at Messrs. Barr's Daffodil grounds since the last week in February.

IBERIS GIBALTARICA HYBRIDA is a pretty new hardy plant, judging by some flowers of it from Mr. Dean's seed grounds, at Bedford, Ealing. It more resembles some of the varieties of the common annual Candytuft (*I. umbellata*) than *I. gibraltarica*; and if it be really a hybrid of the latter, it has quite changed its character. The flower-heads are dense, and the blossoms white when first expanded, but they change to a pleasing violet hue. It appears to be very floriferous. Perhaps Mr. Dean can tell us more about it.

STIFFTIA CHRYSANTHA.—A flowering branch of this rare shrub, described the other day in THE GARDEN, has been sent to us by Mr. Green from Sir George Macleay's garden at Pendell Court, Bletchingley, where it is grown to perfection planted out in free soil in a large stove. The flowers soon dropped after being received, but the long hair-like tawny yellow pappus which surmounts each flower spreads out into a large tassellike head, and is almost as attractive as the orange-red head of blossoms itself.

HARDY FLOWERS AT YORK.—The following are among the most noteworthy plants in bloom in Messrs. Backhouse's nursery at York, viz., *Fritillaria armena*, *tulipifolia*, and *Mogridgei*; *Tulipa minor*; *Ornithogalum sororum*, with dwarf umbels of white flowers, a winter-flowering species; *Crocus pusillus*; *Corydalis Ledebouriana*; *Crocus Boryi*, *albiflorus*, and *Aucherii*; *Scilla taurica*, *bifolia alba*, and *bifolia rubra*; *Anemone blanda*, hundreds of blossoms out; *Muscari rupestre* (sky blue), *Hel-dreichi*, and compactum; *Anemone vernalis*, and *Draba Mawana* (white).

NARCISSUS FLOWERS from Mr. Burbidge, Trinity College Garden, Dublin, include: *N. Emperor*, *N. Empress* (with eight perianth segments), *N. odorus fl.-pl.*, *N. Telamonius fl.-pl.*, *N. Pseudo-Narcissus fl.-pl.* (silver and gold), *N. bicolor Horsfieldi*, *N. Bulbocodium*, *N. B. minor*, *N. B. Graellsii* (this last pale sulphur is the nearest to white of any European *Corbularia*—crossing the Mediterranean into Algeria it becomes purely so), *N. monophyllus*, *N. Jonquilla fl.-pl.*, *N. albus* (white Daffodil). Mr. Burbidge also sends *Lachenalia Nelsoni* (very fine), *Tulips* (Dutch Rogues), *Roman Hyacinths* (far more common at Christmas than in April), *Aucuba japonica vera* (to show how well it fruits in Dublin), *Allium paradoxum*, and some fine flowers of *Anemone coronaria* from seed sown last year. These were chiefly double sorts, which Mr. Burbidge seems to prefer to the single.

CANTUA DEPENDENS.—One seldom sees or hears of this extremely beautiful Chilean shrub in flower, and rarely indeed is it seen in such perfection as in Mr. Holford's garden at Westonburt, where there is a large specimen of it trained against the back wall of a cool house literally smothered with blossoms, which hang in graceful profusion from every twig. It would be interesting to know how Mr. Chapman, the gardener, treats this shrub, for many fail to flower it. In the stoves in the same garden is a wonderfully fine example of *Bougainvillea glabra*, from which depend long racemes of brightly coloured bracts. *Thysanacanthus rutilans* is also grown uncommonly well here, and is indeed just now a charming sight, long slender spikes of

crimson flowers hanging on all sides of the plant from 2 feet or 3 feet in length. Fine bushy plants of *Azalea mollis* light up the greenhouse with their showy blossoms, so unlike those of other shrubs of the same stamp. The double *Poinsettia* (*P. plenissima*) has seemingly quite ousted the older variety here, being in every way greatly its superior. It not only bears larger and brighter coloured heads of bracts, but these remain in perfection much longer than those of the common variety. This double kind has been in perfection for six consecutive months by having successional plants. It is only just past.

EURYBIA ARGOPHYLLA.—Judging by some large flowering branches of this Australian shrub, sent by Mr. Green, it is grown to perfection in Sir George Macleay's garden at Bletchingley. This species has ovate leaves some 6 inches long covered with white woolly down on the under surface, and which if slightly rubbed has a pleasant musky odour. The flowers are borne in large terminal panicles, and though not showy in themselves, are so numerous, and their stalks white and silvery, as to have a pretty effect, particularly when seen gracefully hanging on the plant. Mr. Green grows this shrub against a wall of one of the vineries, a position which it evidently likes, for we have never seen it flower so abundantly before. It is almost a hardy shrub, and probably is quite so in Devonshire and Cornwall if planted against a wall. It is also known as *Aster argophyllus*. It is grown at Pendell Court chiefly for its sweet-scented leaves, more especially when gathered and dried.

SINGLE CHINESE PRIMROSES.—My statement in THE GARDEN the other day that flaked forms of the single Chinese Primrose were scarce has brought me from Messrs. Carter some beautiful flaked flowers of their Village Maid, an old striped and speckled form very charming indeed, and also of a much larger variety named *Venus*, which has besides beautifully flaked markings and a fine lemon eye. In addition to these were also sent *Peach Blossom*, a very fine variety, round the lemon eye of each flower of which is a distinctly marked ring of rosy pink, which on the outward side radiates or veins out over the white ground of the flower. The blooms are not large, but the season, of course, is very late. It is a decided novelty, and one that will inevitably be the parent of some pretty things. The depth of colour found in some of the dark coloured varieties sent is indeed marvellous. *Vermilion Queen*, for instance, glows like a true vermilion sunset; the colour is singularly beautiful, owing to its rich rosy shading. *Magenta Queen* is in the purple section what *Vermilion Queen* is amongst reds. It is maroon suffused with rosy magenta. The brilliant hues found in these and in some similar varieties give a charm to a collection of winter blooming Chinese Primrose that can hardly be over-estimated. In *Carmine Beauty* we get flowers of the old carmine type with a shading of rose, and it is worthy of notice that this infusion of richness into the ground colour tends to prevent burning or fading, a very common fault with the old carmines. Lastly, we have in this box of blooms in *Rosy Queen* a bold magenta-shaded form of the purple that must form a striking variety with good heads of bloom. These, with others we have seen, show that the colours of the Chinese Primrose are gradually improving.—A. D.

ELÆOCARPUS DENTATUS.—In the Palm house at Kew there is a flowering specimen of this shrub, which is as pretty as it is rare. It forms a compact dense bush, furnished with rather small leaves, and each twig is profusely laden with tiny white blossoms, bell-shaped and exquisitely fringed at the rims as if they had been cut out of paper with scissors. This shrub used to be grown well by the late Mr. Joad, but we should like to know more of its culture and propagation than we do, as it is a plant that deserves to be generally grown. It is probably identical with *E. cyaneus*, a New Holland plant that used to be grown finely about London, and notably in the late Mrs. Maryatt's garden at Wimbledon.

BOOKS.

A LADY'S TRAVELS ROUND THE WORLD.*

In this book we have an interesting narrative, or rather a full diary, of a lady's travels round the world. Each of the 400 pages contains some descriptive account of the places visited, its vegetation and other natural characteristics, its people, their manners and customs. Travellers as a rule do not think it worth while to take note of the

together with the following copious extracts, relating to the vegetation of the different countries visited. The motto selected for the title page—"I have related what I have seen, what I have heard, and what I have learnt by inquiry"—seems to have been faithfully carried out.

"The wind fell as we sailed across the Saronic Gulf (from Athens) to the island of Egina . . . and climbed over the rocks to the only Pine tree which was within sight, which, like every other we had yet seen, was tapped for resin to mix with the wine of the country." From Greece (where backsheesh does not seem to be the main object with the Greek peasant, poor as he is) to Cairo and the Pyramids is a transition as sudden and as in a sense unpleasant perhaps as is that between the "finely featured modern Greek and the depressed-looking backsheesh-imploing modern Egyptian," and of the voyage thence through the Red Sea to India we are brightly and pleasantly told. The Buddhist shrines at Ellara, "particularly the later ones of Hindoo deities, are much visited; sacred Marigold and Jessamine blossoms were lying before their altars," but in those at Ajanta everything was lonely and deserted. The birds built around

and Cauliflowers, which are a triumph of gardening skill in this country." On the way through

The Murree Pass in March the weather is stormy, and the "spring flowers have scarcely appeared as yet; only a few blossoms of alpine Violets and a hardy yellow Jessamine make the banks gay. Yesterday, not far from Murree, a group of crimson Rhododendrons just bursting into bloom was a gorgeous sight; one stem was 5 feet in circumference." All this is a great change from "Mango trees festooned with Orchids;" but we must remember that our fair traveller is ascending far from the plains, high up indeed over the mountain passes into Kashmir. On April 3 Rampoor is reached, and we read, "To-day our walk was through lovely scenery. Forests of Deodars (one of the mighty Cedars measured 20 feet in circumference) and Pine trees, under which were banks of all sorts of hardy and half hardy Ferns, fringing the edges of delightful little mountain torrents, and out into glades where a pretty Ixia (?), and wood Anemones, and yellow Jonquils (?) overshadowed by blooms of wild Apple and Plum trees, were just coming into blossom; crowns of orange Fritillary Lilies hung on the grey rocks, and green parroquets with yellow tails flitted about under the Cedars, almost hidden by their great branches. It was startling to come suddenly on a ruined temple of graceful design and proportion, surrounded by a cloistered courtyard of trefoil arches and Grecian pillars, so entirely unlike anything he had seen in India." The Vale of Kashmir is reached on April 4, "but everything looks brown and desolate—no life anywhere. The spring is late; the tall Poplars and magnificent Plane trees are yet leafless." On the following day "it was pleasant after a walk of 170 miles to glide in a shady boat past the grassy banks of a stream fringed with Willow and Plane trees, and now and then past farmhouses two or three storeys high, standing in orchards, recalling, except for the unfamiliar background of snow-topped mountains, an English landscape."

On the Dal Lake are the celebrated floating gardens, made of the matted roots of water plants cut close to the bottom of the lake and formed into long narrow beds resting on the water. On this a thick coating of mud is laid and Melon seeds sown, which during the hot summer produce large crops of fruit. *En passant* we may allude to similar floating gardens; or rafts attached to the boathouses of the lake-dwelling Chinese, who grow Onions and other pot herbs thereon, and tow them about after their boats whenever a change of locality is from any cause desirable. On the 18th of April the pass from the Wurdman Valley is crossed (altitude 11,600 feet), the path lying through the snow and among great boulders left there by former avalanches. Shod with shoes made of rice straw carried for the purpose, "we trudged on till we found ourselves amongst Birch trees and scanty Junipers, under which the lovely blue Gentian peeped out." Our travellers are bound for the great Lamaseries at Hemyss and Leh, and have now reached the Bhutkhul Pass (altitude 14,580 feet). "We are climbing by slow degrees to the 'roof of the world,' as the inhabitants of the high table land of Central Asia call their country—a very steep roof it is. Kashmir, 5000 feet above the sea, was the first step towards it from the hot plains of India; the Wurdman valley, 7000 feet, the next; and now we are on the way to the Sooroo valley, 10,000 feet. Leh, where we hope to be in about three weeks, will be nearly 12,000 feet up on the world roof!" and yet to the northwards lies a giant peak—a sort of chimney-stack on this roof, let us suppose it to be, the top of which is over 26,000 feet high. The Sooroo valley is not inviting. "Except a few Willow trees carefully grown near the villages, there is not a shrub or tree or anything green to be seen."

A Tartar convent is visited, and the splendid Thibetan mastiffs, "who bark persistently all night long" are admired. Perhaps they see apparitions in the night-time, and so, as Homer hath it, must needs "snarl with their teeth;" at any rate, their size was found to be somewhat below Marco Polo's standard, none being seen "as big as



Lake Tahoe, formerly the crater of a volcano on the Sierra Nevada, California.

indigenous plants of the countries through which they pass, but our authoress is evidently a keen observer of Nature in all its aspects, for almost every page of her book touches upon the native plants, all of which are well described in a popular way. It is, however, to be regretted that botanic names have not been given in order that one could be sure what plants are being referred to, for she must have come across many things not generally known. Popular names in this case do not help us much; for example, the name Heavenly Bamboo is given to a plant which no doubt is *Nandina domestica*, a commonly cultivated Japanese shrub. The book is illustrated by about a score of effective woodcuts, examples of which we reproduce

the head of the great calm Buddha seated on the Lotus in the pillared halls of the monasteries, and the wild bees hung their nests from the beautifully decorated ceiling, and the jungle plants crept in, forming festoons over the fresco paintings of Buddhist legends above the pillars." From Ajanta to Bhopal is not luxurious travelling in bullock carts, even although the bad road lieth "through a forest of Mango trees festooned with Orchids, but Bhopal once reached the gardens are charming and the flowering shrubs lovely, a blaze of the orange-coloured, trumpet-shaped blossoms of a *Bignonia* climbing amongst the dark green leaves and waxy white flowers of a *Datura* tree." The native gardener was very proud of his English Roses, of John Hopper especially so, and our visitors "returned laden with flowers and fruit,

* "A Lady's Travels Round the World." By F. D. Bridges. London: John Murray, 1883.

donkeys." From Saspool, on May 23, a sudden descent is made to the Indus, here a deep mountain torrent near a smiling village. In this sheltered nook of the Indus valley, Apricots, Apples, and even a small kind of Grape ripen, and two crops of Barley (which here replaces the Rice of the hot plains) are sometimes grown in the year. One certainly appreciates the force of the expression "living waters" here where outside the cleverly managed irrigation works of the village all is death and desolation. "We came on three nuns to-day in a corn field; their red dresses amongst the bright green Barley, under the Apricot blossoms, lit up by the setting sun, had quite a pre-Raphaelite effect." Leh is reached on May 24, after a hot ride over sandy hills and deserts, the Indus like a silver thread in the distance, till turning round a rocky point Leh rose before us, backed by the great town barrier, beyond which (forty days' march over which after crossing passes 10,000 feet high) lies Yarkand. The "Bhotas" of the Leh district are "happy and dirty and comfortable, each man growing his patch of Barley, which he year after year ploughs up with the help of his yaks, and clothing himself with the homespun wool of his lanky mountain sheep, not troubled by progress or moral advance of any sort. He drinks his 'chung,' a rough spirit prepared from Barley, and marries as many or as few wives as he chooses; but, being of a prudent turn of mind, he generally only takes shares in one along with his brothers, regulating the size of his family by that of his Barley field, investing his spare cash in large silver earrings or a gay cap to surmount his pigtail."

Hemys is described as a strange "huge pile of whitewashed buildings, grotesquely irregular in plan, studded all over with balconies, and verandahs, and gables, and windows, and rows of prayer-wheels, of which last there were said to have been 300,000 within the walls when the monastery was erected in A.D. 1644. A glacier stream rushes by the place, and here is an enormous cylinder on which prayers are inscribed which can, on occasion, be turned by water-power. Western visitors are perhaps a little apt to feel contempt for these mechanical contrivances used by the Lamas in their worship and "miracle" plays. Our authoress does not offer any opinion. Perhaps she remembered that their sheep's tails are uncut, and while looking on the revolving of the prayer cylinders, memories of the great organs blown by steam power in some of our own cathedrals at home may have flashed across her mind.

Three months' caravan journey from Leh is Lhasa, where the Grand Lama, a sort of archbishop, resides with a thousand of his devoted priesthood. The legend told to our authoress by a tea merchant who had arrived in Leh from Lhasa reminds one of those told of burly abbots and holy friars in the "merrie, merrie England" of early Norman times, when sherry, sack, or strong ale did duty for the "tea" and "chung" which flow always in the Grand Lama's palace at Lhasa. "Lhasa is almost the only place which is still forbidden ground to the traveller; only one Englishman, a Mr. Maning, has ever been inside its walls. He got there by great good luck in 1774 and left a short diary of his journey." *En route* to Hemys in a palanquin with 20 bearers must have been better than the ague and fever (albeit cheered by a present of lovely white Roses) brought on by over-exertion ere Leh was reached. "A lovely morning; the larks singing up in the clear air over the small patches of irrigated Barley as we threaded our way through the broad street of the mud-roofed town, where Tartar women were already astir. . . . Then out of the city gate, crowded with wild-looking mountaineers and their ponies, laden with fresh Apricots and dried Currants." Oil made from Apricot stones is here used as fuel for lamps in place of the Walnut oil of Kashmir.

On the Killian Pass (alt., 9000 feet) there are (as H. tells the authoress who awaits him at Leh) "Sedums and other flowers in great plenty—a pretty cream coloured sort in clumps, and a very pretty pink one, not the ordinary Himalayan Primrose, which was there also, and a lovely

white Sedum, like a pearl button with a white centre. Often the flower tufts looked like patches of tinted snow." At Barah, July 10, H. writes, "quantities of fruit everywhere," and on July 14 "we got to Yarkand, very fertile country, splendid Sycamore and Mulberry trees, Poplars and Willows (very like Hampshire but for the people and the crop). Away to the west fine blue mountains with snowy peaks. Rice, Cotton, Indian Corn, Grapes, Melons, and a profusion of fruit trees."

At Basga, a few hours' ride from Leh, it was so hot that tents were pitched under some Apricot trees, and brown hands offered the golden fruits of the harvest, which was everywhere being gathered in. The ride to Sonomarg (August 28) is described thus: "At first up a pretty mountain river, through an alpine glade, which two months ago must have been a real garden of flowers, brushwood, and clumps of dark Juniper, from which hang festoons of Clematis, and a lovely wild Rose with golden autumn leaves and brilliant with coral hips cover the 'savage sculpture of the rocks.'" Then comes a ride through some splendid Spruce Firs, up magnificent cliffs and shiny glaciers, looking down on a fairyland of flowers and Ferns, in which stood knee deep enormous Walnut and Sycamore trees. At Srinagar Trapa Nuts were being gathered from the lake, "but more beautiful than anything else was the Lotus, a glorified Water Lily, lifting its splendid rose-coloured flowers 2 feet or 3 feet above the water, each petal delicately tinted like a sea shell, and quite 3 inches long, and forming a magnificent goblet-shaped blossom, with a crown of golden stamens inside, more like the flowers one dreams of than anything one sees. A cluster of these giant Lilies rearing their grand rosy heads (which Hindoo legend relates owe their colour to the wound inflicted on Siva by the Love God) over an island of their own enormous, but delicately modelled leaves, some nearly 3 feet across, is a sight never to be forgotten. No wonder that Buddhism has adopted it as the symbol of sacred perfection, and enthrones as its type of human perfection Buddha on it. But long before the dawn of Buddhism, the most ancient of all mythologies, that of Egypt, had revered the beauty of the Lotus, and regarded it as the symbol of the universe; rising from its blossom, or crowned with its buds, the Apollo of Egyptian gods typified the victory of light over darkness, of good over evil. The birth of Harmachus was the first sunrise. Every morning, we are told, a boatload of Lotus blossoms is brought to the palace (at Srinagar), with which the Maharajah does 'poonjah,' and decorates the shrines of the Hindoo divinities in his private chapel. The blossoms we gathered drooped and faded almost before I had time to sketch them. Buddha was right to use the quickly fading beauty of the stately Lotus to illustrate the unpermanency of all things."

"On the Dal lake all the afternoon, but, alas! the Lotus flowers are faded; bright kingfishers were flitting about among their giant leaves, and wild Grapes were hanging in clusters high up the tall Poplar trees, and making triumphal arches across the narrow channels as our boat passed round the lake. A little further on is the village where the 'feast of Roses,' a sort of Rose or attar-selling carnival, is held annually."

The Resident's garden is a very paradise of plenty. "Half an acre of Tomatoes, some as large as Turnips; fruit trees, borne down by their crop of splendid Peaches; and trellised Vines, whose luxuriance reminds us of a night we once spent in a garden at Astrakan, where in the darkness, under the hanging Vines, we pulled down great cool bunches of scented Grapes, and ate them with an appetite sharpened by a week's voyage in a Russian steamer, where little else besides the caviare was eatable. Some October Peaches were sent us this morning from a celebrated fakir's garden, who cultivates his soul and his fruit trees with great ardour near Srinagar. As these holy men are supposed to command the weather, our friend had exceptional advantages for raising large fruit." At Darjeeling, in November, we read: "In these Himalayan regions the climate and foliage seem to change at every step; yesterday we were

down among the Tree Ferns and Orchids and tropical vegetation; and to-day we are in a Scotch world of Bracken, Club Moss, Lichens, and Blackberries."

Burmah, Penang, and Singapore are visited, and the delicious Pine-apples of the latter port are awarded much praise; not so the Durian, of Malacca, of which, no doubt, an unripe or half-rotten specimen was tried, for in Durian testing, as in other taste-forming experiments, all depends on a perfect fruit being tried. Next, a short voyage across to Java, where some experiences of Dutch hospitality were to be had, and visits to ancient temples in the jungle were made. These temples appear to be of the ninth or tenth century, and are attributed to the dissenting Janas from Western India, who united Buddhism with Hindooism, as shown by the ornamentation of these ruins. In the Botanical Gardens at Batavia, each tree (the "Upas" also there) was festooned with garlands of greenhouse Ferns and Orchids, and strange parasites up to the very top. Coca and Nutmegs were in fruit, and black swans from Australia sailed majestically among the Victoria and other crimson Water Lilies on the lake. The curator told the visitors that the climate was too hot for Orchids, which had to be sent up to the Buitenzorg garden, which is at a much higher elevation.

China is next visited, and in the garden of the temple devoted to statues of Buddha—still Buddha—lovely Chrysanthemums, soft white, pink, and creamy blossoms as large as Dahlias were in bloom in February here at home. These have been, with a "miniature forest of trees and plants," taken up from the open ground and thrust into pots for this religious usage. This is the celestial empire where it is etiquette for the husband to reply to kind inquiries after his wife by referring to her as a "stupid old Thorn bush." Here again in the gardens Buddha's favourite blossom, the Sacred Lotus, is plentiful. "These people believe that all good thoughts of mortals here below are turned into flowers in the land of enlightenment—red and white Lotus, which become daily more large and glorious as self-improvement of the person develops; and the soul of one who advances and never turns back may be already a dweller in the Land of Enlightenment, reposing on the Lotus flowers of good thoughts, though his body still sojourns in this transitory world." This was the late Canon Kingsley's view in some sort. Indeed, how small is the world of thought and of Nature after all.

Yokohama is reached on February 15, after a rough voyage from China in an American steamer, through "bright cold air and bright blue sea." Here again are temples—still Buddha—perched on a "picturesque knoll and shaded by grand old Pine trees, with an undergrowth of Camellias glowing with crimson blossoms. Many market gardens supply Yokohama with flowers—no such thing as artificial heat, but these clever people somehow manage to have flowers all the year round." This last sentence comes on us somewhat like a whole avalanche—a revelation, in fact. Here is a whole nation of gardeners using no fire heat, no sear-pent-like coils of iron piping, no coal bills, no glass, we presume, either, and yet flowers all the year round. And all this in a climate not much better, if not actually worse, than our own. But perhaps the Japanese have devoted thought and care to their own native blossoms rather than developed a craze for everything foreign, although just now even that doggie has bitten them a little, as we know. Our authoress enlightens us as to how they do these things in Japan. "By making pits open to the sun and covering them up at night with mats they get warmth. Now with frost every night is the season for fruit blossoms, and the rooms are decorated with branches of double Plum and Peach, which put into water when in bud continue to blossom for ever so long. But the prettiest flower decoration is a little old fruit tree with with black gnarled stem 2 feet or 3 feet high, uprooted and thrust into a dragon-painted pot of delightful blue china and then

forced into bloom. All sorts of shrubs and fruit trees are grown in all sorts of grotesque ways. The effect is charming; but the process of gardening, digging up the shrubs and Chrysanthemums without in the least injuring them, and growing Camellias from cuttings in the open ground as we do Laurels, we cannot understand. We saw a Camellia tree 20 feet high this frosty day being transplanted in full bloom; these people do anything with shrubs we dare not touch in a climate very much like our own."

At Kobe on March 27: "I sit in the sunny window of my sitting room, which Mosky has

market for twopence per pound in the season. There was also a triumph of art—a bit of bedding out, but one trusts the Japanese will not follow this foolish horticultural fashion. Large English Cabbages were a few years ago grown here as pot plants for decorative purposes, but are now sufficiently common to be eaten. The Japanese say, 'there is other snow than that which falls from the skies.' The double Azaleas (four blossoms in one) and the *Pyrus japonica*, with flowers as large as crown pieces, and the crimson-berried plants of the Heavenly Bamboo are lovely. Still, nothing has any perfume, not even the Violets, and we

country is charming; miles of pretty country like a wild park, small Oaks and tall Douglas Firs, familiar wildflowers and grassy glades . . . pretty little homesteads standing in Cherry orchards, covered with Roses and Woodbine, from which healthy English cottage children in sun bonnets looked out while the rosy British matron hung clothes on the drying line."

At Yale, in British Columbia, "the mighty forests of Hemlock and Douglas Spruce are magnificent, and out on the rocks the large-blossomed *Syringa*, now in full bloom, and clusters of Monks-hood and dwarf *Arbutus* and *Mahonia* are lovely."

At Yosemite the heat was very great, and dust and trout both very plentiful. Lake Tahoe was more promising—once the crater of a volcano, now a lake—and here were "wild flowers new to us; blue *Pentstemon* and scarlet *Columbine* grew on the river bank."

At Salt Lake rich crops of Maize and Wheat were seen, but the practical Mormons do not grow many flowers. Denver city and the silver mines, and of course the Colorado springs, were visited. Denver is a two-year-old city of 20,000 inhabitants, and no Chinese. The latter have so far been kept away by notices, "All Chinamen will be shot." "The wild flowers of Colorado are strange and beautiful—great *Yuccas* and giant Cactus plants. Some of the latter are said to be 20 feet high; forests of Sunflowers of a size undreamed of even by an aesthetic decorator, and masses of the white horned Poppy and lovely blue *Columbine*." From a garden lover's point of view this book is a remarkably good one, as the preceding extracts well prove it to be, but the fair authoress has also given us clear views on many other things of human interest. As a work of travel it is a remarkable one, and, what is more, original in many ways. In a word, it is a thoroughly good book, well written and fairly well illustrated, and one which author and publisher alike may feel proud to have issued. F. W. B.

GARDEN IN THE HOUSE.

PRIMROSES FOR DINNER-TABLE DECORATION.

DURING what is termed the London season a considerable number of gardeners are still directly or indirectly interested in the adornment of their employers' dinner table. In a few cases, to my knowledge, either the head gardener or the foreman travels to town with a large supply of choice fruits, flowers, and foliage whenever a dinner party is given and decorates the table. Still more, gardeners of my acquaintance receive instructions from their employers or some responsible person to forward by an early train a sufficiency of Moss, Ferns, and flowers for a table of a given size, and these are arranged by the lady or ladies of the establishment, a groom of the chambers, butler, or under-butler. At the same time there are many ladies and gentlemen who prefer to engage the services of a professional decorator, especially when it is considered desirable that the entrance hall and other prominent positions should be beautified with groups of plants. Others, again, and these comprise by no means a small number, are less ambitious, and are content with the outcome of an early visit to Covent Garden Market by the butler or under-butler. Doubtless professional decorators may in some respects be considered the most successful; nor is this to be wondered at, seeing the varied practice they are constantly having, the abundance of material, and the skilled assistance at their disposal. When I say successful, I mean as regards the completeness and grandeur of their displays, but after all that is said in their favour the professional touches are still strikingly apparent; in fact, their performances are too artificial. A liberal employment of wired flowers and fine foliage, either in masses on the cloth or in vases, and the groups of plants may strike the observer as being "grand," but such encomiums are not so satisfactory to me as the almost involuntary ejaculations, "Oh! how ex-



Heavenly Bamboo (Nandina domestica). Clusters of crimson berries.

adorned with a branch of Camellia, another of *Pyrus japonica*, and a long spray of Cherry blossom in a very high art blue china jar. Bouquet and jar together make a School of Art design, and the entire cost is eightpence. How to arrange flowers is one of the items of a Japanese young lady's education, and they certainly do it marvellously well." On the hills near are "long avenues of tall Pines, and then out amongst the cornfields, and by a pretty village, each house standing in a long garden with generally a small Cherry tree in glorious blossom, and a plant of the Heavenly Bamboo close by." In the Government Botanical Gardens experiments on European fruits and vegetables were being made. "Strawberries have been a great success, and can be bought in the

feel sure our south of England flowers are as beautiful."

San Francisco, and good wholesome food once more. Strawberries and cream, Apricots, Green Peas, honey, green Corn, Boston brown bread, Wheat cakes—a confusion of good things for people just come from a long sea voyage. "The cornfields of California are more productive than its gold mines; but even there bountiful Nature is getting somewhat tired of yielding four crops of Clover in a year without the aid of artificial manure, simply by pouring water on the rich ground, and emigrants are pushing up northwest," but what, when further west is no more? At Victoria, where protective duty has nearly succeeded in banishing trade, the surrounding

treribly pretty." Now, of all decorators, ladies generally display the greatest taste, and when they choose to exert themselves a charming effect is the result. Gardeners are too apt to indulge in

Carpet bed arrangements of highly coloured, fanciful designs, and of these, bright and complete as they may be, people with good taste take little or no heed beyond perhaps agreeing with the minority that they are very bright, and wonder where all the material comes from. Only recently I heard a gentleman's valet boast of being competent to form a fresh design for the dinner-table for any number of consecutive nights, these variously coloured designs including lions, dogs, and other animals, coats of arms, and various other extraordinary devices. Such miserably formal productions might answer for a prize model flower garden arrangement, but are altogether out of place on the dinner table. Some gardeners employ, and advise others to employ, a considerable number of plants for the decoration of the dinner table—whole groups, in fact—while at flower shows tall March stands, including the flowers, standing 3 feet high, are invariably encouraged by the judges. Well grown and in some respects suitable the plants may be, and there is no disputing the fact of the vases being most charmingly filled; but those who advocate the employment of one or both should remember that those for whose delectation they are arranged will be seated at the table, and that therefore anything tall will be ineffective, while any heavy plant or banks of plants will prove positively annoying. People do not meet at the dinner table to eat and drink only; on the contrary, they wish to enjoy the society not merely of their immediate neighbours, but also of those on the opposite side, and above all that of the host and hostess. Consequently,

Decorations should be low and light to be effective, and yet not interfere with the comfort of the guests. The choicest of choice flowers need not necessarily be employed; on the contrary, the commonest of common flowers may easily be made the means of giving far greater pleasure. Nothing can be more common than Primroses, and as far as my experience goes no flower excels them for the purpose of ornamenting the dinner table. They are within the reach of all, as those who are not in a position to arrange for a given quantity to be sent up from the country can, at a trifling cost, procure large quantities in Covent Garden Market, or through the agency of a florist or greengrocer. A dozen bunches seldom cost more than 1s. 3d., and at this date they can be bought much cheaper, and being surrounded by their own beautifully green foliage are ready for immediate use, no other greenery being required beyond, perhaps, a bed of Moss. Bunches of the latter again may be bought cheaply, five shillings' worth being ample for the majority of tables. Long wreaths of Ivy are also obtainable, and can be most effectively employed in connection with wild flowers. Primroses alone are scarcely commendable to all tastes, and with them may well be employed a few dozen trusses of zonal Pelargonium blooms or those of Rhododendrons, Azaleas, Bouvardias, Begonias, Polyanthes, or other similarly brightly coloured flowers, any of which can also be procured at a comparatively cheap rate in Covent Garden early on the mornings of Tuesdays, Thursdays, and Saturdays. How we have arranged such flowers, and

and blooms of *Imantophyllum miniatum* with part of the stems attached. On the table for which these were destined were to be four candlesticks and a silver centrepiece. About the latter I arranged for four low vases filled with the *Imantophyllum* and *Spiraea* blooms, and the foliage of the latter for greenery to be placed. Two of the branching candlesticks (and those with shades only ought to be admitted near the dinner table) were to be disposed at equal distances on each side of the centrepiece and through the centre of the table. The bases of these were surrounded, but not hidden, by Moss, which, being fringed with Ivy, formed a good groundwork for the Pelargonium trusses and a little *Spiraea* foliage. To complete the centre, two plants of *Dracæna gracilis* were employed. These, which were in 5-inch pots, were set on flat circular trays about 12 inches in diameter, and disposed between the pairs of candlesticks. The pots were banked over with Moss; Ivy was circled round the base, taking care to arrange the leaves as naturally as possible on the cloth; more sprays of Ivy were worked in, and then bunches of Primroses completed the banks. Twelve dessert dishes were allowed on the table, one at each end, and the others five on each side opposite the candlesticks and centrepiece. In a line with and between the dessert dishes were placed in small plates, seedling plants in 3-inch pots of *Blechnum covadense*, and these also had their pots mossed over. A narrow band of Moss was then made to connect these twelve small plants, an outward curve being given in front of each dessert dish, taking care, however, not to infringe on the space required for the plates or the comfort of the guests. Bunches of Primroses were then imbedded in the Moss so as to face outwardly. Ivy leaves fringed the outer side, and, with the addition of a choice button-hole bouquet for each guest, the arrangement was complete. If the materials had to be bought a difficulty would probably have been experienced in procuring the small seedling Ferns, and as a substitute or by

Way of a change. I would bed small fish globes in the Moss, and fill these with cut blooms of such flowers as Azaleas, Bouvardias, Anemones, with a frond of Maiden-hair Fern. This style of decoration may be modified to suit a table of any size and varied nightly, not necessarily with regard to the materials, but the design, and it admits of the utilisation of a considerable quantity of common flowers, such as those of bedding Pelargoniums, always abundant at this time of the year, these being fixed with liquid gum, or they travel badly, and afterwards disposed each in one of its own leaves. Rhododendrons are wonderfully effective by candlelight, and with abundance of these or Roses beautiful combinations can easily be arranged on the cloth. I have thus attempted to point out to dwellers in London, with or without resources for supplying flowers for the table, a cheap and simple method of decorating, and for the present must leave them to improve on the suggestions here offered. One arrangement leads to another, and those who delight in the work are seldom at a loss for an idea. I ought not to omit advising those who send or who receive flowers, and Primroses in particular, to place them in dishes of water a few hours prior to packing or use. The water which they then absorb materially increases the duration of freshness. W. J. M.

Digging shrubbery borders.—During the recent fine days Hyde Park has looked pretty with its dappling of Crocuses over the Grass; but still the long and wide shrubberies are bad to look at, with the dug borders and besom-like shrubs. We have often said there is no need whatever for this, and that the needed change can only be wrought by ceasing digging altogether after the proper preparations are made. Mr. Burbidge, writing to us yesterday, says that during the five years he has been in the College Gardens at Dublin he has never dug a border. Annual top-dressing makes his plants grow better than they ever would

in the dug border, provided proper preparations are made at first.

FLOWER GARDEN.

NARCISSUS TELAMONIUS.

IN a certain Greek play, Teucer, the brother of Ajax major, and son of Telamon, somewhat disrespectfully speaks of his father as an ill-tempered old man, getting into a rage at nothing; so we may conclude that his anger would have been moved very often by seeing his name wrongly spelt in the gardening journals. The connexion, however, between this mythical King of Salamis and the common double Daffodil of gardens is merely fanciful, and the name was given, I think, by Haworth to this flower as the chief of the Daffodils, because Telamon was the head of the Ajax family at the time of the Trojan war. There is no doubt about the double Daffodil to which Haworth applies this name. It is probably one of the most generally distributed of garden flowers throughout temperate Europe. Parkinson has given its history; he calls it Wilmer's great double Daffodil, and informs us that it first flowered in the garden of one Wilmer, in the city of London, in the year 1621. It appears to have increased rapidly, for within a few years, and before the year 1629, in which Parkinson's "Paradise" was published, Mr. Wilmer seems to have distributed bulbs to several friends, including Parkinson himself and one Vincent Sion. This latter gentleman, greatly to Parkinson's disgust, brought out the Daffodil under his own name, which it bears to this day in Holland, appearing every year advertised in the well-known catalogue of Anthony Roozen, of Haarlem, by the name of Van Sion. Now, as raising a new double Daffodil seems to be a very rare achievement amongst gardeners, we may suppose, in the absence of evidence to the contrary, that all the large double garden Daffodils of this kind in cultivation are the offspring of this one bulb. It is true that within definite limits the form of the flower varies, and that semi-double and full double forms are equally common, but these are due merely to accidents of soil and cultivation, and are not persistent varieties. But, although Parkinson gives us this history of the double N. Telamonius, he informs us that neither he nor the raiser could tell anything of its pedigree, and to this day it is uncertain which of the many large forms of single yellow Daffodil was the parent of it and has the best claim to the name of Telamonius as the head of the family. Parkinson calls these large single Daffodils "Spanish," and we know that for a generation or two before his time there had been abundant intercourse, both friendly and hostile, between this country and Spain, and it is likely enough that they may have been introduced by Spaniards. Still, evidence that Spain is their native country would be interesting. Mr. Peter Barr tells me he has never received any of them direct from Spain, nor have I found any mention of anyone who has seen them growing wild or collected them in Spain. For many generations the bulb farms of Holland have been the chief, if not the only, source from which English gardens have been supplied with them. But, considering the great vigour of the common double Daffodil, and the readiness and persistence with which it becomes established in orchards and meadows, we might reasonably expect to find its single form established in similar situations, especially if it was in general cultivation before the now far commoner double form originated. If, however, we except the Tenby Daffodil, which certainly does not represent N. Telamonius, it is very hard to find an ancient colony in England of any single Trumpet Daffodil but the common wild one. The form and habit to be expected in the single Telamonius may be inferred from looking at those flowers which for some reason or other have nearly reverted from the double to the single form, and these are not very scarce. We find that the colour of the trumpet is considerably darker than that of the perianth or outer petals, and this requirement ex-

How they may be arranged. I will endeavour to briefly state. I recently collected upwards of 300 bunches of Primroses, each bunch containing about thirty blooms, and neatly surrounded by their foliage. They were packed in two Grape baskets closely and in layers, a sheet of packing paper being between each layer. A hamper was also three parts filled with clean green Moss, and on this was coiled a considerable quantity of the prettiest pieces of climbing wild Ivy procurable. Another box was filled with trusses of blooms of the rich pink-coloured semi-double zonal Pelargonium Madame Thibaut, a quantity of *Spiraea japonica* blooms and foliage,

cludes from the competition the so-called Spanish Daffodils, which are all selfs—that is to say, the colour of the different parts of the flower varies very little. If it were not for this, a variety called by Mr. Barr N. spurius might be the best claimant. It is a very fine free flowering kind, largely grown in Holland, and largely imported to this country as Trumpet major. Mr. Barr's N. major bears considerable resemblance to this, but is far less commonly met with, and indeed in my garden it thrives badly and makes very few flowers. I have a Daffodil corresponding in all its parts to N. spurius, but differing in the colour of the outer petals, which are much lighter than the trumpet. This is another claimant for the name Telamonius. It will be remarked by those who have studied Mr. Barr's last catalogue that the single Telamonius is not included in the list; but Mr. Barr warns me not to judge of the extent of his collection from the names in the catalogue, as he often holds some regiments in reserve for a season for the purpose of recruiting, and such is at present the case with the kind in question. Within the last few years he has received from Italy (where it grows wild in the Vale of the Arno) a Daffodil which seems more likely to be the origin of the common double garden kind than any we have before seen; and after all, Italy and not Spain may be the native country of these large Daffodils. Still, their natural history and pedigree is as yet by no means certain; and anyone who can throw light upon them by recording the habitat either in England or on the Continent of any large single Daffodil will be able to do a service to horticultural science.

C. WOLLEY DOD.

Llandudno.

SELF OR BICOLOR DAFFODILS.

ARE all Daffodils bicolor? Are there any selfs? Now, in the first place, as Mr. Burbidge excludes whites, I suppose he admits that there are white selfs. If not, then I say positively that both moschatus and tortuosus are such. Now, if there are self whites, why not self yellows? The only reason I can imagine is that the action of light bleaches the thinner outer perianth segments, and they thus become paler. In this way yellows have in process of time become bicolor, culminating in such marked varieties as Horsfieldi. But if you take a self yellow, such as obvallaris—the Tenby Daffodil—and flower it, as I did, without any artificial heat in a quiet overhead light, it comes perfectly self-coloured when viewed fairly. There were no conditions stated in Mr. Burbidge's challenge, and I won his kettle fairly, as it is only in this way that absolute purity of colour is obtainable. I have already stated that several competent persons witnessed this test of colour, and these declared that I fulfilled the conditions and proved my case. I do not wish to place the names on record, but I could show Mr. Burbidge two letters from very leading Narcissus growers who say I won the kettle. Of course, as he constituted himself sole judge, and drew his own conditions himself, and only at the time of judging, he can easily save his kettle; but I think he would have done better to have sent it on with a suitable inscription for my museum. Your correspondent "Rho," who is an Oxford scholar and no mean florist, was here yesterday, and as we had hosts of Tenbys in bloom, he examined them critically, and we found one clump especially in a quiet corner wherein almost all were selfs. He very decidedly pronounced these blooms as being true selfs, the tube or crown and the perianth segments being of precisely the same colour. Mr. Archer-Hind writes me to the same effect. He says: "I say with you that the Tenby is self-coloured, the slight difference, as you point out, being due to the thicker substance of the trumpet." Mr. Ewbank also considers I have won the kettle. However, I consider I have proved that practically there are both self whites and self yellows, and this was what I had in view.

Brockhurst, Didsbury.

W. BROCKBANK.

having slipped out of the florists' catalogues and being lost to our gardens. Mr. Krelage wrote me from Haarlem to say he had many of them and would offer me bulbs in the autumn, but when that time arrived I had a letter to say that unfortunately he could not carry out his promise, most of his stock also having dwindled away. My experience in other directions leads me to feel sure that all these Scillas may yet be recovered in old-fashioned gardens, and I hope a search will be made and the stray varieties recovered if possible. The large double variety which I had discovered amongst our clumps here, and which I called S. b. maxima fl.-pl., is again in flower and is likely to prove a very fine variety. A lady sent me from Ireland last year three bulbs of a large variety, and these were marked off accordingly. Oddly enough, one came up this spring with two leaves, quite correctly; the second had three, and the third four leaves, but there was nothing remarkable about the flower. Perhaps the transplanting altered its character, and we may get finer flowers and the proper count of leaves next season.—BROCKHURST, Didsbury.

The Sultan's Balsam (Impatiens Sultani).

—Of all decorative plants of recent introduction this is one of the neatest in habit, easiest of culture, and most floriferous. It may be termed a perpetual bloomer, since it has flowered here ever



Impatiens Sultani.

since last November, when I procured a small plant from Messrs. Veitch. Even quite small cuttings commence to flower as soon as roots are emitted, and as its propagation by cuttings is very easy, a stock of nice little plants is readily kept up. In habit it is better and more floriferous than its ally, I. alba, but it would be interesting to know what the result of a cross between these two plants would yield in the way of a hybrid. I know the experiment has already been tried, but one must wait a little longer perhaps for results to develop. The annexed sketch shows an average flower natural size, and being bright rosy red, it follows that plants 12 inches in height bearing a dozen or more such flowers are pretty little objects for either the conservatory or dinner-table decoration. Of all perennial Balsams this seems to be the best and most useful.—VERONICA.

Erica carnea.—During the latter part of the winter and in early spring this Heath is at its best, being then thickly studded with pale red blossoms. The fact of its flowering at this time brings it into prominence, as there is then so little in the open ground; besides, it is a very accommodating plant, and generally succeeds well in ordinary garden soil, unless too much shaded by trees, and even in that matter it is not very particular, as when partially shaded it often

thrives satisfactorily. It is, however, most at home when employed in company with others to form an outer fringe to groups of the larger Ericaceæ, for which its low spreading growth eminently fits it.—ALPHA.

THE VARIETIES OF FREESIA.

THE flowers of Freesias received the other day, from Mr. Gumbleton we sent to Dr. Foster, of Cambridge, who is at present paying a good deal of attention to that genus. Concerning the flowers sent, he writes as follows: Mr. Gumbleton's form with the membranous spathe valve is the true F. Leichtlini of Klatt. The figure in *Gartenflora* which illustrates Klatt's description is not a good one; it misled me at first, but I sent a specimen of what is ordinarily called F. Leichtlini to Max Leichtlin, and he said he believed it was true, but he had distributed seedlings as well as offsets from his original form, and these he thought might have varied a good deal. The history of F. Leichtlini is this: Max Leichtlin found it growing in the Botanic Garden at Padua and took it home to Baden, where Klatt saw it, and then described it. Max Leichtlin has kindly given me an offset from his original bulb; this will be in flower in a few days, and then I can say exactly and positively what it is. I cannot find the authority for the term "aurea." I have a deep yellow form with a tendency to violet splashing, and mouth not patent, small flower, and green spathe valves; this I have always taken to be what is usually called aurea. Mr. Gumbleton's form with membranous valves makes another kind. Mr. Smith, of Guernsey, sent me some time back a form with greenish yellow flowers and spathe valves not only membranous, but long-pointed and diverging rapidly, so as to expose even the unripe ovary, whereas in the other forms (and indeed in Mr. Gumbleton's also) the ovary is not exposed until it is considerably swollen. This form of Smith's (in which as well the stigma was not raised above the anthers, as in other forms) answers very well indeed to Redouté's *Gladiolus refractus* (Redouté's *Gladiolus xanthopilus* is F. refracta alba with purple anthers; in nearly all the F. refracta alba there is a tendency in the anthers towards purple or violet before opening). I thought at first these narrow divergent spathe valves might serve to give it a specific distinction, but in going over the herbarium at Kew I found so many indications of intermediate forms that I gave up the idea. This form of Mr. Gumbleton's is intermediate between Smith's form and my aurea. Either the genus must be split up into a number of species, which will probably in the end number some twenty or thirty, or we must call them all one species. Here is an illustration. The ripening ovary in F. refracta alba is very warty and the grooves well marked; that of aurea is nearly smooth and almost globular. F. Leichtlini is just about half-way between the two—less warty and less grooved than the one, but more so than the other.

BEGONIAS FOR BEDDING.

ALLOW me to warn those who would wish to succeed with tuberous Begonias in the open air against starting them in heat or of relying upon young plants raised in spring from seed. These latter will bloom fairly well, but not with sufficient freedom to render them really effective, neither will they come into flower until quite late in the season. Young plants should be set out in good soil in June, so that they may make good growth, and the following year they will be in prime condition for bedding out. Started in heat, they require much care in hardening off, and I do not think they are ever so robust or grow away with such freedom as when allowed to start naturally. It is also a bad plan to pot the tubers, as more labour and worse results are thereby incurred. Most cultivators consider the potting of plants which have eventually to be planted out to be an evil, and there is no doubt about its being so in the case of Begonias, as rooting naturally when strong very freely, they are apt to form coils

Scilla bifolia.—Last year about this date (*GARDEN*, April 1, p. 212) I directed attention to this *Scilla*, many of the sorts which I enumerated

of roots, and the soil becomes matted with fibres before they can be turned out of their pots. A far better plan is to set the tubers out at once in good, free, rather light soil in a cold frame in a sunny position far enough apart that they may have room enough to develop until the time comes for their removal into the open air. A frame is far better than a cool greenhouse, as the lights can be pushed off on fine days and left off on fine nights. Growth thus made will not be so rapid as when the plants are kept closer, but it will be of greater substance and in every way better fitted to withstand the variable weather we so often experience during the early summer months. Lifted carefully and placed in position promptly, there will be no flagging and scarcely any check; watered in well should the weather prove dry, the roots will lay hold of the ground in the course of forty-eight hours. One word in conclusion by way of caution: do not use raw manure for Begonias; they do not like it; rather mix a few handfuls of some fertiliser with the soil—some powerful, yet safe stimulant. J. C. B.

THE FORKED SPLEENWORT AND OTHER RARE PLANTS IN CARNARVONSHIRE.

WHILST spending Easter with a friend at Gwydyr-ucha I was delighted to be shown several fine specimens of the forked Spleenwort, now one of our rarest Ferns, growing on an old wall, where long may it remain hidden from the keen eyes of botanical collectors and plant exterminators. Formerly the primitive old bridge of Llanrrost was literally covered with this Fern, but, alas! its exposure doomed it to sudden destruction, for there is not now a vestige of it left. In other parts of the Gwydyr estate, where this Fern once grew plentifully, it was fast becoming exterminated, and would no doubt soon have become a thing of the past had not Mr. McIntyre, of Gwydyr-ucha (agent for the Gwydyr estate), who saw its pending doom, put a stop to its complete eradication. It is now rarely to be met with in places where it was once abundant; indeed the finding of a plant is considered quite a prize, although we were fortunate enough last season to discover the mountain habitat of a few specimens—remnants, no doubt, of once a goodly number, and relics of a bygone day. It is well known, at least to those interested in the cultivation of native Ferns, that the forked Spleenwort is rather a difficult subject to deal with as a pot plant, being especially sensitive to damp at the crown; but the great master, Nature, has now taught us a lesson from which we hope to derive great benefit. A careful examination of the dry stone wall revealed the secret that these rare Ferns only grew on the perpendicular, in which position they were securely guarded from excessive moisture at either crown or root. The soil in which they grew was simply an accumulation of dust from time to time formed in layers between the stones of the wall, and without the least trace of lime. We had also noticed this Fern's choice of a perpendicular position in its mountain home, as well as the shady position in which it loved to grow. Another rare and beautiful plant found in the same district is *Dryas octopetala*, and still further on the now almost extinct Mountain Tulip (*Lloydia serotina*) finds a home. The latter plant is found nowhere in Britain save in one or two small colonies here on the Welsh mountains, and, happy to relate, in positions almost inaccessible. It seems almost a pity that the natural tendency of small isolated colonies of plants is to die gradually out, for the constitution becomes so enfeebled and weak by constant in-breeding with one another that almost imperceptibly they dwindle away, lacking a healthy infusion of fresh external blood. I am afraid, however, that this will not be the case with our Welsh plants, as already a goodly number of the *Lloydia* has been ruthlessly carried off by the desecrating hands of plant collectors, not to flourish, for we have it on the best authority that not a specimen taken is now to the fore.

THE CHRISTMAS ROSE.

(HELLEBORUS NIGER ANGUSTIFOLIUS.)

"F. W. B." is determined on fastening an Irish name on an English or Scotch garden favourite. Time will show if he has power to over-ride our English prejudices. I say he has no right to do this, because it is in no sense an Irish plant. It is not to be had from Irish nurserymen; it was not at Glasnevin three months ago; and it is not to be found in the great majority of Irish gardens. St. Brigid's is the principal exception. I believe I have done more to distribute this Christmas Rose than most people, as many English amateurs know. It grows here in quantity, and has done so for years. All my neighbours have it, and I know where it is grown by the acre. It is an old friend, but I take no credit for this, as all my knowledge of the Christmas Roses came originally from Miss Hope, and it was a surprise to me to find that the plant which "Veronica" was writing up was this old favourite of Miss Hope's. The plant needs no new name. Nobody grows the wild Christmas Rose (*H. niger*), except in botanic gardens. This is our old Christmas Rose, and so let it be. I know neither "St. Brigid" nor "Veronica," so there is nothing personal whatever in my remarks. No doubt they are both worthy florists, but, for all that, the Christmas Rose is far more our property than theirs. W. BROCKBANK.

Brockhurst, Didsbury.

NOMENCLATURE OF PLANTS.

I AM not interested in the controversy between Mr. Brockbank and Mr. Burbidge regarding the right of the latter to give an English name to *Helleborus angustifolius*. All popular English names of plants must have been given in the first instance by some individual, and why should not Mr. Burbidge originate a name as well as any other? But, as in more important matters, though "all things may be lawful, all things may not be expedient," and I certainly more than doubt the expediency of any attempt to supersede scientific names by so-called popular names. These latter have been the source of much confusion. They lack the authority derived from general consent. They frequently have merely a local recognition, and are known in different places by as many aliases as though their characters were of doubtful reputation. They are palpably useless for international correspondence or information; and their use, either to the formal or the practical superseding of the scientific name, is a backward step to the days of our grandmothers or great grandmothers. Against all this I ask what advantage is gained by trying to impose a brand new popular (?) name on a plant already sufficiently known and differentiated by a scientific name? If this thing spreads and becomes the fashion, as there are indications, as a part of supposed æsthetic simplicity, the inconvenience will be very considerable to anyone who fails (in what I allow is his duty) to read diligently his weekly copy of *THE GARDEN*. It was but a short time since that I was posed for some time by the mention in your columns of "the Rush Lily." There was no mark of identification, and only that I had been diligent in the discharge of the aforesaid duty, I should never have known that in a previous number someone had so designated *Sisyrinchium grandiflorum*. This same plant has also recently furnished an example of the arbitrariness and confusion of so-called popular names, inasmuch as someone else contends for the suitability of the title "the Satin Flower." I must, therefore, enter my protest against the supercession of scientific names of plants except in those cases, which are not a few, where the English name is so thoroughly familiar as to be unmistakable. Everyone knows what is meant by a Christmas Rose, and no harm happens from so calling *Helleborus niger*. But I confess I do not see the utility of giving, or the pre-eminent claim on the part of *Helleborus angustifolius* to receive a new English name. I read the first steps which may lead us, in the case of plants, into the labyrinthine confusion of popular names, of which Hogg's

"Fruit Manual" furnishes so appalling an example in the case of Apples and Pears.

FREDERICK TYMONS (Clk.).

Cloghran, Co. Dublin.

Narcissus Bulbocodium.—"Echo's" note, like several others which have recently appeared in gardening journals, conveys the idea that this *Narcissus* can only be successfully grown in pots and under protection from frost, but this is not so. Under proper management I consider it to be perfectly hardy, and the main thing is to plant it in light soil, where it is thoroughly dry after blooming time. We have many patches of it here which have lived for years, and one of these yielded abundance of seeds last summer. After this unusually severe weather I find it coming up again quite strongly, and there are plenty of buds visible. In a new lot of bulbs supplied by Mr. Hartland, of Cork, and which we have grown in pots, there are at least three well-marked varieties of the common Hoop Petticoat, confirming "Echo's" remark that there are in Spain many distinct varieties, and that this species may prove variable, as will the common Daffodil.—BROCKHURST, *Didsbury*.

Narcissus minor.—In almost every instance where this name has latterly been used it refers to the variety which Mr. Barr calls *nanus*. A woodcut of *N. minor*, illustrating Mr. Wolley Dod's paper, appeared two weeks since in the *Gardeners' Chronicle*, and Mr. Barr wrote the following week that the portrait was that of *nanus* and not the true *minor*. At my request he very kindly sent me blooms of each variety, as I have *N. minor* here from half a dozen different growers, and so far every one of them differs from Mr. Barr's *minor*, and agrees with his *nanus*. The inference is that Mr. Barr is wrong, and that he had better alter his two names, as he is against everybody. Perhaps he will give his authorities for the names he has adopted. Miss Owen refers to *N. minor* in her note (p. 318) on March flowers, but her variety is Mr. Barr's names, as I have a good deal of it grown from bulbs sent from her garden some years ago. As *nanus* is smaller than *minor*, it appears as if a mistake had crept in somewhere in the nomenclature.—BROCKHURST, *Didsbury*.

Chrysanthemums out of doors.—Plant in a good soil and keep the plants securely staked from the first. They are increased by means of cuttings and division in spring, and it is well to provide a new stock every year, destroying the old stock when a sufficient number of cuttings has been obtained. In order to insure fine flowers, the soil should be well manured and the plants freely watered, and the shoots should be reduced to six for each plant at the utmost. The top flower-bud on each shoot should alone be allowed to remain after the buds have become fairly visible. Though stopping does increase the number of shoots, yet it causes the plants to flower later than they would do if not stopped. Very much has been said in books about stopping. It may be well to mention here that *Chrysanthemums* for out of doors ought never to be stopped. Some of the best *Chrysanthemums* are: Early-flowering varieties—Aureole, Bois Duval, Bolide, Fred Pelé, Gold Button, Nanum, Jardin des Plantes, Chromatella, Précocité, and St. Mary. Large-flowering varieties—Annie Salter, Emblem, White Globe, John Salter, Sam Weller, Progne, and Prince Alfred. Pompones—General Canrobert, Rose d'Amour, White Trevenna, Brown Cedo Nulli, and Kenilworth.—A. E. HALL.

Spring Anemones.—"Veronica" need not despair of obtaining good Crown Anemone seed. There are many fine strains of these Anemones, or perhaps I should rather say a fine strain is being widely grown, producing large, finely formed flowers of many hues; some are intense crimson and scarlet, while others are cerise, magenta, purple, and blue, and others, again, are handsomely flaked. Then there are many white flowers, others white with a blue or red base; in fact, variety amongst these flowers seems endless, and all are

Llandegai, Bangor.

A. D. WEBSTER.

singularly beautiful. As regards culture, I may mention that I sow under glass, lift the seedlings when strong enough to handle, and then dibble them out into a bed of well-prepared soil where they are to bloom. Anemones rather like plenty of sun heat, and seldom suffer if they get a good roasting during the summer months. I have a sowing now just up, and plants from it put out about the end of May will yield a grand lot of bloom during the autumn, winter, and early spring. From the present season's flowering, also, I shall save seed as soon as it is ripe. The plants from this sowing will bloom finely late next spring, or indeed I need not say late, as now beds from a summer sowing are not only blooming freely, but were producing flowers plentifully in February.—A. D.

Narcissus tortuosus.—My good friend Mr. Brockbank has recently described this Daffodil, and seems to have sufficient confidence in his opinion to arbitrate on the genuineness or spuriousness of all rival claimants to the name. I will not differ from him, but will merely call attention to the fact that the names of the white-flowered section of Daffodils are in worse confusion than those of any other section of this much-disputed class. Mr. Brockbank tells us that the flower he describes is the whitest of the Daffodils, and that it is figured in Curtis's *Botanical Magazine*, 32, No. 1300. So far I agree with him, but when he tells us that this is the tortuosus of authors, and that it is so-called because it twists its perianth petals, I find that different authorities do not agree. Dean Herbert, for instance, in his "Amaryllidaceæ" (page 303) follows Linnaeus in making *moschatus* the generic name for all white-flowered Ajax Daffodils, but gives the name *candissimus* to Curtis's fig. 1300, mentioning tortuous segments as one of its characters. The name of tortuosus he gives (professing to follow Haworth) to fig. 924 of Curtis's *Botanical Magazine*, a larger and less white variety. Mr. Peter Barr, whom for the present I am content to follow on this matter of names, as he has given great attention to the subject, is less confident than Mr. Brockbank. Tortuosus does not appear in his 1882 catalogue, but in that of 1881 it is described as "primrose trumpet, white perianth," referring to the same plant, I suppose, as that described under the name by Dean Herbert. These Daffodils ought to be seen growing together by the thousand to enable us rightly to distinguish their characters.—C. WOLLEY DOD, *Llandudno*.

NOTES ON BIRDS

In the Garden, Sheen Lodge, Richmond Park.

(Continued from p. 303.)

I HAVE entered in my "garden book" the name of every kind of bird which I have noted there, distinguishing the permanent dwellers from the occasional residents, and the latter according to the periods of their temporary sojourn, whether to breed or to feed—in other words, the summer and winter visitors.

The list, however, would have been incomplete without the aid of my lamented friend, John Gould. It was ever with him a favourite summer afternoon's holiday, after a ramble in the park, to pass an hour in the garden. On one of these occasions, in early June, we rested on a seat over-shadowed by a Weeping Ash, but allowing a view of the lawn. With us, on that occasion, was my equally dear and lamented friend, W. J. Broderip.* Happening to show them my ornithological list at that date, Gould said, "You have got more birds in the garden than I see here."

He possessed in a remarkable degree the faculty of imitating the various notes of all our vocal species. He bade us sit still and be silent; then began. After emitting a particular "motivo" for a few minutes, he would quietly point to a little bird which had flown from an adjoining bush upon the lawn, and was there hopping inquisitively to and fro, gradually nearing the locality

of its specific song. We could then recognise the species to which Gould gave the name. This attraction and its result was repeated; and we enjoyed the same instructive amusement in subsequent summer vacations, to which I am indebted for additions that would otherwise probably have escaped my observation.

The following is my latest list of birds seen in the garden of Sheen Lodge, Richmond Park:—

SPARROW HAWK (*Falco nisus*), **HEN HARRIER** (*Falco cyaneus*).—These raptorial I have noted soaring over the garden in wheeling flight with outstretched, seemingly motionless, wings and fan-like tail. It needs cautious concealment to enjoy the spectacle, and especially to witness a downward swoop on some unlucky passerine. A forward step upon the lawn or gravel walk is discerned at a great altitude by the circling soarer, who thereupon darts straight away and is speedily lost in space.

WHITE or BARN OWL (*Strix flammea*), **BROWN OWL** (*Strix aluco*).—Both these nocturnal birds occasionally, the latter rarely, proclaim their presence by their "screech" or their "hoot," or they may glide into view in their noiseless flight. In the park-discipline they are included in the list of birds to be extirpated by the keepers.

A pair of white owls had, nevertheless, by themselves or successors, kept possession of an ancient Oak long enough to leave a considerable deposit of pellets and remains of their prey at the bottom of the hollow trunk. The late head-keeper, Mr. Sawyer, requested me to examine this collection for evidence of the poaching practices of the owl. The majority of the bones and teeth which I extricated from the debris were of field mice or voles (*Arvicola agrestis*), and of shrews (*Sorex araneus*), there were a few young rats (*Mus rattus*); also many sparrows which had been abroad too late at night, or too early at dawn, and with them were a few young thrushes or blackbirds. I searched in vain for any evidence of partridge or pheasant; there were some remains of small rabbits. These rodents abound in unwelcome numbers in the park, and on their scanty remains only could the charge of destroying game be laid to the owls. I drew up a memorial in favour of the nocturnal raptorial, the balance of good enormously exceeding the exceptional damage, but it was feared it might loosen the discipline of the staff if they were exempted from any part of the old accustomed extirpating duties.

I was surprised at the length of time, indicated by the remains of many meals, during which the owls had baffled the keen quest and practised eyes of the keepers. To one of them, my neighbour, I remarked, "And you have never traced your supposed enemy as he flits, ghost-like, as silently as snowflakes fall, to his hiding-place at early dawn?" "Oh, yes, sir, we have found that out with some of 'em, but not with our eyes." "How, then?" "Why, sir, by our ears, and in broad daylight; they do snore so when fast asleep!" In truth, the owls are the only stertorous birds with which I have made acquaintance.

NIGHT-JAR, OR CHURN OWL (*Caprimulgus europæus*).—I owe an occasional sight and more frequent hearing of this strange bird to the advantageous location of my garden and abode. Close to it begins a preserve, which extends along the eastern boundary of the park to near Roehampton Gate. On one side of the preserve is the park with old Oaks; on the other side is the quietest and least frequented of commons, hight "Pale-well" from the spring of pure water rising therein. No cultivation is carried on outside the garden wall. Such are the conditions suitable to the night-jar's singular habit of oviposition and hatching of the eggs, usually a pair, on the bare ground; of nest-building the bird seems ignorant. She selects some bare spot with which her own colours so closely match that she is hard to recognise even when you are near, and she is so hardy that you may stand and contemplate her for some time, and may have to move a step or two nearer before she takes to flight. Since my first acquaintance I have never disturbed mother or eggs, but always quietly retired when I have come in view of them.

And, so retiring, I have marvelled at the seeming knowledge possessed by the bird of her own tints, and have pondered upon the instinct which has guided her choice of the limited patch of ground best according with them. If a night-jar possessed the strange faculty of the chameleon, the trout, or the cuttle fish, and was able to change its colour to that of the spot on which it rests and nidificates, the explanation of the baffling correspondence would be easy; but the mystery of the colorific movements in the skin and of the volition, conscious or unconscious, which the chameleons obey, remains. I have generally recognised the advent in May of this migratory bird by its singular jarring note. But when its favourite food, the large moths and chaffers, abounds, its active wheeling flight about the old Oaks is remarkable.

Gilbert White writes: "This bird sometimes makes a small squeak, repeated four or five times, and I have observed that to happen when the cock has been pursuing the hen in a toying way through the boughs of a tree." I have not been so fortunate, and have commonly both lost sight and hearing of the night-jar after the month of August.

GREEN WOODPECKER (*Picus viridis*).—Of the woodpeckers we have three kinds in the park; but of these one only, the handsomest and largest, has visited the lawn here at early morn, to attack the ants' nests which here and there may deface it.

The little **NUTHATCH** (*Sitta cæsia*) makes its home and hides its winter store in the old Elm grove leading to my gate. There I hear it occasionally, hammering away or quickly repeating its single note; but, for near inspection, I am indebted to its visits in the depth of hard winter. Then a crumb breakfast is scattered beneath the verandah, which attracts the sparrows chiefly; but usually also a single nuthatch, contrasting with the crowd by its glossy plumage, would come down, and, seizing always the largest morsel, fly at once away with it to its store, returning perhaps a second or third time for the same purpose. The cock sparrow gives way to it, but I once saw a fight with a cock-robin, who resented the intruder. The combatants made repeated springs into the air, pecking at each other, but the nuthatch always finally made good its possession of the coveted crumb.

CUCKOO (*Cuculus canorus*).—I have evidence every summer of the rearing of one of its offspring in the garden. My attention was drawn one July morning to what seemed to be a dirty greyish clout on a distant part of the lawn, a neglect, I thought, of the gardener. But before walking on I noticed an active little bird occasionally hopping up to the clout; so, stopping to watch more attentively, I saw the bird evidently supplying the object with the insects it picked up, and then I observed a reciprocal movement of the thing so fed. Slowly and cautiously advancing, I made out that this was a well-grown young cuckoo lying with both wings outspread on the green. The little feeder was the hedge warbler. This first took flight on my approach, and its huge spurious offspring lazily followed, flapping its way into the adjoining shrubbery to its foster-parent's abode.

In relation to the question whether the cuckoo lays more than one egg during the breeding season, I obtained a female bird shortly after its arrival. On dissection I found one ovum in the oviduct, situated in the terminal "calcifying" segment, "uterus" so-called, with the shell partially formed. The rest of the oviduct was disposed in close transverse folds not exceeding two lines in diameter. The ovary contained one yolk-ovum, nearly half an inch in diameter, with a cluster of minute germs. I concluded that the larger one would pass into the oviduct when that tube was disburdened of the egg which it was then perfecting; and, as a corollary, that though the parasitic bird would not deposit the second egg in the same nest as the first, it might occasion a similar trouble to another little mother, hedge warbler or wag-tail, as the case might be. The systematic murder of the legitimate occupants of the nest by the callow intruder, who shoves them over the brim one after the other, has been abundantly

* Stipendiary magistrate at the Thames Police Office, author of "Recreations in Natural History."

confirmed since Jenner's discovery of that strange instinct.*

One grieves to make any note affecting the pleasant associations with that of the cuckoo; but truth must be told of the nature of the bird. In it both conjugal and parental instincts are alike depraved. The female bird indicates her desires by short, monotonous, impatient quacks; Jenner compared them to those of the dabchick. She gads about attended by two or three males. One recognises no sign of a constant pair—nothing to remind us of wedded attachment or mutual help, such as we see with pleasure in our small warblers. Neither sex of the cuckoo spends time on a nesting abode, and yet they have as much summer leisure at command as the nightingales. Their illegitimate offspring is abandoned, like Rousseau's, to the charity and care of strangers; and its first instinct when hatched is murderous, and that under revolting conditions, the victims being the legitimate children of the deceived foster-parent. I know of no phenomena of living species that perplex the conscience with darker thoughts—with more sombre speculations as to origin and cause—than those of the cuckoo.

RICHARD OWEN.

GARDEN FLORA.

PLATE CCCLXXXIV.

NYMPHÆAS.†

THE annexed plate is a good representation of two of the most beautiful of Water Lilies. The blue flowered species, *Nymphaea gigantea*, has long been an inmate of our gardens, though from some cause or other it does not produce flowers of such large size as it is known to do in its native habitat. The minor form represented here is, however, a most beautiful Lily, and from its free blooming and lasting characters it may safely be pronounced superior to any other blue-flowered kind at present known, the numerous petals of clear porcelain blue which open out much wider than those of most *Nymphæas*, and display a large mass of bright yellow stamens, remaining expanded all day, a character not possessed by any other species. The splendour of the large form has been a subject of comment with all who have had the good fortune to see it growing in the lakes and rivers of Australia. A lake in front of the Parliament houses at Brisbane is literally covered with the dark green leaves and blue flowers of this *Nymphaea*, and the beautiful and artistic representation of this species among the collection of pictures painted by Miss North excites almost as much admiration as the grand picture of the Victoria regia, also in the same collection, and enables lovers of *Nymphæas* to perceive what a magnificent Lily this is when the large forms are fully developed. The plate in the *Botanical Magazine* which appeared thirty years ago is a faithful representation of *N. gigantea*, taken, however, from dried specimens. Seeds of this plant were introduced at that time as those of a new Victoria, *V. Fitzroyana*, and in 1855 plants were in flower in the nurseries of M. Louis Van Houtte. Much disappointment has been, and indeed continues to be caused, by the failure of this plant to attain its full dimensions under cultivation—both tubers and seeds, which have again and again been imported as the largest form, invariably proving to be nothing better than those already possessed. The question which naturally suggests itself on these repeated failures is—are we right in our

treatment? is there not some hitch, some flaw somewhere in the cultural management? It seems incredible that collectors should have always failed to procure the large form; and it is most disappointing that, notwithstanding so many attempts, this sister to the Victoria is still a desideratum in our gardens. Mr. Bentham describes *N. gigantea* as being a very variable species, having flowers of white, rose, and purple colours as well as the typical blue, whilst their size varies from 6 inches to 1 foot across. The foliage, too, on the largest forms measures 2 feet across, and has a turned-up rim of 2 inches all round, as may be seen in Miss North's picture. The plant which flowered at Kew was a recently imported one, and appears to be larger than that known as *N. gigantea* var. minor. From this plant our drawing was made. The tubers of this species are long and thick, with eyes scattered over their surface in the same way as those of Potatoes. It requires a tropical tank and thrives best in a well manured loam. Whether grown in pots or planted out, the crowns should be about 2 feet from the surface, as this species likes to be grown rather deep in the water.

N. flava, the yellow North American Water Lily, is of recent introduction, and, beyond mere mention in a catalogue of North American plants recently published, there is neither record nor figure of this species in any botanical work known to us. Strange to say, a figure of this plant exists in Audubon's work, the "Birds of America." We are therefore pleased to direct attention to this beautiful *Nymphæa*, which, both from its hardiness and colour, unique in the genus to which it belongs, is destined to become very popular. In the old Lily house at Kew several large specimens of it have borne a quantity of flowers, and, comparing these plants with those cultivated out of doors, we should recommend indoor treatment for this plant where obtainable. It has been recorded that *N. flava* stood out of doors in the winter of 1880-81 and bore flowers the following season; no doubt need, therefore, be entertained of the plant being hardy in this country. Unlike the rest of the *Nymphæas*, this species reproduces itself by means of long stolon-like rhizomes, from which at intervals a bud is pushed forth. No tuber appears to be formed, from which it will be evident that the drying-off treatment to which other species are often subjected would prove fatal to this one. Our system is to keep the plants growing in a temperate house all winter; in the spring to shake them out of the old soil and re-pot in a good loamy soil, taking off any of the smaller pieces for stock. If grown out of doors, this species should be placed at a good depth in the water, so as to be out of the reach of severe frost. The fast-spreading desire for *Nymphæas* and other aquatic plants has resulted in the introduction of many kinds, some of which are distinct species, while others are but forms of already well-known kinds to which a new name has been attached. It may be well, therefore, to offer a few notes on those known to be in cultivation, pointing out the affinities of each with a view to reducing the large number of names now in existence, and furnishing further information as to the merits of some of the kinds at present but little known. I may say that so far as

The botanical classification of *Nymphæas* is concerned, there appears to be wide differences of opinion as to what are species and what are but geographical forms of other species,

some authorities reducing them to about twenty distinct species, while others make of them at least fifty or sixty. The genus has such a wide geographical range, and from its nature and mode of reproduction capable of being carried to such great distances by means of water, birds, &c., that one would expect to find great variety of form and colour. The modification of such characters under different conditions as regards heat, light, and soil is bound to be conspicuously apparent in this genus, so that those botanists who adopt the minimum number as that which embraces the whole of the distinct species are most likely nearest the mark. If we take our *N. alba*, we find that the variations in size and colour are very wide, the varieties *rosea*, *cashmeriana*, and *candidissima* being well-known examples, while *N. Lotus*, *N. stellata* and, as already alluded to, *N. gigantea* show the same disposition to vary considerably. Although for garden purposes it may not be necessary to stand too much on botanical characters, I shall place the different forms in cultivation under their respective species, as by so doing one gains a better knowledge of the characters and variety of each. Commencing with our own

N. alba, whose grace and beauty give so much interest to our lakes and streams, whose delicious fragrance greets us in our rambles through country scenes, we have a Water Lily of the greatest value to the cultivator, from the way in which it may be employed for the ornamentation of pools and streams, for our aquaria, and for the usefulness of its flowers. The charms of this Lily have been the theme of many beautiful lines of poetry. Moore, in his "Lalla Rookh," thus describes the opening of these flowers in the morn and closing at night:—

Those virgin Lilies all the night
Bathing their beauties in the lake,
That they may rise more fresh and bright
When their beloved sun's awake.

The Japanese, it is said, employ the flowers of white Water Lilies in the funerals of young persons as emblems of purity. The cultivation of this *Nymphæa* is so easily accomplished, that one often wonders at the bareness of lakes and ornamental water about residences where it might be, and indeed often is, employed with excellent effect. To sow the seeds all that is necessary is to envelop them in clay and then sink them in the water, where they will soon germinate and take root, after which all the attention they require is to keep them from being choked by other water plants.

The variety *rosea*, sometimes called *N. sphærocarpa* and *N. caspary*, was figured in these pages (see Vol. XV.). It is a native of Northern Europe, and has been found so far north as Sweden. It flowered at Kew in 1878, and since then has become fairly well known. It is a delicate kind, and, strange to say, the flowers do not always come rose-coloured; one of our finest hardy *Nymphæas*, but at present not well understood in regard to its cultural requirements. We grow ours in a large pot, placed in the outdoor tank in the summer and during winter sheltered in a frame.

The variety *candidissima* is a large pure white-flowered form, very floriferous, with flowers over 12 inches in diameter when well expanded. It thrives under hardy treatment, but is best when cultivated in an indoor tank. At Chatsworth it is grown well in this way.

N. odorata.—This white flowered North American species is hardy in this country, where it has been long known. The flowers are 6 inches in

* See his paper "On the Natural History of the Cuckoo," in the *Philosophical Transactions*, 1775.

† The annexed plate was prepared from plants which flowered at Kew in August last.



diameter, and open in the morning, closing in the afternoon. It thrives well under the same treatment as that advised for *N. alba*. In the extreme north of the United States occurs a beautiful rose-coloured variety, tubers of which were introduced last year and flowered both out of doors and in the tropical tank at Kew. This variety is equal in beauty to the rose-coloured *alba*, and is sure to become a popular plant. A small white variety, with leaves and flowers 2 inches in diameter, also occurs in the United States, but, so far as I know, this is not yet in cultivation here. Another variety called *N. nitida* is a small white-flowered form of long introduction.

N. tuberosa, is a third North American species with white flowers. It resembles the last mentioned in both floral and leaf characters, differing in the shape of the root-stock and in having small lateral tubers on the side of the larger ones. The habit of pushing up its central leaves above the water and almost perpendicular to it is a distinguishing characteristic of this species. It is quite hardy in this country.

N. Lotus.—This is the well-known sacred Egyptian Water Lily, which is held in the utmost reverence by the inhabitants of the Nile regions. Its distribution ranges over the Nile regions, Northern Africa, Indian Archipelago, Madagascar, and Southern Europe. From this it may be expected that this species shows great variation, and from the large number of forms which have been considered specifically distinct, it will be seen that such is the case. The leaves of the commonest form measure 9 inches across, are pubescent and purple coloured beneath and toothed. The flowers measure as much as 9 inches in diameter when fully expanded and are sweet scented. In colour this species varies from deep scarlet to pure white, and in the size of the flowers from 2 inches to 9 inches across. Both in shape and size the foliage varies considerably, some forms measuring only 2 inches in diameter, while others reach as much as 1 foot, with intermediate sizes. *N. Ortgiesiana* is placed under *N. Lotus*, as also are *N. sagittata*, pubescens, rubra, Boucheana, dentata, and the hybrid *devoniensis* which was raised at Chatsworth from the var. rubra and the type. This fine *Nymphæa* is one of the grandest of the whole genus, its large scarlet flowers being 8 inches in diameter and very sweet scented. It is a very free flowering variety, producing its gorgeous blossoms in abundance from May until October. The leaves of this variety are also of large dimensions, measuring on strong plants 18 inches across. The variety Boucheana is a seedling from the same parents as the Chatsworth plant was raised from, the flowers in this form being pale rose with a deeper rose tint suffusing the broad stout petals. The rather broad deep yellow stamens contrast well with the rose of the petals. It is a very fine variety. *N. Ortgiesiana* was raised from the vars. rubra and dentata, and resembles *devoniensis* with the exception of the petals being striped with a deeper scarlet. It is also a free blooming kind. A beautiful white flowered variety is known as *N. dentata*, a large flowered form, and an excellent companion to the scarlet ones. The underside of the foliage of this *Nymphæa* lacks the purple colouring found in most of the *Lotus* forms. Being a tropical species, *N. Lotus* and all its varieties require water heated to from 70° to 80°.

N. thermalis.—This fine *Nymphæa* is a native of Hungary, and bears so close a resemblance to

the Egyptian one as to have been mistaken for that species. In the *Botanical Magazine* and Andrew's "Repository" it is figured under the name *N. Lotus*. It may be distinguished from the large forms of that species by the absence of hairs on the undersides of the leaves, and the large depression in the crown of the germen. From a horticultural point of view, however, there is very little to choose between the two species. *N. thermalis* bears large white, sweet-scented flowers, which open in the afternoon and remain so all night, closing in the morning.

N. stellata.—In the warmer parts of India and Southern Africa this *Nymphæa* is plentifully met with. Forms of it are known under the following names: *N. cœrulea*, capensis, parviflora, versicolor, cyanea, scutifolia, micrantha, and madagascariensis. The hybrid *N. Daubeniana* is most likely only a large flowered variety of this variable species. The prevailing colour in the flowers of the above-mentioned kinds is blue in its various shades. The type plant is a first-class *Nymphæa* having leaves orbicular in form, with a plain or sometimes slightly undulated margin and blotched with purple beneath. The flowers are about 6 inches wide with tapering petals, which are azure blue at the base, becoming darker near the tips. The stamens are yellowish. These flowers are very sweet scented, and are freely produced during the summer months. The variety cyanea has flowers of a smaller size than the last mentioned, blue, and not so fragrant as most *Nymphæas* are. Versicolor is distinguished by its numerous stamens and the variety of colours it presents, blue, purple, flesh-coloured, and white flowers being borne by forms of this variety. *Cœrulea* is the common blue *Nymphæa* of the Cape of Good Hope; it has flowers 4 inches in diameter, fragrant, deep blue, with numerous stamens, the filaments of which are yellow, while the anthers are dull blue. The foliage in this form is heart shaped and of a clear shining green above, blotched, as in the typical form, with purple on the under side. *Daubeniana* is a very beautiful form of *N. stellata* of garden origin, and is one of the freest blooming of Water Lilies. The flowers are of good size, pale blue with a large bunch of yellow-blue tipped stamens, and sweetly scented. It grows very rapidly, and on strong plants dozens, almost hundreds, of flowers are borne in a season.

N. zanzibarensis is a new introduction of great promise. I have not had the pleasure of seeing the large blue flowers it is said to bear, but from the high praise bestowed on it in these pages and elsewhere there can be no doubt of its possessing qualities of a high order. The flowers are said to be 9 inches in diameter, and characterised by a purple margin to the green sepals which surround the numerous deep blue petals. These flowers are said to last on the plant several days, and are borne in twos and threes. They are also described as possessing the excellent character of remaining expanded all day, a character the lacking of which is the only drawback in most of the Water Lilies. Possibly this noble plant is an unusually fine form of the Cape species, *N. stellata*.

N. pygmæa is a pretty little species from India, China, &c., which may be grown out-of-doors in the summer, requiring only protection from severe frosts to maintain it in health. The leaves of this small water gem are not much larger than half-a-crown, while the flowers are about the size of a shilling. From its smallness and sturdy

nature this plant may be recommended for those small window aquaria for which plants are often inquired after in these pages. With the water frequently changed there is no reason why this plant should not succeed.

N. Rudgeana is the only species, exclusive of *N. flava*, with anything like an approach to yellow in the colour of its flowers. It is generally known as *N. blanda*, and has been figured as *N. amazonica*, or rather what is but a form of *N. Rudgeana*. It is a native of the New World, being plentiful in Brazil, Guiana, and Jamaica. From the last-mentioned place tubers were received at Glasnevin, and flowered there for the first time in this country. In the "Flore des Serres," t. 1086, there is a figure of this species which represents it very much finer than I have ever seen it either as regards the colour of the flowers or size of leaf. The normal size of the flowers of *N. Rudgeana* is about 4 inches in diameter, while that of the foliage varies from 5 inches to 8 inches across. The flowers are yellowish white, rather muddy looking, very fragrant, and generally open late in the evening.

N. ampla.—A large-leaved white-flowered Water Lily from Jamaica, where it is common in the ponds and lagoons. The foliage is almost round, green above, deep red below, and deeply notched round the margin. The flowers are pushed up above the water and open in the morning, closing at noon—a fine sweet-scented free-blooming *Nymphæa*. This completes the list of cultivated *Nymphæas* of which anything is known. There are plants in gardens under such names as *N. pœcilis* and *N. biradiata*, of which I know nothing, and I am not aware that Mr. F. Miles, who has these two plants growing in his collection, has flowered them. So far as is known, there are no *Nymphæas* to introduce whose claims on the horticulturist are superior to those we now possess, always, of course, excluding the large form of *N. gigantea*.

The cultivation of Water Lilies is so simple, that in gardens of even the most modest pretensions some of these plants may be grown without much difficulty. Where space cannot be spared for a tank, a large tub or a number of tubs may be used with satisfactory results for *Nymphæas*, as is proved by the success of Mr. Lynch at Cambridge, and others who grow them in this way. A large tank such as *Nymphæas* are grown in at Kew, Oxford, Chatsworth, and elsewhere, where these plants are one of the most attractive features during the summer season, is, however, the most desirable place for them, the plants thriving better looking more at home, and being seen to better advantage than is possible where tubs are used. To my mind there is no more charming picture to be seen in gardens than a large, well-grown collection of *Nymphæas* growing together and intermingling their handsome flowers, rich odours, and variously formed leaves; and if other aquatic plants are grown along with them and a few graceful plants, such as *Cyperus*, *Cannas*, *Musas*, are tastefully arranged here and there among the *Nymphæas*, they add greatly to the effect. In some gardens it is the practice to dry off the *Nymphæas* and rest them during winter, and where the tank is wanted for other plants at this season this practice may be adopted. It is, however, by no means a safe one, the tubers often succumbing to dry rot similar to what attacks *Caladiums*; still, if the temperature of the water is gradually lowered and the water gradually run

off so that the decay of the foliage may not be too rapid, the tubers will then ripen and may be taken out of the soil and stored in sand in a warm place, or they may be left in the soil and the pots placed under the stage in any warm house where they can be watched and a little water be given when the soil gets over dry. In March the tubers may be repotted in a mixture of rich loam, cow manure, and rough sand, and placed in their positions for the summer. Large pots should be used, as *Nymphaeas* are best let alone when once they have started into growth. A temperature of from 65° to 75° will suit all *Nymphaeas*, though, of course, the cool or hardy ones will do in a lower one. It may be mentioned as an instance of the readiness with which these plants adapt themselves to altered conditions as regards temperature that the cool species thrive as well, in some cases even better, in a warm tank than out of doors, and do not appear to be exhausted or in any way weakened thereby. *N. flava* is much better when grown indoors, as has already been mentioned, and the North American and other hardy kinds are known to grow and flower excellently in the same tank as the tropical *Lotus*, *gigantea*, *minor*, and others are grown in at Oxford.

The importation of *Nymphaeas* may be accomplished either by means of tubers or seeds. Tubers should be gathered at the end of the flowering season and packed in damp earth or Moss. Seeds may be sent dry in their capsules, or, better still, in clay, in which they should be enveloped and sent in a moist state. They also travel well in bottles of water. They germinate freely enough when sown in soil and submerged in water at a temperature of about 70°. At Oxford Mr. Baxter preserves his seeds through the winter in bottles of water, which are placed in a shady corner in a warm house. Treated in this way they germinate in the bottles, and in the spring they are pricked out in pans of soil and placed in the tank. It has been suggested that by judicious hybridising there seems no reason why the beautiful colours known only to the tropical kinds might not be seen in hardy ones, and certainly the rich blue of *N. gigantea*, *N. cœrulea*, and *N. stellata*, the bright reds and pinks of *N. Lotus* and its varieties would be a valuable acquisition in our hardy aquaria and lakes. In *N. alba* var. *rosea* we have already a beautiful rose-coloured hardy Water Lily, and another rose-coloured kind (*N. odorata* var. *rubra*) has also been raised, which, according to its lucky raiser (M. Lebeuf), is superior to *N. alba rosea*. B.

The ventilators on the Embankment.

—These are very ugly! It would be impossible to see anything more condemnatory of the mode of managing this greatest of cities than these ugly openings, vomiting forth poisonous vapours in the midst of a pleasant garden. It is only a few years since those gardens were secured for the public, as we thought, for ever, and now by means of a "private bill" they are spoiled by an ugly structure, the purpose of which is letting out foul air. The effect on the garden is very bad indeed, but we trust it may have one good effect in drawing attention to the way in which the public gardens of London are liable to spoliation. After this it will be difficult to surprise us. In the two best and largest gardens the ventilators are built in the very centre of the "landscape," ruining it in that respect alone, apart altogether from the ugliness of the courtyard-like structures, and the clouds of steam and currents of impure air which escape from them.

SEASONABLE WORK.

FLORAL DECORATIONS.

GARDENIAS will now be yielding an abundant supply of their highly fragrant flowers. We find it a good plan to cut them before they are fully expanded, as thus treated they keep their colour longer. Flowers that begin to open early in the morning are fit to cut the same day. If it is desired to keep any for a few days they should be put into a cool, dark place till wanted. Where the stock of plants is large and healthy the best plan is to cut them with stems sufficient to secure some of their own foliage, than which nothing with which they can be associated is so suitable. They may be arranged effectively in a flat glass dish in company with buds of *Madame Falcot* Rose, a little fresh Moss or *Selaginella* making a nice groundwork for them. *Stephanotis*, which will now be coming on fast, may be arranged in a similar manner with the same kind of Rose, or with a pink or dark red variety instead. The *Flamingo* Plant (*Anthurium Scherzerianum*) is now expanding its showy spathes, but it is a pity to cut them except for very special occasions. They look best, perhaps, when cut, arranged in specimen glasses with a spike or two of *Hoteia japonica* and fronds of a durable Fern, such as the smaller kinds of *Davallia*. Spikes of either *Lachenalia tricolor* or *pendula* we find to be most serviceable, and also very durable in a cut state. They associate well with white *Azaleas*, *Deutzia gracilis*, and a dark self-coloured *Cineraria*. Lately we have used the same spikes in several different arrangements, finding them to keep so well. For specimen glasses *Camellias* are still doing excellent service, and trusses of *Azalea mollis* make a pleasing change. For entwining around the slender stems of glass vases, or for suspending from tall trumpet vases or epergnes, an excellent subject is just now in perfection, viz., *Chorozema Chandleri*, than which nothing in the way of a conservatory climber is prettier at this season of the year. We have it here festooned over an arch about 10 feet high, allowing it full freedom of growth. From this plant we often cut long sprays for the purposes just named. For coat flowers or button-hole bouquets there is now an abundance of appropriate material from which to select. Buds of Tea-scented *Roses* are always admired, and among the very best are *Souvenir d'un Ami*, *Niphetos*, *Madame Falcot*, and *Josephine Malton*. Small sprays of *Epacris Eclipse* are also very effective when nicely arranged. *Carnation Grenadin* is just now becoming invaluable for this kind of work.

PROPAGATING.

Selaginellas.—The propagation of these is generally regarded as but a simple matter, which is indeed true as regards the majority of them, but there are a few that are rather difficult to increase. All the creeping kinds may be divided to any extent desired, and the more woody ones, such as *africana*, *Wallichii*, *Lobbi*, and *Wildenowii*, may be broken up and separated into as many pieces as have roots attached to them. Cuttings of the branches, too, of these large growing kinds may be put in, and if kept moist and close for a time soon root. Difficulty is often experienced, however, with the propagation of those Fern-like kinds in which the young fronds are unfolded from a single crown, and which therefore do not admit of division. Concerning this latter class, of which involvens and *paradoxa* may be cited as examples, cut off some of the fronds, and lay them on the surface of well drained pots or pans, filled with light sandy soil, securing them in their positions with small pegs, in order that the undersides of the fronds may press on the soil; then place them in a close case, and keep them moist. Atmospheric moisture alone will keep the fronds fresh, when after a time buds will be developed on various parts of their upper surface; from these roots will descend, and thus young plants will be formed, which when large enough must be pricked off. Besides this, *Selaginellas* may be raised from spores, which in the majority

of cases are freely produced. These spores should be sown and treated in every way the same as those of Ferns.

Stove plants, such as *Dipladenias*, *Franciscas*, *Stephanotis*, *Rondeletias*, *Gardenias*, and others, may now be struck from cuttings made of the young shoots; they must not be allowed to flag, and therefore it is best to cut off but a few at a time. After inserting them, give them a good watering and keep them close and shaded. That useful Palm, *Rhapis flabelliformis*, may now be increased by division. With a little care the old plant may be turned out of its pot and the suckers removed, repotting the plant. In taking off the suckers make sure that roots are attached to them before separating them. Use good, loamy soil, with a slight admixture of sand, put them in as small pots as possible, and plunge them in a gentle hot-bed.

Double Primulas intended for division in about a fortnight will be the better now for being thoroughly cleansed and kept rather close till that time, as by so doing the formation of roots is hastened; indeed, after being so treated it is often possible to see the young roots just protruding from the exposed parts of the stem.

Cantuas.—These pretty, but seldom seen, plants strike freely at this time if the cuttings are made entirely of the current year's growth, which will now be in a soft condition. If allowed to get hard they remain a long time without rooting, while the young soft shoots strike root in about a fortnight.

Tuberous *Begonias* will now require pricking off in pots or pans of good light soil, that is to say, seedlings of them, while tubers started a month ago will in many cases have grown sufficiently long for the tops to be taken as cuttings if required. When put in keep them close and shaded, but do not over-water them, as they are somewhat liable to damp. The useful double *Matricaria inodora* is rather difficult to winter, but those that survive, turned out of their pots now and divided into as many pieces as possible, will soon yield a good stock if placed in a cold frame, where they grow away freely.

FLOWER GARDEN.

Chamærops Fortunei (*Chusan Palm*).—This, though classed and cultivated as a greenhouse Palm, having in many parts of the kingdom withstood without or with but a slight amount of protection the recent rigorous winters, may now, we think, be included in the hardy list; at any rate, it may safely be classed as one of the hardiest among plants suited for sub-tropical bedding, a purpose for which it has proved invaluable, being specially effective in isolated positions on turf, as a recess plant, or for breaking the sometimes unavoidable formality that exists when a number of beds have to be arranged in a restricted space. Plants of it when used for the latter purpose must be grown in large pots or tubs, and be given house room in winter; but where permanent effect is desired, the situation a sheltered one, and the sub-soil well drained, then by all means plant out. A couple of plants of this useful Palm have withstood all weathers in Hants since 1869; they are now nearly 14 feet high, and in the most luxuriant growth. Even small plants of it, too, have just as successfully defied our sharp winters. Moderately stiff loam is the soil in which they appear to do best, and when planted out it is necessary to apply a fresh top-dressing of this annually. Those in pots or tubs, however, do not need this if during the summer they are given manure water once a week. They are raised from seeds, which germinate in about a month if afforded a bottom heat of 75°.

Herbaceous borders.—All plants in these will now be above ground, and therefore as soon as the necessary digging and manuring have been done all vacant plots should be filled up with *Gladioli*, *Hollyhocks*, *Campanulas*, *Antirrhinums*, *Pentstemons*, *Foxgloves*, *Violas*, *Pinks*, *Sunflowers*, *Sweet Peas*, and other suitable annuals. The whole of the border should be lightly forked over, and

stakes should be placed to kinds liable to be injured by winds or heavy rains. Delphiniums, Dielytras, and the flower-stems of Geums are among those that at the present time need support. Any bare spots near the margins of borders should be sown with Mignonette, Virginian Stocks, and dwarf Silenes, or, as soon as weather permits, be planted with Lobelias, variegated Mesembryanthemums, Verbenas, and Heliotropes.

Planting hardy bedders.—In order to keep pace with the work to be done at the general planting-out time, every kind of plant that can now be put out should be so. Edgings and groundworks consisting of hardy Sedums, Saxifrages, and Cerastiums are what we are now planting; next will come Violas, Verbenas, Calceolarias, the hardier succulents, and Golden Feather Pyrethrum, and when these have all been planted the remaining vacant plots will be labelled and the plants put out as soon as they can be safely exposed. Meanwhile some of the plots will have special attention as to soil; those for Alternantheras will be given a dressing of half-decayed leaf-mould and horse droppings; plots for Calceolarias, Violas, Fuchsias, and Verbenas will receive an extra good dressing of manure, and all the plots will be forked up and left rough till planted, in order that they may be subjected to the ameliorating influences of sun and wind.

General work.—Cuttings of tender kinds of bedding plants may still be put in, others may be potted off, and so should seedling sub-tropical plants. The earliest sown Castor-oils and Solanums will now require a shift into 5-inch pots; old roots of Cannas must be divided, potted, and placed in warmth, and in order to make room for these gradually remove from the pits all the kinds that will stand a degree or two of frost. Tuberous Begonias should now be started into growth. Plant them in boxes, placing the tubers about 3 inches apart. The soil should be at least half leaf-mould; they will then transplant with abundance of fibres. Seedlings of the present year to be of much service during the coming summer will still need all the heat that can be afforded them, and about the middle of May they may be removed to cooler quarters. Our experience in the use of the current year's seedlings of these plants is such, that to any who may be depending on plants of that age we would say, "Don't." Be content to wait another year, and in the meantime grow on the seedlings as vigorously as possible; the tubers will then be in good order for next summer's arrangements. Tubers or roots of every other kind should also now be taken out of their winter quarters, and be placed in pits to start them steadily into growth. In the open air the most pressing duties are the completion of pruning shrubs and hedges, and the placing of supports to and mulching the roots of recently moved trees, an operation which the still continued cold weather renders necessary. Newly-sown lawns should be frequently rolled, and if neatness be valued, do not neglect to mow, and also to dress with soot or wood-ashes any portions of the turf that have a sickly hue.

INDOOR PLANTS.

Daphne indica.—Young or medium-sized plants that have done flowering should at once be placed in an intermediate temperature, for if only treated as ordinary greenhouse stock the progress they make is slow, and the flowers they produce small and wanting in quantity. As to the amount of pot room given, it is necessary to adopt a medium course, for although this Daphne cannot bear over-potting, yet if the opposite extreme is followed, it gets into a stunted condition, out of which it is difficult to move it. Old examples are much benefited by the use of weak manure water at the time when they are making growth.

Room plants.—These are now in such general request that sufficient must be provided to meet the demand. In the selection of varieties, particularly of such as are grown for their handsome leaves, it is advisable to choose those that are capable of keeping up a healthy appearance

under the adverse conditions by which they will be surrounded. Amongst the species and varieties that will bear the atmosphere of living rooms where gas or oil is burnt are some of the hardier kinds of Palms, the green and variegated forms of Aspidistra, the India-rubber plant, and small growing green kinds of Dracæna that will thrive in a greenhouse, such as *D. congesta*, *D. lineata*, and *D. rubra*. The Aspidistra may be increased by division of its creeping underground stems now when commencing growth. The Palms are raised from seed, but their propagation is better left to those who raise them in large numbers. Small plants beginning to show their natural habit can be kept in a healthy state in very little pots by the use of manure water through the summer season whilst the most active growth is going on. Palms will grow in almost any description of soil, but where they are to be subjected to the rough usage indispensable from being located in rooms, loam imparts more substance to the foliage. The India-rubber is easily increased from cuttings made of the young shoots with some two or three leaves each; they will root if kept confined under a propagating glass either with or without heat, but where they can have warmth the rooting process will be sooner effected. Each spring a sufficient quantity of this description of stock, to take the place of that which gets too large, ought to be provided. Amongst Ferns that will bear full exposure to the atmosphere of a room may be mentioned *Davallia canariensis*, *Adiantum cuneatum*, *A. pubescens*, *Pteris serrulata*, and some of the crested forms of this Fern which attain a much larger size than the type, and *P. cretica* and its variegated variety. These, if regularly supplied with water and allowed to make their growth in the rooms in which they are to be kept, will produce fronds of a hard, enduring character that will last much better than those that are grown in plant houses and afterwards moved to the rooms.

Pelargoniums.—Exception is often taken to the formally-trained examples of the large-flowered and fancy varieties of these plants seen at exhibitions, and for ordinary decorative purposes it is not necessary nor desirable to either grow them to the size of exhibition plants or attempt the same form of training. But in other matters the general cultivator will do well to adopt the treatment that the exhibitors follow, which is first to induce the greatest amount of root formation of which the plants are capable, and afterwards to sustain them by liberal stimulants in the shape of manure water applied at the right time, which is when the flower-trusses are formed in quantity; without this the bloom will be deficient in size, and the foliage will be wanting in the rich green colour that adds so much to the general appearance. If the plants have all along been kept, as advised, through the winter close up to the glass, the shoots will be so stout and short-jointed as to require not more than half-a-dozen small sticks to each to give the requisite support. Many of the newer varieties of zonal Pelargoniums are alike remarkable for the size of the individual flowers and for the size of the trusses, but where the bloom is much required for cutting this is a questionable advantage, as small bunches forthcoming in quantity are generally more useful. It is, therefore, well to select such kinds as will best meet the purpose required. In the case of young stock propagated last autumn it will be advisable to stop the shoots sufficiently often to lay the foundation for bushy examples with a view of having them at their best towards the latter part of summer, when the ordinary spring-flowering plants are over.

Primulas.—Some seed of these, if not already sown, should at once be put in, so as to give time for the plants to get large enough to bloom strongly in the last month of the year, for if the stock is late and weak their flowering will be proportionately meagre. Hardy Primroses, such as the different coloured varieties of *P. cortusoides* with *P. japonica*, are deserving of pot culture wherever there is a greenhouse, for when well managed they are beautiful objects in no way inferior to the more generally grown Chinese

varieties. Now is a good time to get up a stock; small plants procured at the present season will, if well cared for, make strong examples before the end of summer that will bloom freely next spring.

ORCHIDS.

East India house.—During the last few days the sun's rays have been sufficiently powerful to injure plants exposed to them; but the careful cultivator, while he does not shade too much, will doubtless have prevented such an occurrence. Some Orchids will stand sunshine better than others; consequently they must be arranged according to their requirements in this respect. *Vanda* trees and *V. Hookeræ* do not yet require shading. All the deciduous *Dendrobiums* do well, at least such as require a high temperature in the lightest part of the house. The evergreen species, too, of the *D. thyrsiflorum* type, after having been rested in a cool temperature, should be placed in the cool end of this house, i.e., if a *Cattleya* house temperature is not available. *Cypripediums* must be placed in a rather shady position, as some of them are easily injured by sunshine. We have had the leaves of *C. Veitchi* (superbiens) injured even under the shading. Last season a number of seedlings between that kind and *C. villosum* placed amongst other hybrids, although shaded with a thick blind, were injured, while the others were untouched. The whole of the *Phalænopsis* must be on the shady side of the house. *Angraecums*, too, do not succeed on the sunny side. We had a plant of *A. articulatum* which was doing well at a distance from the glass; thinking to get better growth, it was suspended about 18 inches from the roof, when it ceased to do well. It has been placed in its old position, and is slowly recovering. All plants making growth must be freely supplied with water.

Cattleya house.—Watering and shading must now receive special attention. The leaves of *Cattleyas* seem to absorb heat very rapidly; if touched by the hand after the sun has shone upon them in the morning for about a quarter of an hour, they will be found to feel quite warm, and if they were to be exposed for some time longer they would certainly be hurt, even if they did not show the injury immediately. We keep our thermometer in a partially shaded part of the house, and when it has risen about 5° by means of sun heat the blinds are let down. If the day should be sunny with few clouds they are left on until the sun has passed so far to the westward that no harm will be done, but we like to have sufficient of his parting rays to again raise the temperature a little. Then as to watering. If such Orchids as *Cattleya Mossiæ* are examined, a mass of fine healthy roots will be found pushing out from the base of the last formed pseudo-bulbs; they are mostly above the surface of the potting material, and it is best to let them alone. We have known lumps of peat, &c., to be put over them to induce them to root into them, but it is better not to do so; they will run along a little on the surface and then push downwards. All plants that are doing this should be well supplied with water, and a moist atmosphere is also very desirable. *Odontoglossums*, such as *O. vexillarium* and *O. Roezli*, are pushing new roots freely from the base of the growing bulbs, and also require a considerable amount of water. *O. citrosum* is now starting freely into growth and showing its flower spikes, from which slugs must be kept; if these pests are numerous the young spikes must be protected by means of cotton wadding. *O. grande* and *O. Inseayi*, both autumn-flowering species, should be kept rather dry at the roots; indeed, it is best not to water them until it is seen that the compost is quite dry. We have tried these two species in the cool house, but they did not succeed; they are now doing much better in the *Cattleya* house; still, we have seen them do well with cool Orchids. Evaporating troughs should now be kept filled with water, and the house ought to be damped twice daily.

Cool house.—Many have their *Odontoglossums* and *Masdevallias* placed in a lean-to house

facing the north; in that case but little shading will be required until the sun gets round on afternoons of sunny days, when it may be necessary to shade for an hour or so. If the house is exposed, say a span-roofed one running north and south, the shading will have to be let down very soon after 7 a.m. on the east side, and that on the west side about two hours later. Nearly all the plants in this house will require very considerable supplies of water; they seem to do best when the Sphagnum on the surface is growing freely. No rule can be laid down as to the quantity of water to be given, or how often it should be applied. Plants that are established and that have well filled their pots with roots will require it much oftener than newly potted ones, and much, too, will depend upon the form and position of the house. One advantage of a lean-to facing the north is, that the plants neither require so much water nor so much attention as those in a different aspect. Any Orchids that have been wintered in the warmer house may now be removed to this one. If the temperature of the two houses vary to the extent of say 10°, it would be well to increase that of the cool house say 5°, in order to meet the requirements of the plants newly placed in it half way. Our experience in exhibiting, as well as in shifting plants from one house to another, has taught us that the fewer changes Orchids are exposed to the better, and cool Orchids are quite as likely to suffer as those from the East India house. We had about thirty Orchids in flower which were left at an exhibition last year for a week, many of them from the East India temperature, and none of them suffered except the Masdevallias, most of which lost their leaves. The temperature of the house falls now to about 50° at night, seldom lower, even with the ventilators open a little all night.

FRUIT.

Hardy fruit.—If not already done, Figs may now be pruned and nailed or tied to the walls, care being observed that a space is not left to admit of a current of air behind the shoots. As we have before observed, pruning should simply consist of thinning out the shoots and arranging the past year's growths, so as to have an even spread of well-ripened shoots, studded with embryo fruit, all over the space allotted to the tree, and as all the fruit of any value will be found near the points of the shoots, the latter should never be shortened at the spring pruning unless young branches are wanted to fill up vacancies.

Apricots bloomed very strongly, but not so early as we at one time anticipated. Where broad coping boards and heavy coverings have been used, a little judicious management in their removal will be necessary. The boards will, of course, remain for some time longer, but the canvas must be taken off every day and put back at night on the approach of danger. Disbud gross shoots and keep a sharp look-out for the active little grubs, whose whereabouts is easily detected by the rolled-up appearance of the points of the young shoots.

Peaches and Nectarines, now in full bloom, and many of the early kinds just setting, will require constant attention to keep them from aphid until it is safe to apply the usual dressing. Already Tea Roses on open walls are teeming with green fly, and unless the wise precaution of winter dressing the trees and walls with some insecticide has been observed, Peaches and Nectarines will soon be affected. Avoid the use of dangerous dressings until their strength has been properly tested. Our forefathers used soft soap, sulphur, and tobacco water; their trees were kept alive for half a century, and if they did not cultivate so many kinds, they grew quite as good Peaches as we do.

Cucumbers.—With increased daylight and sun-heat these hard-worked and often abused subjects will now take heavy supplies of generous liquid, particularly where the roots are in pots and the plants have been in bearing since the end of the past year. Good syringings overhead after

the house is closed will also play an important part in keeping [the foliage clean and healthy, as old plants in hot-water pits are sure to get more or less infested with spider, and it is only by constant application that this troublesome insect can be kept in check. From this time forward healthy plants will make rapid growth, and the usual stopping and dressing will require attention at least twice a week, as nothing more quickly resents neglect or suffers more from the handling and pulling about which invariably follows neglect. It sometimes happens that old plants show signs of faltering under bright sunshine, and require shading more or less every day. When this is the case, make speedy examination of the roots, remove all old manurial top-dressings and inert soil, dust with quicklime, or water with lime water to destroy worms, frequently the cause of the mischief, and top-dress with fresh turfy loam, charcoal, or old lime rubble. Renovate the bottom heat, and when fresh root action sets in feed with clarified liquid, but avoid the use of manure as a top-dressing. Damp the floors and walls two or three times a day. Syringe the foliage overhead about 3 p.m. when fine, and close with sun-heat, which will run the house up to 90°. Maintain a good heat in manure pits and frames. Train and peg out the growths, add large lumps of turf and pieces of charcoal to the hills as the roots appear, and still be very careful in the application of water to the foliage, as the nights are very cold and sudden depressions when the leaves are wet very often produce mildew. Sow a few seeds at short intervals for succession, and throw away all surplus plants before they become infested with spider.

Pines.—When the flowering process is over, the early batch of Queens will derive great benefit from a light dewing over with the syringe after the house is closed for the day, care being observed that the quantity of water used is not sufficient to concentrate in the axils of the leaves and saturate the soil about the collars of the plants. Examine the plants once a week, and, while avoiding indiscriminate watering, see that those actually requiring it do not suffer. If they are not over-potted and roots are plentiful, give warm clarified liquid in a diluted form and weak guano water alternately, and produce a stimulating atmosphere by sprinkling paths and drying surfaces with the same when the ventilators are closed for the day. Ventilation through the months of April and May (two uncertain months) will require constant vigilance, otherwise sudden external changes will cause great fluctuations, at all times injurious to plants which have been kept at a high temperature through more than half the winter. The safest and best course to follow is to keep a good heat in the bed, which will always prevent sudden depressions, to shut off fire-heat early, and to give sufficient air to draw moisture off the foliage before the sun strikes the roof of the house on bright mornings. If the latter is glazed with large squares of glass, a very thin shading for two or three hours each day may be necessary, until the still tender foliage becomes firmer and better able to stand bright weather, but, the roots being right, its continuance will not be needed. The old-fashioned practice of driving the fires to maintain a given temperature throughout all weathers having been given up, 65° to 70° at night and 80° to 85° by day, with a bottom heat of 85° to 90°, will suit Pines in every stage after they are started into fruit, and successions will do very well under an all round reduction of 5°. If extra stock is not wanted, do not let fruiting plants carry more than one sucker each. Remove all gills from the stems at the base of the fruit, and secure the latter in an upright position by placing two sticks to each plant and passing bands of matting above and below the fruit.

Melons.—Keep the atmosphere of the house in which early Melons are setting their fruit moderately dry with a circulation of air; fertilise all blossoms on fine days, and give very little water to the roots until a good set has been secured. With pot plants this is not difficult, as the most troublesome setters can be brought into subjec-

tion by the application of bottom-heat, and withholding water from the roots. As soon as the fruit begins to swell syringing may be resumed to keep them free from spider; but water must be sparingly given at first, as a flush before the fruit attains the size of Walnuts would most likely cause it to turn yellow and go off. If the compost—stiff calcareous loam and bone dust—is dry and in a fit state for use as a top-dressing, see that it is made as warm as the soil in which the plants are grown before it touches the stems, and guard against injuring them in its application, as canker is often brought on by undue pressure or the use of cold materials. As soon as the roots have taken to the top-dressing apply warm stimulating liquid as often as the plants can take it. Keep the bottom-heat at 85°, syringe at 80° on fine afternoons, and run up 5° to 10° after closing. Give a little front air at the close of the day, and let the night heat range about 70°.

Thin out and train the laterals on succession plants, pinch the points of leaders where they have covered two-thirds of the trellis, and induce a firm wiry growth by giving plenty of heat and air through the early part of the day. Make fresh sowings for succession and for planting in pits and frames after Potatoes and other forced vegetables are cleared away. Hardy kinds like Golden Gem answer best for this culture. In pits and frames keep up a bottom-heat of 85° by means of linings and cover the glass at night. Earth up with fresh friable loam as the roots require it, using lumps of charcoal or broken brick to keep the soil away from the stems of the plants. Avoid wetting the foliage until the weather becomes warmer, as moisture is generally abundant where fermenting material is used as a heat-producing agent.

MARKET FRUIT GARDENS.

GRAFTING is now an important operation. By means of crown or rind grafting, Apples, Pears, and Plums are converted from unsatisfactory trees into fruitful and profitable ones. Top-dressing trees recently planted must no longer be delayed; it is the drought in spring before the roots get established that is so much to be dreaded. Last season a large quantity of Cob Nuts and Filberts were planted late on a south slope, and a severe drought followed. The greater portion of these bushes had each about a barrowful of manure spread over their roots, and amongst them not one failed, whilst of some left bare nearly half died, and the rest only just kept alive, but made no growth like those that were mulched. Orchards on Grass, to which farmyard manure was applied during the winter, will now need bush harrowing and rolling, at the same time picking off stones and forking up Docks, Thistles, or Nettles. Orchard Grass should never be made into hay, but fed off closely, as is just now being done by ewes and lambs. Orchards or fruit gardens dug up roughly in winter should now have the soil made fine by means of prong hoes. Strawberry beds must be divested of weeds and heavily mulched with fresh stable manure, the good properties of which will get washed down to the roots by rain, and thus stimulate growth and form a clean, dry bed for the fruit to rest upon.

Birds must be kept off fruit buds either by powder and shot or by means of some other remedy, for if allowed undisturbed access to trees and bushes but little fruit will come to maturity. Sparrows are especially troublesome to Gooseberries, and bullfinches to Plums, Cherries, and Apples, and the next month will be their period of greatest activity. Hedges of White Thorn well kept are a speciality in some counties; by repeated clipping they get almost as thick as walls; the only way by which they can be kept in good condition for many years is keeping them clean at the base. At this time of the year about 2 feet on each side is lightly forked over; all Couch Grass and other weeds are carefully picked out, and after that hoeing a few times during summer will keep the ground thus treated quite clean, and the hedge will grow right down close to the soil. Roads and walks cut up with heavy carting in wet

weather must now be levelled and rolled. In large fruit plantations the cross walks may be of Grass; such pathways for carrying the fruit to the main walks or roads answer exceedingly well, and look at all times neat and trim. In young plantations recently planted the work of putting in a row of Potatoes will now need attention; a furrow made with a plough and the sets laid in answers well. Potatoes and fruit do well together for the first year or two after planting.

KITCHEN GARDEN.

Now is a capital time for sowing a good quantity of Peas. We generally form miniature Celery trenches for their reception, and earth up by cutting down the sides of the trench. When earthed they become level with the rest of the ground. Our special variety is Laxton's Standard, a really good bearer and otherwise excellent Pea; but we have many more that are perhaps equal to it. Pride of the Market and Stratagem are both good where 6 feet stakes and plenty of room is no object; Telephone and Telegraph are likewise two grand varieties. Broad Beans have now become an indispensable vegetable; eaten when about the size of large Peas, they are both delicate and delicious. Green Windsor and Mazagan are as yet the best; they are so easily satisfied, that they will succeed almost anywhere provided the soil is rich. Stretch the line on the ground proposed to be planted, and dibble the seed in on each side of it at from 6 inches to 9 inches apart. Keep the hoe well at work amongst Lettuces and Cabbages, and, in fact, amongst all growing crops. A contemporary advises its readers to sow French Beans on sheltered borders. We agree so far as sowing goes, but it should be done in cold pits instead of outside. Even in the sunny south French Beans are not considered safe until the third week in April.

TREES AND SHRUBS.

OSIER PLANTATIONS.

ON reading the short article by "R. G." on Osier planting in THE GARDEN of March 31 last I was not astonished at his cost of planting an acre of Osiers when he had to purchase his sets from a basket maker. I have been helping a gentleman in the neighbourhood to plant a small Osier bed as a cover for game. I asked a basket maker, more by way of amusement than anything else, what he would charge for Osier sets; he said 10s. per 1000, and then came down to 8s. I declined his offer, for I knew where I could get them more to my mind and at a much less cost. I sent a man over to some Osier beds where they grow for sale, and found I could have a ton cut for me and carted to the railway station for £4. I ordered a ton, as furnishing ample sets for the ground I wanted to plant, which was 250 yards long by 40 yards broad. On their arrival we set to work to cut them, and to be expeditious in that respect it takes a man and a boy to cut them. The Osiers are placed in a barrel the butt ends down; the longest are drawn out first, which are the strongest; the boy thrusts the butt ends of two if strong, three if moderate, against the man's chest, he grasps them with his left hand and with a sharp saddler's or shoemaker's knife cuts them off 10 inches or 12 inches long. The process is repeated as long as the wood of the Osier is hard; the moment it becomes pithy throw the rest of it away. One man is employed sorting into strengths, putting the eyes the right way, and binding in bundles. They are then ready for setting, which is done by thrusting them into the ground till about only three eyes are left above ground. A gardener's line should be used to keep a straight line. The distance between the sets is 10 inches, and between the rows 2 feet. We cut 32,000 sets, as being about the number required to plant the ground, and then there were about seven hundredweight of thin Osiers left out of the ton.

Here in Lancashire the professional Osier growers use sets of 10 inches, planted 10 inches

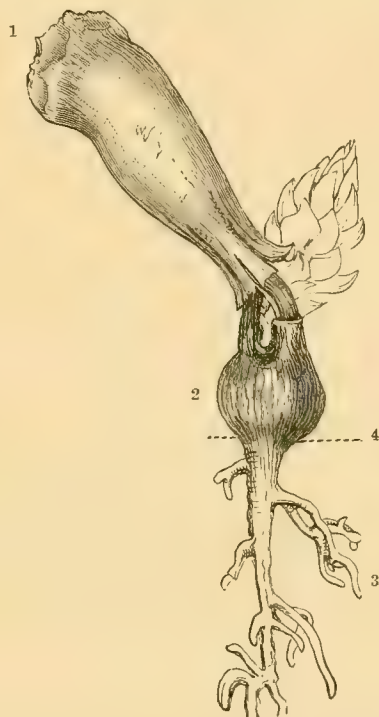
asunder and 22 inches from row to row. The extra 2 inches were given to admit of a larger horse being used to keep the Osier bed clean, and the great secret of a successful Willow bed is to keep it scrupulously clean for the first two years, and generally after that they smother all weeds. Here they are now sold by weight, which is a much fairer way than by bundle. This season they were £4 per ton, newly cut.

It took 31,000 to plant the piece of ground. The cost was—Men's time in cutting, sorting, and planting sets, £5 8s. 10d.; ploughing, harrowing, and manuring ground, £6 10s.; 32,000 sets, £2 12s.; carriage of Osiers, 15s.; total, £15 5s. 10d. I have charged the horse work on a very liberal scale; only a slight dressing of manure was used, and the extra thousand sets are included, and there are seven hundredweight of Osiers left.

C. H. W.

THE BIRTH OF THE CHILIAN PINE.

READING quite recently in THE GARDEN of the grand examples of this tree now to be seen at



Germinating seed of *Araucaria imbricata*. 1, seed or nut; 2, swollen tigellum or neck; 3, root; 4, ground level.

Dropmore, at Bicton, at Lord Poltimore's place near Exeter, and at Woodstock, in Ireland, it occurred to me that some at least would like to learn how the large edible seeds germinate in our gardens. Having a friend who seems to know by intuition what things are of interest to me, he of course sent me a couple of *Araucaria* seeds just before I had time to ask for them, and the annexed illustration is a sketch made of one of these of the natural size. As will be seen, the mode of growth is analogous to that of Palms, Yuccas, and other monocotyledonous plants. It is interesting to remember that the noble specimen at Dropmore, 61 feet in height, was forty years or so ago in the diminutive state of our little friend, whose portrait is here given. We may add as a matter of fact that the specimen of *Araucaria imbricata* at Kew is the oldest in England, although not the largest, it being one of the original plants introduced by Mr. Archibald Menzies, who sailed with Capt. Vancouver to the coast of Chili in 1795. The seeds of the Chilean Pine are or were largely used as food by a tribe of Chilians, the Araucarians, just as seeds of the Stone Pine are to this day exposed for sale among the food products in the markets of Italy.

F. W. B.

TRANSPLANTING EVERGREENS.

THE best season for moving Evergreens depends somewhat on their size, age, and the distance to which they have to be moved, but, as a rule, I am in favour of autumn planting. From the first week in August to the second in October is a much longer time during which Evergreens of all kinds can be safely moved than that available in spring, with the still further advantage that the autumn-moved plants require no after attention in watering the following summer, such as is necessary in dry weather with spring-moved plants, even if they get well over the ordeal of transplanting. When plants moved in spring in any considerable quantities have to be moved for any distance by rail in the hot, dry weather that often prevails at that time, frequently necessitating their being out of the ground for a week, they seldom come off without a check that throws them into a stunted state which takes two or three years to get out of. The 10-foot or 12-foot plants which "S. D." moved in spring, divested of soil, if moved any distance will shed their leaves, and not make as many new ones for the next two summers as would admit of a sparrow hiding itself in them. With small ordinary nursery stock, when in a right state for removal by sufficiently frequent transplanting, where the quantities to be got through are not too great to admit of their removal within the short time available, spring will answer well enough; but even these will do just as well if moved within the much longer period in autumn, admitting of their making some roots after planting, when they are safe from any weather, no matter how severe. Between the beginning of September and the end of October, last autumn, I planted in several places considerable quantities of Hollies, from 2 feet to 5 feet high, that scarcely lost a leaf, and have come safely through the last month, which, as few will dispute, has been one of the worst within the recollection of anyone living for newly planted stock; and the same holds good in the case of other Evergreens. The mildness of the two last winters, if we except the past month, is such, I admit, as not to afford a fair test of the effect on autumn-planted Evergreens; but I may say that between the beginning of September, 1881, up to December last, I have planted in different parts of the kingdom, in soils and situations as different as they well could be, over 8000 Hollies, with a loss of not more than 3 per cent.; but the whole were selected with a view to their being in right condition to bear removal, on which it is needless to say so much depends.

In regard to the removal of large Evergreens of a miscellaneous character, including Hollies, success may be reckoned as certain if the work is properly done and completed between the beginning of August and the end of September, and the earlier within this time the better. Between the second week of August and the middle of the following month, in 1878, I was engaged at Glansevern, Montgomeryshire, in moving a number of Hollies from 18 feet to 22 feet high, some of them being as much through, that had been planted the first or second year in the century, and had never been interfered with during that time. No preparation by previously opening a trench round them had been made. They were moved with large balls of earth, which, from its close, heavy character, and the dry condition it was in, stuck together, so that when placed on the machine there was no more crumbling away in conveying them to their destination than if each ball had been a mass of concrete. I had a little brook near at hand dammed up, so as to get the water to run down a trench to each tree as it was planted, leaving it running for six or eight hours, so that the balls were thoroughly soaked through. I mention this because, unless the soil is properly moistened, the roots cannot start away freely. Through the autumn the plants showed no more effects of their removal than if they had never been disturbed, and in the excessively severe frost that ensued there was no loss of leaf; whereas quantities of others of like description that were growing beside them, and not disturbed,

lost most of the leaves on the previous summer shoots, the wood of which was in many cases killed back also. The check which the moved plants received solidified and hardened up the preceding summer's wood, so as to make it able to withstand the severity of the frost, which the more succulent unmoved trees could not sustain—a result by no means exceptional.

Another case of moving big Hollies, in which I assisted when a youngster, in the gardens at Cloughton Hall, Lancashire, this time in the spring, turned out very differently. A considerable extent of new shrubbery was being made, and to give immediate effect, a number of large Hollies were got on the estate. These were moved with large balls, weighing two or three tons each, about as big as in the case of the Glanesevern plants; their stems, to even up amongst the branches, were wound round with hay ropes, and kept moist, a man doing little else through a good part of the summer than giving water to their roots, and dousing them overhead with the engine. Nearly the whole of them lived, but they shed their leaves so as to be as bare almost as Pea sticks, and, as always is the case when this occurs, they were three or four years before they moved much. I mention these two out of a good many instances I have seen of moving large plants at different seasons, where in each case there was the requisite amount of labour bestowed on them to warrant an expectation of success; but in every case the late summer or early autumn showed a like advantage over spring. It is all very well to recommend the planting of Hollies and other evergreens just as they are breaking into growth in spring where only a limited number of small or ordinary sized plants have to be moved; but where large quantities have to be transplanted, and often conveyed considerable distances, it is impossible to get the work done in the time during which the plants are in the required state to move. From a fairly wide experience, I have no hesitation in saying that, for one Evergreen that dies after removal before November, there are twenty that go off or are rendered useless by removal in spring.

T. BAINES.

Pernettya mucronata.—With me this grows in a light black peaty sandy soil, and sends up suckers in all directions; it is now covered with crimson berries. Seedlings come up all over the garden. One bed of it is particularly pretty just now, having a white heath in full bloom coming up through its branches. Later on the *Pernettya* is beautiful with its young red stems and small white bell-shaped flowers spread all over it.—R. B.

New hardy flowering shrub (*Adenocarpus decorticans*, Boissier).—The *Révue Horticole* in its first number for April gives a coloured plate and description by M. E. A. Carrière of this new and beautiful hardy flowering shrub, which will shortly be sent out by Messrs. Thibaut & Keteleer, of Sceaux. It is said to be a native of the mountain chain known as the Sierra Nevada, in Spain, where it grows in common with the *Pinus Pinsapo*. Its flowers are produced in great abundance, and are of a clear, bright yellow, reminding one somewhat in appearance of those of our common Furze. It is said to thrive best (at all events when young) in peaty soil, and is impatient of moving, so will be the best kept in a pot till ready to put out where it is finally to remain. It was entirely uninjured in the open ground at Sceaux by the very severe winter of 1879-80, so is perfectly hardy. It multiplies freely from seed.—W. E. G.

Decaying Willow (*T. P.*, Newark, p. 323).—Willows thrive best in good loamy soils rich in organic matter. When the roots reach a subsoil composed principally of inorganic constituents, such as clay, sand, or gravel, the top branches lose their vitality and the trees become stunted and unsightly. In order to renovate the tree in question see that the drainage is effective, remove all exhausted soil, cut or pare off all dead roots, and fill up with good rich fresh soil, and if not too far gone the tree will soon push fresh roots into the new soil. Remove any dead branches in a sloping

direction, pare and smooth the wound with a sharp knife, and paint the surface with tar to prevent any lodgment of water. Willows are easily propagated by cuttings made of one or two-year-old wood put in in spring; but as you seem to have been unsuccessful in this matter, you should insert them in different soils and aspects, when surely some of them will succeed.—J. B. WEBSTER.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 317.)

Botrychium.—This interesting genus contains many very curious plants, all deciduous, but which are seldom seen in cultivation, probably on account of the difficulties experienced in keeping them through the winter, when they should not on any account be allowed to get dry, or death will speedily and assuredly ensue. They are found in all parts of the globe—in Ceylon, in N. America, in New Holland—and the genus is represented at home by *B. lunaria*, or common Moonwort. They are of very little use as pot plants, but their fertile fronds have a very pleasing appearance among other Ferns when planted on the rockery, in which case they should be planted on some nook naturally damp where they will not be disturbed, and where constant moisture will be secured for them while they are at rest. The difficulty in taking them up is to get the crowns with their roots, as the crowns are found generally deep in the ground. They succeed best in a mixture of sandy loam and only a small portion of peat.

B. australe.—This handsome species from New Holland has finely divided fronds, produced from a fleshy underground crown; the sterile segments are bi or tripinnate, decomposed, and serrated on the margins, while the fertile ones are paniculate, the whole plant being of a bright green colour. Greenhouse.

B. Lunaria.—This truly European species is widely distributed, and found principally in all parts of Western Europe. It is a very pretty and interesting plant, with fronds erect, varying from 6 inches to 10 inches in height, divided into two segments; the sterile are pinnate, glabrous, and of a pale glaucous green colour with lunulate pinnae, the margins of which are in some specimens entire, and slightly crenate in others, usually six pairs in each bunch; the fertile ones are bipinnate, contracted, and forming little spikelets, completely sporangiferous. Although quite a hardy species, it will be found to do best in a greenhouse.

B. lunarioides.—A handsome strong growing species from North America, reaching the height of 12 inches to 15 inches, with fronds of a dark green colour; the sterile ones are bi or tripinnately decomposed, segments broad, oblique, slightly serrated on their margins; the fertile ones are paniculate, and somewhat resemble those of the *Anemia* in general appearance. Although perfectly hardy, this species, like the preceding one, thrives best in a greenhouse.

B. virginianum.—This, perhaps the most manageable of all *Botrychiums*, is found growing throughout America and India; it is very interesting on account of its large, dark green, decomposed sterile fronds; the fructification forms a panicle of fertile segments. In Canada, where it is very plentiful, it bears the name of Rattlesnake Fern, and although quite hardy succeeds best in a greenhouse.

Brainea.—This very curious genus contains only one species, *B. insignis*, which for a long time was thought to be peculiar to Hong-Kong where it was first discovered; however, it has since been found in Khasia, and these are the only two places at present known where it exists in a wild state. It is an arborescent kind, forming a somewhat stout stem which is seldom perfectly straight, and which attains, when fully developed, the height of 4 feet, and measures about 2 feet in circumference. The leaves, which are produced in

profusion, are from 2 feet to 2½ feet long and pinnate, pinnae linear-lanceolate in form, bright green on the upper surface, and of a greyish hue and with peculiar markings on the underside. The beauty of the plant is still more enhanced by its fronds being of a beautiful metallic colour when partly developed. Its roots are wonderfully brittle, and great care must be taken in repotting it; if that operation is done at all in a careless manner, the chances are that the plant will never recover if too many roots have been mutilated. Good sandy peat seems to suit it best, and it should also receive plenty of water at the roots and on the stem. Stove.

Ceratopteris thalictroides.—This extremely curious and interesting aquatic plant, forming a genus by itself, is better known as the Floating Stag's-horn Fern, in consequence of its habitat and its forked fronds, which are of two very different shapes, the fertile ones being perfectly distinct, decomposed, upright, and from 2 feet to 3 feet in height, with segments forked and linear, whereas the sterile are bipinnatifid, from 1 foot to 2 feet in length, and prostrate. Both kinds are produced from a thick, fleshy crown, which should always be kept under water. The whole plant is of a cheerful light green colour, and the sterile fronds are highly proliferous, being completely covered with bulbils, which soon produce a crop of young plants of quick growth if pegged into a surface of moist soil. This being an annual Fern, the spores must be preserved, and require to be sown early in the spring on some very moist loam, where they will germinate and grow freely. When sufficiently strong they should be plunged into the water, so that the crowns should be quite covered. It is a native of Tropical America, and if the water in which it is grown can be kept to one uniform temperature of 65° to 70° it will, in the course of the season, make a very handsome and highly ornamental and effective specimen. Stove.

Ceterach aureum.—The only exotic species represented in this genus comes from Madeira and the Azores, and is at once very distinct and very effective, differing essentially from our own *C. officinarum* in being of a much more vigorous habit, its beautiful fronds rising from a tufted crown; they are pinnatifid, often pinnate towards the base. Instead of being about 5 inches or 6 inches high, like those of *C. officinarum*, they often measure 22 inches or 24 inches in cultivation, the pinnae deeply lobed, and sometimes auriculate at the base. They are leathery, smooth, and dark green on their upper surface, and their underside is densely clothed with brown, imbricated, large squamose scales. It is much easier to cultivate than our own British species and will be found to do well in a mixture of three parts peat to one of loam and sand, mixed up with little pieces of limestone, in which mixture it seems to delight. When planted or potted in such light material it requires a good lot of water at the roots. Greenhouse.

Cheilanthes.—One of the most interesting genus amongst evergreen Ferns, including, as it does, some of the most elegant and exceedingly beautiful forms of Ferns whatever in cultivation. Although coming principally from tropical countries, nearly all of them succeed best in an intermediate house where the temperature seldom exceeds 60°. This is no doubt owing to their being found in their native habitats at great elevations. Anyhow, wherever they are seen at a disadvantage and in bad condition, it is invariably where they are kept in the stove and frequently syringed, in which case they are treated with too much kindness, and which treatment results in having shapeless and thirpy plants deprived of all beauty. They should be grown as near to the glass as possible, either on shelves against the glass or else in baskets suspended from the roof, for which purpose many of them are wonderfully well adapted. No watering or syringing overhead should be allowed to them, as this is as injurious to all of them as any extra heat, but they should be supplied with an abundance of water at their roots. For that purpose they must be either potted or basketed in good fibrous peat and sand, with their

crowns kept up well above the rim of the pot whenever they are repotted. The compost should be made very porous, and to that effect a small portion of sandstone or charcoal broken in pieces of small size should be added to it. For the successful management of these charming plants, then, the two great evils to be avoided are strong heat and moisture overhead, and the principal points, or those most beneficial to their welfare, are abundance of water at the roots, plenty of light overhead, and an open and porous compost to grow in.

C. argentea.—A well-known and much appreciated species from Tropical America, with fronds produced abundantly from an upright crown. These grow to 6 inches or 8 inches high, and are triangular in form. Their upper surface is of a bright, dark shining green, while their underside is covered with a farinose powder of a pale lemon or straw colour at first, but which becomes gradually as white as snow. The curious contrast formed by the black marginal line all round the frond produced by the presence of the sori is remarkable in the extreme, the effect of it being very pleasing. This evergreen species should be grown in a naturally moist place in the cool fernery, where it soon would become a favourite.

C. Bergiana.—This South African species of comparatively recent introduction is one of the most handsome of its tribe. Its beautiful quadri-pinnatifid fronds of a triangular shape and bright shining green are produced from a single crown, and borne on long stout stalks, hairy throughout. They often attain the height of 12 inches to 14 inches, and are proportionate in breadth, with pinnæ finely cut and loosely set, giving the plants a very elegant appearance. It is singularly prolific, and the way by which it reproduces itself most readily is very peculiar, and confined only to this species; from the roots spring a quantity of small seedlings, which in a very short time develop into good-sized plants. This evergreen kind requires to be grown in the cold fernery.

C. elegans.—This very delicate-looking, handsome species from Tropical America, where it is found growing everywhere, is generally considered a stove Fern, but it will afford much greater satisfaction if grown according to the treatment recommended above. It is commonly called the Lace Fern; its beautifully divided fronds are produced in great quantities from crowns clustering together; they grow to about 18 inches or 20 inches in length, are tripinnate, and the whole of their underside as well as the stalks on which they are borne are wholly hairy; the fertile fronds have a very peculiar appearance, produced by their little pocket-shaped roundish pinnules.

C. fragrans.—An elegant little Fern of dwarf dimensions, from Madeira and Algeria, deliciously scented, the fronds retaining their agreeable perfume for a very long time when dried; they are from 6 inches to 8 inches high, of a bright green colour and bipinnate with obtuse pinnæ, the basal ones often being pinnatifid and the stalks hairy. Greenhouse.

C. frigida.—A very handsome tropical American species rarely seen now in cultivation. It is particularly well adapted for basket work, as its long fronds, produced from a creeping rhizome, thickly covered with brown chaffy scales, often reach 18 inches or 20 inches in length; they are tripinnate, triangular in shape, of a shining dark green colour on the upper side, with the whole of the underside covered with long brown hairs. The stems are brown, and also liberally clothed with hairs of the same colour.

C. hirta.—This South African species is very free growing, and one of the prettiest of the genus. The fronds, which are very hairy, subtripinnate, and pale green in colour, are produced freely from a single crown; they grow to about 18 inches in length, and are of an erect habit. This species has produced a magnificent variety called *C. hirta Ellisiana*, with fronds very broad and of a naturally more pendulous habit, and growing into a very handsome specimen.

C. spectabilis (chlorophylla).—A very strong growing species, a native of Brazil and the Organ Mountains, well adapted for growing in baskets, as its handsome tripinnate fronds, produced from an upright caudex, often attain the length of 4 feet, especially if grown in heat. It forms a charming object when planted out in the rock fernery so that its fronds hang over the rocks; they are slightly hairy, as also are the jet-black stalks on which they are borne.

C. tenuifolia.—This exceedingly handsome species from the East Indies and Australia is partially deciduous. Its fronds, of a bright green colour, are of upright habit and produced from a creeping rhizome; they grow from 15 inches to 20 inches high, and are somewhat ovate in outline.

C. viscosa (tomentosa).—This is a totally distinct species from Tropical America, and of which the outline of the fronds essentially differs from any of the other Cheilanthes. It is generally grown in a stove, but it will be found to thrive admirably under the treatment recommended previously. The fronds are produced in great quantities from a creeping rhizome; they are tripinnate, triangular in shape, and pale green in colour; the whole of the plant is covered with viscid or glutinous hairs.

PELLEA.

NEW METHOD OF SOWING FERNS.

NEVER, perhaps, was the word "new" applied more *à propos* than in the case before us. The honour of the discovery belongs to M. Dugourd, a gardener of Fontainebleau. To cultivate the Ferns he gathers in his herbalising, M. Dugourd has sought to reproduce the conditions in which they naturally grow, and for this purpose he has constructed rockeries with various exposures, as well as underwoods, thickets, &c., which are furnished relatively to the conditions they afford. In pursuing this course M. Dugourd meets with full encouragement from his employer, M. de Circourt.

The mode of sowing Ferns adopted by him is as follows: The ruggedness of a small rockwork of millstone placed in a gloomy corner behind a greenhouse was required to be hidden by Ferns such as would accommodate themselves to this situation. Scolopendriums were considered appropriate to the object in view, but as certain parts which it was desired to cover were devoid of earth, and only presented the natural rugged surface of the millstone, M. Dugourd formed the idea of sowing the spores by a procedure totally different from that generally followed. He took some Scolopendrium fronds well furnished with sori, and brushed them strongly into the water of a basin at the foot of the rock, in order to separate the spore cases and disengage the spores; after which, from time to time, with the help of a syringe, he took, after having stirred it, some of the water in the basin, and squirted it over the parts of the rockery which he desired to cover with the Fern. At the end of some months little spots appeared, which constantly increased in number, and these became larger, and at length developed into young Scolopendriums. I can only attribute the presence of these plants, he says, to the operation I had performed, since besides these there are not any roots of this Fern in the garden.

The result thus obtained by M. Dugourd seems to open out a new way of multiplying not only Scolopendriums, but Ferns in general, as well as to facilitate the covering with these plants the surface of certain denuded spots the access to which seemed so difficult as to oppose all attempts to furnish them—for example, rock walls raised in such a perpendicular manner that it is almost or quite impossible to plant them successfully. Thanks, however, to the procedure invented by M. Dugourd, it appears probable that they might be covered with verdure. For that purpose it would suffice to drop into tubs or basins filled with water some fertile fronds of various Ferns adapted to the circumstances, to draw up this water with the syringe, and shoot it over the various parts one has to furnish. The operation should be repeated more or less frequently.—E. A. CARRIERE (abridged from *Revue Horticole*), in *Florist*.

INDOOR GARDEN.

SARRACENIAS AND THEIR CULTURE.

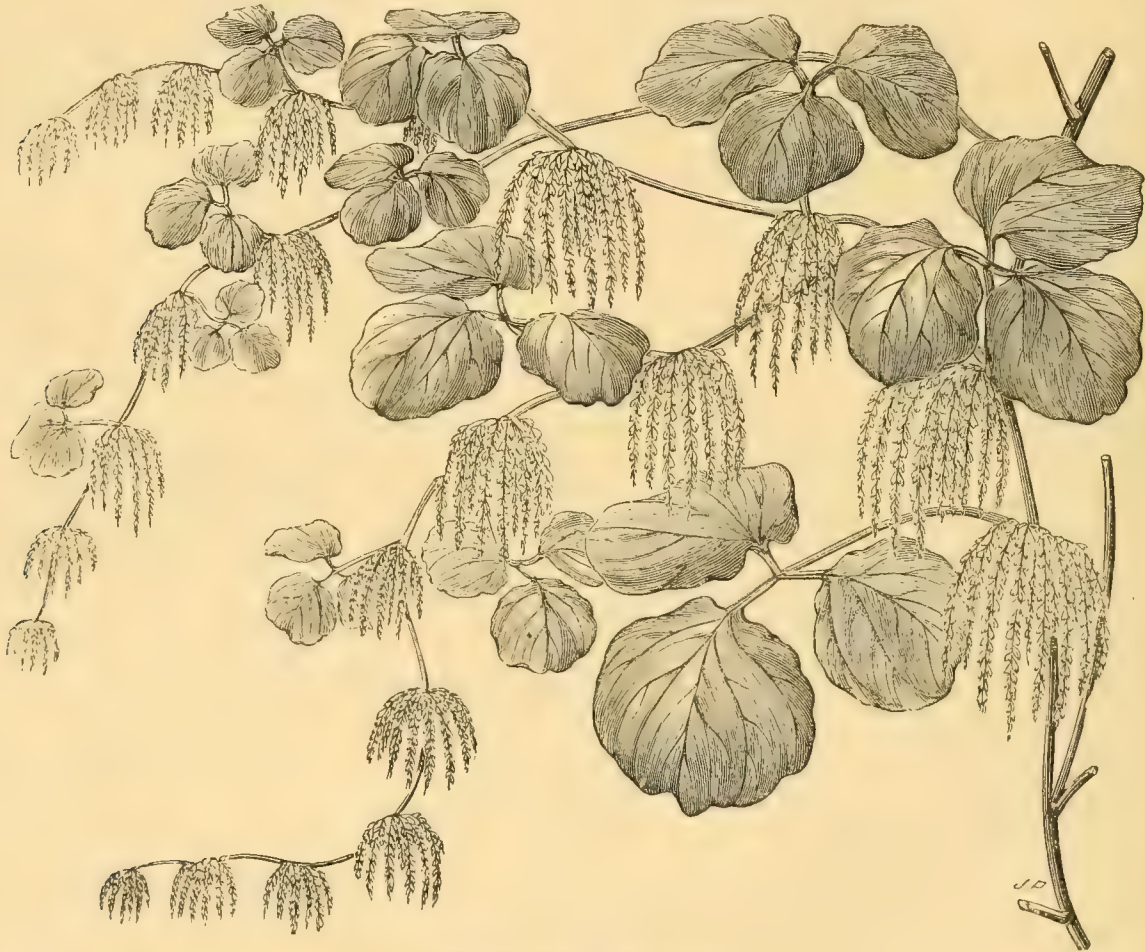
As it is now about the time when these plants should be repotted and started into growth, a few observations on the best treatment for them may not be unwelcome. Although the singular structure of the leaves and the fragrance and remarkable forms of the flowers together with the interest which attaches to them from their supposed carnivorous habits have brought these plants with their allies more into notice than hitherto, their cultural requirements are not so generally understood as would seem desirable judging by the frequency with which one sees them in poor condition. Like a good many other plants whose names will suggest themselves to cultivators, Sarracenias appear to have the disagreeable nature of making themselves at home in some places, and defying all attempts to coax them into good behaviour in others. No doubt in some of these cases the causes of failure are as mysterious as the use of the caught insects appears to be to the Sarracenias, but in others the cause is to be found in the absence of some requirement known to be essential to the good health of the plants. Sarracenias appear to belong to the latter case. When once we comprehend the nature of the plants and the conditions under which they thrive naturally, their cultivation is then nothing but a question of convenience. It is not difficult to grow a fine specimen plant of Sarracenia when you know how to do it and have the means of doing it, and the means are not of any special or costly kind. Mr. Baines, who grew these plants to the highest possible perfection, will tell us so. He told me how it was to be done, and by following his instructions I have satisfied myself of their correctness. Glasnevin, too, knows all about Sarracenias. The late Dr. Moore was as happy in his treatment of these plants as he was in almost everything he took in hand—a man of extraordinary sagacity in all that appertained to gardening—the sort of man required in a public establishment. To Glasnevin we are indebted for

The first hybrid Sarracenia, as well as for others of more recent raising. Mr. Bull and Messrs. Veitch & Sons are also famed for their cultivation of these singular plants. Turning to details, the first object is to secure sound rhizomes. A disease, which springs no doubt from ill-usage, often attacks these plants and prevents them from ever making much headway. It appears to be a fungus of some kind, and, attacking the old end of the rhizome, it proceeds onwards, and both roots and leaves are seriously injured by its ravages. For a compost in which to grow them, peat fibre, with just a little of the mould left in it, Sphagnum, charcoal, and a good sprinkling of coarse silver sand are the best materials to use. Pans or pots well drained, in the latter case half filled with drainage, and large enough to allow the rhizome to lengthen and to hold sufficient moisture to keep the ball always wet, may be used to plant in. If the plants are newly imported, they should be carefully overhauled, and all the decayed roots, rhizomes, or leaves removed; if established, then all the old soil should be shaken from the roots, the decayed portion of the rhizome removed, and the bad leaves and pitchers cut off. Whatever may be the truth as regards the pruning off old Orchid pseudo-bulbs, I am of opinion that it is better to remove all old leaves from Sarracenias. We make a practice of leaving two or three good leaves on each rhizome and removing all the rest, thereby ensuring strong young foliage in plenty. When the old leaves are not removed there is a waste of energy in supporting them, and the consequence is shorter and weaker pitchers than are produced when the old leaves are removed. Of course good healthy pitchers from last year are worth keeping, but where they are decayed or brown I should not hesitate to remove them before starting the plants into growth again. Pot firmly and plant some patches of Moss over the surface. This holds the water and prevents the rhizomes from getting dried. Do not pot too deeply,

but keep the young growing end of the rhizome level with the top of the soil. A good saturating should be given, and after this the soil should never be allowed to approach dryness. This is the one great difficulty experienced in the management of these plants—those in charge cannot be persuaded that a swamp-frequenter must be kept saturated, or it will go wrong. In the summer and late spring I water our plants three times a day, pouring a good potful of water into each specimen. I would not recommend standing the pans in water; those who have had any experience with peat soil submerged in water will know how sour and disagreeable it smells in a short time. I never use

and I agree with him, but a temperature of 80° to 85° in a scorching sunlight is not too high, if high enough, to be safe. There is great mischief done by trying to keep a low temperature in bright sunshine. Those who advocate exposure to sunlight for Orchids do not expect us to open the top and bottom ventilators, so that a rapid current of air shall pass over the plant. Draughts of cold air are as dangerous to a sun-scorched plant as to a man. The temperature for plants under glass should in some measure correspond with the intensity of the light admitted to them. Very little air is given to our plants during their growing season. The temperature is allowed to fall with the decrease

structure of the pitchers points to some such intention on the part of Nature. Large quantities of these insects are found in the pitchers, and the effect of such on them is sometimes the opposite of beneficial. Where too many flies, &c., are found to be trapped, it is a good plan to set other traps in the shape of bottles of sugar and water, poison, &c. Some growers adopt the practice of stopping the mouths of the pitchers with cotton wadding, so that no insects can enter. The *Sarracenia*s have not escaped the attention of the hybridist, and several good and distinct hybrids have been added to the cultivated species. Messrs. Veitch have had their usual good fortune in the



Flowering spray of *Dioscorea retusa*.

peat for aquatics because of this, and I am certain that if the *Sarracenia* pans were to be placed in saucers of water, the soil would soon become sour, the roots rot, and the verdict in some people's minds would be, "*Sarracenia*s do not like much water." But they like plenty of it when it is fresh and there is nothing stagnant. The syringe, too, must be frequently used and the atmosphere kept at saturation point during the time the pitchers are developing. No shading is required. Our plants grow in a house exposed to the glare of the sun all summer, and that this has suited them is proved by the size of the pitchers. I cut half a dozen pitchers from a plant of *S. flava*, each measuring 3 feet and a little more in length; of *S. Drummondii*, 2 feet 3 inches and nearly 3 inches across the mouth, and beautifully coloured. Now, this was never possible when the plants were shaded. I attribute success as much to

High temperature as the other conditions mentioned. Mr. Baines says a high temperature is not necessary for the production of large pitchers,

of sun heat, no fire heat being used. Aphides often attack the young pitchers, and if not quickly removed they make sad havoc, causing the pitchers to curl and sapping all the strength out of them. Tobacco fumigation should be resorted to whenever this pest makes an appearance. Scale also attacks *Sarracenia*s, and should be removed with the hand. After the pitchers are mature more air may be admitted until in the autumn the temperature is almost the same as that out of doors. During winter all that is necessary for the preservation of the plants is protection from frost. Water must still be freely supplied, though of course not in such quantities as is necessary in warm weather. The

Attraction for insects, in the shape of blue-bottle flies, ants, and even beetles, which these plants possess is a matter of great scientific interest, and although in the case of *Sarracenia*s it remains to be proved that the capture and decomposition of insects in the pitchers play any part in the economy of the plants, yet the peculiar

raising of hybrid forms, for in addition to those described below they have raised several other good hybrids, some of which must in time become as great favourites as the best of those sent out.

S. Drummondii is a richly-coloured species, and one of the most beautiful of side-saddle flowers. The pitchers are about 2 feet in length, erect, funnel-shaped, and beautifully veined and blotched with red on a whitish ground on the upper portion. The undulated, broad lid is almost erect, and marked even more richly than the pitcher. A well-grown specimen of this species is one of the most attractive of plants. In addition to the beauty of the pitchers, the handsome flowers of *Sarracenia*s are very attractive, as much for their singularity of form as for their delicate colours. *S. Drummondii* has flowers about 4 inches across of a rich red colour tinged with brown.

S. flava.—This is a tall-pitchered species, and one of the most variable as to form and variegation. The pitchers of the tallest form reach a height of 3 feet, and are green with yellow markings about

the upper portion. The curious wing which runs from the base to the apex of the pitchers of *Sarracenia* is in this species unusually broad. The flowers are as large as those of the last mentioned and bright yellow. The named varieties of this species in cultivation are *picta*, remarkable for the size of its pitchers and their red veinings; *ornata*, somewhat similar to the last, but producing flowers about 7 inches across; *atro-sanguinea*, a form with narrower and shorter pitchers, the lids of which are beautifully variegated with red; *crispata*, near in shape of pitchers to the type, but differing in the lighter yellow of its flowers. The above varieties are very handsome plants, for most of which we are indebted to Mr. Bull, in whose nursery I saw them in very fine condition last summer.

S. rubra is a less ornamental plant than the foregoing, but still an attractive one. The pitchers are about 1 foot in length, erect, about 1 inch wide at the mouth, with a tail-pointed lid, which along with the upper portion of the pitcher is veined with dull red. The flowers are about 3 inches across and brownish red coloured.

S. purpurea is the most common of the side-saddle flowers in gardens, and is often met with growing out-of-doors with little or no protection from frost. Grown under the conditions above-mentioned, its scoop-shaped pitchers assume a colour almost blood purple, the veining being of a still deeper shade. In a sheltered corner on Messrs. Backhouse's reckery we have seen some fine specimens of this plant.

S. psittacina is a curious little species with horizontal pitchers, which are curiously curved at the apex and shaped not unlike a parrot's head, hence the name. The pitchers are from 6 inches to 9 inches long, and are pale green with deep purple blotches. This species does not seem to flower so freely as the others do.

S. variolaris, a small growing, erect, pitcher-shaped species, not so ornamental as most of the *Sarracenia*s, but distinct in the curiously hooded form of the lid of the pitchers, which are green, mottled with a yellowish colour about the mouth and on the lid. The flowers are pale yellow and 3 inches in diameter.

S. Chelsoni is a very handsome hybrid, raised by Messrs. Veitch from the parents, *S. purpurea* and *S. rubra*, whose characters are traceable enough in the offspring. The pitchers of this kind are erect, growing from 12 inches to 18 inches long, broad and round like *S. purpurea*, and colouring to a deep purple wine colour when well ripened. The flowers are 4 inches across and of a reddish brown colour.

S. Moorei was raised at Glasnevin from *S. Drummondii* and *S. flava*. It has pitchers of some 2 feet in length, erect and in form not unlike *S. Drummondii*, although showing the flava blood both in markings and the shape of the lid. The flowers are sweet scented, rosy pink, with tints of green and yellow, and 4 inches across. It is a free flowerer and in every way a most desirable plant.

S. Popei is another Glasnevin hybrid raised from *S. flava* and *S. rubra*, and is remarkable for its beautiful flowers, which are deep crimson margined with yellow.

S. Stevensi resembles *S. Chelsoni* in form of pitchers, but lacks the deep colour of that kind. The flowers are very large on well-grown plants, measuring quite 6 inches across, and are bright pink and white. It is a very fine kind both as regards pitchers and flowers.

There are other hybrids and varieties not included in this list owing to their being similar to others mentioned, though some of them no doubt equally deserving. As I have said, Messrs. Veitch possess some very distinct hybrids which I believe are not yet in the trade. B.

Psychotria cyanococca.—The blossoms of this stove shrub are inconspicuous, but they are succeeded by clusters of bright blue berries, each about the size of a small Pea, and the effect of a plant studded with bunches of such fruit is very

striking in winter. It is readily propagated by means of cuttings; although seed of it germinates freely, yet when obtained in this way it does not fruit so plentifully as from cuttings. This plant is easily grown, and will succeed in any moderately light soil. It is a native of Central America.—H. P.

DIOSCOREA RETUSA.

ONE of the most elegant plants one can have in a greenhouse is this twiner, a native of South Africa. It has slender stems clothed with distinctly veined leaves, and produces a profusion of creamy white fragrant flowers in pendulous clusters, as shown in the annexed engraving, for which we are indebted to Messrs. Veitch, of Chelsea, who distributed the plant a few years ago. On several occasions Messrs. Veitch have exhibited it trained parasol fashion and covered abundantly with elegant drooping clusters of flowers, and as such it has been much admired. When planted out in a warmish greenhouse and allowed to twine at will round an upright pillar it is seen to the best advantage, and, though not showy, makes a pleasing contrast with other gaily tinted flowers. It is so unlike any other ornamental plant in cultivation, that it ought to become more widely known than it appears to be at present.

Allamanda violacea.—I can assure "B." (p. 310) that his not being able to procure this *Allamanda* has saved him from disappointment, for it has not a single property to recommend it. Of all plants of a distinct character, for distinct it is, it is the least worthy of the name and description which it has received of any with which I am acquainted. It is an indifferent grower as compared with others of the genus; it is difficult to bloom, and when it is induced to produce flowers, their dull ugly colour at once condemns them. They are not blue or anything that can pass for that colour. If asked to describe them I should say that they are something between a washed-out lilac and a muddy reddish purple. Much as individual tastes differ in the matter of flowers, I never met with anyone who liked this *Allamanda*.—T. B.

Mr. James's Cinerarias.—In his note upon select strains of this beautiful greenhouse flower Mr. Douglas has in no way over-estimated the exceeding beauty and fine quality of Mr. James's strain. I saw not fifty, but nearly a thousand plants of it in fine bloom a few days ago, and truly the sight was a striking one, for the colours are in many cases quite gorgeous in bright sunlight, whilst the form of the flowers is equally good. Lovers of starry single flowers such as the Paris Daisies give would perhaps take exception to the wondrously rotund and full form of the flowers at Woodside, for it cannot be too distinctly understood that Mr. James has left Redlees, Isleworth, where he had resided for thirty years, and has settled in the elevated, healthy, and charming locality of Farnham Royal, Slough, and is within easy reach of such attractive places as Burnham Beeches, Dropmore, and Clevedon. I lay stress upon the fact of this removal from the near neighbourhood of London because the pure air of the Bucks locality seems not only to favour robustness and dwarfness of habit in the *Cineraria*, but the colours seem so much brighter and purer. Mr. James's strain is peculiarly rich in self colours, and it is entirely due to the fact that he favoured self hues that such deep intense colours have resulted. We should never have seen such crimsons, purples, magentas, and many other singularly striking colours in the *Cineraria* had the ringed strain or marked flowers been strictly adhered to. Then the rayed form of petals seen in the blooms shown at South Kensington, and by some fondly thought to have been produced by dressing, is here seen in thousands of blooms, so that it is plain enough the dressing is Nature's only, and not that of the expert. The entire collection is being grown in long, low, span houses admirably suited for the *Cineraria*, and were being well washed by busy bees seeking for food. Generally the flowers

slightly reflex, and many are of enormous size; still the most perfect form is invariably found in those ranging from 1½ inches to 2 inches across.—A. D.

ORCHIDS.

HYBRID ODONTOGLOSSUMS.

IN Messrs. Shuttleworth & Carder's nursery at Park Road, Clapham, the following hybrid varieties of *Odontoglossum* have shown themselves among the thousands of plants of *O. crispum* (*Alexandrae*) which are being continually imported from Tropical South America. The handsomest of these hybrids is *O. Wilckeanum*, described in *THE GARDEN* (p. 292), but its distinguishing characters are seemingly not invariable, for here is another quite as fine, but differing as regards the colour of the markings of the flower, which has also rather narrower petals and sepals. This is unquestionably among the handsomest of all the *Odontoglossums* of what may be conveniently called the luteo-purpureum section. Another handsome variety is *O. lyroglossum*, which is at once distinguished by the labellum being lyrate or contracted in width in the middle. The flower is 3½ inches across the sepals and petals, which have a ground colour of primrose-yellow, heavily blotched with cinnamon-brown, the lip being white, suffused with yellow. A plant of this bore two fine spikes from one bulb. *O. mulus*, also in bloom, agreed exactly with that shown by Sir Trevor Lawrence on Tuesday last, but which was said not to be the true *O. mulus*. The original plant to which this name was first given by Prof. Reichenbach is said to be that in Mr. Lee's possession, a fine spike from which we noticed last week. It is certain that both Sir Trevor Lawrence's plant and that under notice are distinct from Mr. Lee's, and not a whit less handsome. There was also in bloom a singularly pretty form of *O. hebraicum*, the one distinguished by the markings of the flower, resembling Hebrew characters. There seems to be numerous forms of this hybrid; this one has narrow, wavy-edged sepals, almost white, and copiously spotted, particularly towards the base, with reddish brown. Among other noteworthy kinds of *Odontoglossum* in bloom in this nursery are some uncommonly fine forms of *O. triumphans* just flowered out of a large importation; also *O. hystrix* and *O. gloriosum* and odoratum, both of which yield some richly spotted forms. Among these is the *O. naevium majus* of Reichenbach, which is but a good form of *O. gloriosum*. The true *O. naevium*, now so scarce, is quite a different plant.

Dendrobium densiflorum at Oakville.

—I noticed here the other day a remarkably healthy young specimen of this *Dendrobe* in a comparatively small pot. It had two fine pendulous spikes, each containing upwards of forty fully developed blooms. I know of no Orchid which possesses such a beautiful tint of gamboge-yellow on the peculiarly frizzed delicate lip as this. It made its growth in the stove, and has now been in bloom for some time in an intermediate house, along with other cool house *Odontoglossums* and *Ferns*, such as *Athyrium Goringianum* and other fine foliaged plants.—W. J. M., *Clonmel*.

Odontoglossum Pescatorei Veitch.

—At South Kensington on Tuesday last this unique plant was shown by Mr. Ballantine from Baron Schroeder's garden, at The Dell, Egham. It is a magnificent variety, as distinct from an ordinary form of *O. Pescatorei* as it is possible for a variety to be. The flowers are larger than those of any variety we have seen, and the broad sepals and petals completely overlap, so as to form a symmetrically shaped bloom. The great beauty of the flower is its colour, which is snow white heavily marked with irregular transverse bars of a rich plum-purple, but leaving the upper half of the segments unmarked. No other *O. Pescatorei* that has yet flowered out of the thousands imported into this country have shown any tendency to become barred in the sepals and petals, though

frequently the labellum is richly blotched. This plant first flowered in Messrs. Veitch's nursery at Chelsea last year, and on being exhibited at South Kensington and Regent's Park was unanimously awarded a first-class certificate. Soon afterwards it passed into Baron Schroöder's possession, and since then has improved wonderfully. Last year it had a short spike bearing some four or five blooms; now it has a spike nearly 2 feet high carrying ten fine blooms.

Oncidium fuscum.—Mr. Denny, Sir William Marriott's gardener, at Down House, Blandford, sends us a spike of what he considers a very fine variety of this *Oncidium*. Compared with the ordinary form, it is indeed very fine, the labellum being considerably larger and more richly coloured; but still it has the characteristic blotch of brown, which shines as if it had been varnished. Fine varieties of *O. fuscum* like this are quite equal to *O. Weltoni* or *Milontia Warszewiczii*.

Vanda suavis.—I herewith send you a spike from one of our *Vandas*. The plant from which the spike sent was cut has at present two spikes exactly the same as the one sent, and other three spikes which promise to be quite as good. The house in which our *Vandas* are grown has on several occasions during the past winter been as low as 45° at 7 a.m. I do not recommend quite so low a temperature, but owing to circumstances over which I had no control I could not give them a higher one.—**DAVID KEMP, Dunlop, Ayrshire.** [A glorious spike of *V. suavis*, carrying fifteen fine flowers as finely coloured as any we have yet seen. Our correspondent also sends three flowers belonging to varieties of *V. tricolor*, also very fine, particularly that called *insignis*.]

Milontia spectabilis.—With reference to "Peregrine's" remarks upon this Orchid, I may observe that one great mistake in its culture is that of giving it too much heat. The finest plants of it I ever saw were grown along with a miscellaneous collection of Orchids and warm house plants where the temperature never exceeded 55° in winter, and where no fire heat was applied from the middle of May until the end of September. The largest specimens were 3 feet across, and carried a large number of highly developed blooms. They were potted in Sphagnum and charcoal only and were grown in baskets, being shifted from one to the other when needful, without in any way disturbing the roots. I have often remarked when on the Continent that *Milontias* seemed to be better grown there than in this country, large plants in very good health being frequently met with, a fact which I attributed to the cooler treatment given them. Continental Orchid growers seldom cultivate species which demand high temperatures, so that one often sees kinds which are supposed to require much heat grown comparatively cool, and in many cases they appear quite happy under such circumstances. We have much, I suspect, to learn in this respect.—**J. CORNHILL.**

Ada aurantiaca is not one of the most showy or beautiful of Orchids, but, nevertheless, it is one that should be grown even in select collections. Its orange-red colour and the quaint formation of its flowers set upon neat arching spikes mark it out as a most distinct plant, and it can be purchased at a cheap rate. No one need spend guineas for it, as five shillings will purchase a good established plant, which does not take long to grow into a specimen. In the nurseries of Mr. B. S. Williams, of Upper Holloway, there is at present two handsome plants of it in flower, each with about a score of spikes on it. The flowers are more richly coloured than usual, and more closely set on the spikes. When grown into such handsome specimens as those to which I am now alluding, it is not only well adapted for decorative purposes, but would make excellent specimens for exhibition, the distinct colour of the flowers being much wanted amongst exhibition Orchids. The cultural requirements are exactly the same as those needed by the cool section of *Odontoglossums* and *Masdevallias*.—**J. DOUGLAS.**

Cattleya Backhousiana, one of the finest of all the varieties of *C. Trianae*, is, we hear, now in bloom in Mr. T. Shadford Walker's collection at Liverpool, to which it was imported as an ordinary *C. Trianae*. It will thus be seen that lovely varieties may crop up from any imported batch of *Trianae's* *Cattleya*.

Highly-coloured Dendrobium Wardianum.—Some flowers of this *Dendrobe* from Mr. Horsman, of the New Plant and Bulb Company, Colchester, are without exception the finest as regards size and colour that we have yet seen. They measure fully 4½ inches across, and the petals are nearly 1½ inches in width. A third of each segment is coloured with a rich deep plum-purple, and the colour is not only confined to the tips of the sepals and petals, but is carried down the margins of each, and there are conspicuous mottlings over the whole of the segments, rendering the flower very beautiful. The labellum is of course proportionate in size and also richly tinted. This fine variety flowered in the collection of Mr. D. de Ybarrodo, of Liverpool.

Sarcocylus Hartmani and S. Fitzgeraldi.—These are now flowering in the cool Orchid house at Kew. They are small *Aerides*-like plants natives of Australia, and worthy of a place beside *Aerides japonicum*, *Comparettias*, &c., the treatment for which is such as suits these little Australians. The flowers are produced in racemes about 6 inches long, those of the first-named being the size of a sixpence, and white with purple-brown bars on the lower part of the sepals and petals, and of the second half as large again and white with blotches of a pale rose colour.—**B.**

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

Ghent International Exhibition opens on the 15th inst. a continues to the 22nd.
April 19.—Dublin, Spring Show of Royal Horticultural Society of Ireland.

ALEXANDRA PARK.—Mr. Mundella has stated that there is no likelihood of the Government purchasing the Alexandra Park estate in order to convert it into a public park.

KEW GARDENS.—In future these gardens will be open to the public at 12 o'clock on week days and at 1 o'clock on Sundays. On week days the houses and museums are not opened until 1 o'clock.

CUCUMBER AND MELON DISEASE.—We have been asked to say that, if any nurserymen or gardeners have their plants attacked by the above or with cob-web fungus on seeds or cuttings, they can be supplied with material that will probably destroy the disease, with instructions, gratis and carriage free, from E. W. Smith, 109, Cheapside, E.C.

FUCHSIA MRS. RUNDALL.—At the last spring show in Paris we learn that this beautiful new hybrid *Fuchsia* was shown by Messrs. Cannell & Sons, Swanley. A first-class certificate was awarded it, and it appears to have been much admired. It is in the way of *Lord Beaconsfield*, but much finer in every respect, and a remarkably free flowerer.

TURNERA TRIONIFLORA.—This is a pretty little tropical shrub with Malva-shaped flowers and Elm-like leaves. The white purple-eyed flowers, about 1½ inches across, are produced on the ends of the shoots. Unfortunately, they are rather too fugacious to be of much use for horticultural purposes, although both this and several other species of *Turnera* found favour with our forefathers. The home of this interesting plant is Brazil, but from the ready manner in which it reproduces itself from seed it has become a weed in most tropical countries. We saw a plant of it in flower the other day in the *Begonia* house at Kew.—**B.**

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—The spring flower show of this Society, held in Edinburgh on Wednesday and Thursday last week, was a great success in every respect. During the two days nearly 20,000 persons visited the

Waverley Market, in which it was held, including many of the leading aristocracy. This number is, of course, largely exceeded in some of the large towns in England at horticultural *fêtes*, but on most of these occasions there are fireworks and other attractions which combine to draw out the multitude. At Edinburgh the shows are always purely horticultural, if a military band may be excepted. The Society dates from 1809, and although probably the oldest, is still one of the most vigorous in the kingdom. Besides the money taken at the gates on the show days, the Society derives a considerable income from its guinea and half-guinea memberships, to which there has been lately a considerable addition, owing to the vigorous appeal made by the Council of the Society to the public of Edinburgh and neighbourhood. This year—an ordinary one—£800 is offered in prize money in the aggregate, according to the prize schedule, at the three shows to be held during the year. The entries are open to all competitors free, and the prize money is paid on the show days. Edinburgh is fortunate in having a building like the Waverley Market, quite independent of the caprice of wind and weather, which frequently makes havoc at horticultural exhibitions held under tents.

AN EXHIBITION OF GARDEN FURNITURE, including greenhouses, boilers, seats, summer-houses, rollers, lawn mowers, &c., is to be held in the Agricultural Hall, Islington, in connection with the furniture exhibition, from April 23 to May 16 next, which, judging by the number of entries, promises to be very interesting. Every foot of available ground space has been engaged for some time, and also most of the galleries.

NEVUSIA ALABAMENSIS.—This little-known shrub, mentioned in *THE GARDEN* (p. 324) as having been exhibited in bloom for probably the first time in Europe at an exhibition in Paris, was last spring in full flower on one of the walls at Kew. Judging by the specimen there it does not seem likely to take high rank among flowering shrubs, the clusters of stamens constituting the principal display being of a yellowish green colour, and although produced in such profusion as to completely wreath the shoots, their colour does not justify the name of Alabama Snow Wreath. It may be that some are purer in colour than others, but that time will prove, for I see it is now catalogued by most of dealers in such plants. The specimens exhibited were no doubt grown under glass, and in that case would be better coloured than in the open air. I find that it strikes readily from cuttings made of the young shoots.—**T.**

ROYAL HORTICULTURAL SOCIETY.—We learn that an important change is about to take place with regard to the work to be done by the scientific committee of this society. It is intended to so constitute this committee as to make its proceedings more useful to horticulturists generally, and the chief means by which this is to be effected will, we understand, be in holding meetings, at which papers on horticultural and botanical subjects will be read and discussed from both a scientific and practical aspect, and to which anyone interested in such subjects will be admitted. The use of rooms of the Linnean Society at Burlington House has, we understand, been obtained for the purpose, and the first meeting of the society will be held there on May 8, at 8 p.m., when various papers on different subjects will be read. This movement or any other tending to extend the usefulness of the Royal Horticultural Society has, we need hardly say, our warmest support.

Wasp stings.—In *THE GARDEN*, February 24, under "Hornets and Wasps," are given various remedies for their stings. I have tried hazeline, and found it the best remedy for wasp stings. Some time ago while going through my garden my hat touched the branch of a tree on which a wasp's nest was fixed; down came a number of wasps and stung my forehead and face. The pain was great. I happened to have a bottle of hazeline. I poured some on my hand and rubbed it several times over my forehead and face. In less than a

minute all the pain of the sting was gone. These were small wasps. On another occasion I was stung on my hand by the common yellow wasp of India. The result of the hazeline was exactly the same. On a third occasion my native gardener was stung, and the result of applying hazeline was also like the above. I think hazeline a very valuable remedy for such a purpose. It is clean, has a pleasant smell, and can always be handy.—E. BONAVIA, M.D., Surgeon-Major, I.M.D.

RECENT PLANT PORTRAITS.

THE April number of the *Botanical Magazine* contains portraits of the undermentioned plants:

MEDINILLA AMABILIS (Double Plate 6681).—A handsome stove shrub producing large bunches of rose-coloured flowers, a native of the island of Java, whence it was imported about ten years ago by Mr. Bull, who presented the plant, whence this illustration was taken, to the Royal Gardens, where it bloomed in August last.

HOYA LINEARIS (Plate 6681).—A curious slender habited trailer with narrow hairy leaves and creamy white waxy flowers from Nepal.

LÆLIA MONOPHYLLA (Plate 6683).—A native of Jamaica, also known under the names of *Trigonidium monophyllum* and *Octadesmia monophylla*. An Orchid of slender habit of growth with solitary medium-sized orange flowers resembling in colour those of *Epidendrum vitellinum*.

HAMAMELIS VIRGINIANA (Plate 6684).—Native of America. This is the common Wych Hazel of the United States, and is also known under the names of *H. virginica*, *H. dioica* and *androgyna*, *H. corylifolia*, *H. macrophylla*, and *Trilopus virginiana nigra*. At the fall of the leaf its foliage assumes a gorgeous colour, and contributes not a little to the beauty of the American forests at that season. Its flowers consist of curious yellow filaments, and are produced in midwinter.

CADIA ELLISIANA (Plate 6685).—A native of Madagascar. A small, slender-growing shrub, with rose-coloured campanulate flowers of medium size. It is a member of a small family of which only three species are known, and all of which are natives of Eastern Tropical Africa, Southern Arabia, and Madagascar. The specimen here figured was communicated by Mr. Day, of Tottenham, with whom it flowered as a small bushy plant in a pot in December, 1882.

W. E. G.

QUESTIONS

Adiantum farleyense.—Will some correspondent tell me whether it injures this Fern to syringe it occasionally? and if it ought to be kept quite out of the sun?—ROSELEAF.

Tree Ferns dying.—Will some kindly explain why my Tree Ferns begin to die off directly the leaf is fully expanded? They have been repotted, are kept moist and well syringed.—NORWOOD.

Old-fashioned Lobelias.—Will some reader of THE GARDEN kindly inform me where I can get old-fashioned herbaceous Lobelias exactly like *Lobelia fulgens*, but in colours: dark blue, maroon, and dark violet? They used to be common in Devonshire gardens.—B.

Killing mice.—Can any of your readers help me in the following case?—A pit in our Melon ground, which is close to or rather on the edge of a wood, in which I force Strawberries, got infested with mice, those long-snouted, brown-backed ones, which have completely spoiled a lot of plants by eating the flower-spikes clean out of the crowns. I have for some weeks been using Battle's vermin powder as per directions, which the mice eat ravenously, but hitherto I have found no dead mice, and still the destruction goes on. On the last occasion of laying the poison, I mixed it in oatmeal with lard, but added as much pure arsenic as Battle's, but still can get no dead mice. Happening the other day to catch one alive in a stove adjoining the pit, I cut him open, and was most miserably surprised to find the little brute's stomach literally crammed with the oatmeal, of a Battle's blue colour, and that highly charged with arsenic. I was in despair, and give it up. Can anyone give me help?—J. K.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 10.

THE principal features of the display at South Kensington on this occasion were *Rhododendrons*, hardy *Azaleas*, *Narcissi*, and *Anemones*. These, together with some miscellaneous groups and some admirably grown *Orchids*, made the conservatory in which the show was held attractive. Contrary to expectation, but few new plants were submitted to the committee, and only one received a first-class certificate. This was

MASDEVALLIA SCHLIMI, a very distinct species and a handsome one. It has erect foliage, of thick texture, and flower-stems about a foot high. The plant shown bore two spikes, five flowers being on one and four on the other, borne close together on the upper part of the stem. The three sepals have long yellow attenuated tails, each about 4 inches in length. The ground colour of the flower is reddish brown. Exhibited by Mr. Baxter, gardener to Sir Trevor Lawrence, Burford Lodge, Dorking.

From Sir Trevor Lawrence's garden also came a wonderfully richly coloured *Odontoglossum vexillarium*, one of the deepest we have seen, the colour a dark purple-rose. A cultural commendation was accorded to Sir Trevor's gardener for a finely-flowered specimen of *Brasavola Perrini*, a species with long terete foliage and with ivory-white blossoms over 2 inches across. The plant was one large tuft attached to a block of Tree Fern placed in a pot. There were some thirty spikes on the plant, each with two or three flowers. A cultural commendation was also given for a finely-flowered plant of *Odontoglossum mulus*, a species or variety with flowers some 4 inches across, with a ground colour of pale primrose-yellow, heavily blotched with chestnut-brown. There were thirteen blossoms on one long, arching spike. A cut spike was sent of *Lælia elegans Turneri*, which is one of the finest of all *Orchids*. The flower is larger than that of the type, and the petals and sepals are a rich plum-purple, and the labellum of an intensely bright amethyst.

A cultural commendation was awarded to Mr. Parr for two very fairly bloomed plants of *Cœlogyne ocellata* from Mr. Russell Sturgis' Garden, Givon's Grove, Leatherhead. So numerous were the flower-spikes, that the plants looked like masses of white. The same exhibitor also showed a *Carnation* called *Perfection*, with prettily pencilled pink flowers, and a beautiful *Gloxinia* called *Spotted Beauty*. It was one of the erect-flowered group, and appeared to be extremely floriferous. The flowers were white, profusely spotted with violet-purple.

Mr. B. S. Williams was awarded a silver medal for an attractive group of miscellaneous plants, among which were a few choice *Orchids*, such as *Odontoglossum vexillarium*, a fine plant with five spikes; *Lælia elegans Leana*, a new variety in the way of *Turneri*, but much lighter; *Dendrobium densiflorum*, *Masdevallia Harryana*, *Trichopilia lepidota*, a rare species with flowers about the size of the better-known *T. suavis*, but of a deeper colour; and *Ada aurantiaca*, a handsome specimen with nearly a score of bright orange flower-spikes. The group also contained a few good *Rhododendrons*, such as *Countess of Sefton*, with large white blossoms; *R. ochraceum*, a species with dense trusses of white flowers; and *R. Lady Alice Fitzwilliam*, a lovely variety with flowers fully 4 inches across and pure white. Among the *Imantophyllums* were the highly coloured *Martha Reimers*, *Madame Van Houtte*, and *grandiflorum*, three of the very best for richness of colour, size of truss, and flower. Two varieties named *Mrs. Rawson* and *Dr. Masters* were among the most beautiful of the *Amaryllises*.

The double *Cineraria* named *Mrs. Thomas Lloyd* was shown in an admirable condition by Messrs. Cannell and Sons, Swanley, better than we had hitherto seen it, and showed what a fine plant it is when well grown. A dozen and a half plants were shown all in 6-inch pots, and each carried hugespread heads of bloom, each of which were

about 1½ inches across, perfectly double and globular, and of a rich purple. Messrs. Cannell also showed numerous cut blooms of *Anemone coronaria*, one of the finest strains, and specimens of *Salvia interrupta* with large spikes of purple flowers, the white *Nicotiana affinis*, and *Chrysanthemum segetum* variety *Aurora*, an extremely fine double *Marguerite* of a clear chrome-yellow.

One of the brightest features in the show was an extensive collection of *Anemone coronaria* flowers grown in the south of France, and exhibited by Messrs. Collins & Gabriel, Waterloo Road. The flowers represented every possible tint to be found among *Crown Anemones*, and the blooms were enormous, some being fully 4½ inches across. They were named the *New Victoria Giant Anemones*. Would that we could grow such *Anemones* in our English gardens. The group also comprised flowers of *Anemone fulgens*, both the original single and the semi-double multipetala, and also the *Peacock Anemone* (*A. pavonina*), a wild variety of *A. fulgens*. It has larger flowers than the latter, and inside the cup there is a distinct ring of a yellowish colour. It was shown under the name of *A. coronaria Dazzler*. This group, together with a smaller display from Messrs. Cannell, won a fair share of admirers.

The pretty old *Tropæolum tricolorum* was shown by Messrs. Carter, High Holborn. The plants were trained on balloon-shaped trellises, which were studded with the bright little red blossoms. This is a very pretty plant for the greenhouse in spring. A beautiful double white *Indian Azalea* was shown by Mr. Nicholl, Lower Merton Nursery, Surrey. It was named *Princess of Wales*. The flowers were 3 inches or 4 inches across, quite double, and of snowy whiteness.

Azalea rosæflora, or *Rollissoni*, as it is often called, was shown beautifully in bloom by Messrs. Veitch, and was much admired, inasmuch as it is so unlike any other *Azalea*, the flowers being double and of a soft salmon-pink colour. The plants are dwarf and bushy, and bear flowers very freely. In a half expanded state the flower-buds are like miniature *Rose* buds.

Some plants in flower of a new *Rose* called *Merveille de Lyon* were shown by Messrs. W. Paul & Son, Waltham Cross. The flowers are large, of good form and substance, and almost pure white, there being only a faint suggestion of pink in the blossoms. It is one that, like *Mabel Morrison* and *Madame Lacharme*, will sure to be appreciated, as there are so few Hybrid *Perpetual Roses* of such a light colour.

A new *Rose* called *Her Majesty* was exhibited by the raiser, Mr. Bennett, Shepperton. It is unquestionably one of the finest of all *Roses*, the flowers being unusually large and full petalled, and the constitution of the plant is most robust. The colour is a pleasing deep pink. We shall undoubtedly hear a good deal in future respecting the beauties of *Her Majesty*, though at present it appears to be scentless.

A group of hardy *Rhododendrons* exhibited by Mr. Lane, Great Berkhamstead, was highly attractive, as all the specimens were large standards densely covered with bloom of varied hue. Inter-mixed with these were bushes of *Ghent Azaleas* and *Azalea mollis*, the latter of various colours, from orange-red through pink to almost white. Nothing can well be more beautiful than *Azalea mollis* when well flowered, for the delicate, yet bright, hues of the flowers harmonise so beautifully with the tender green of the unfolding foliage. A silver *Banksian* medal was awarded.

In order to show what can be done with *Daffodils* in a cut state, Mr. Aldous, the florist in Gloucester Road, sent a huge bouquet some 2 feet across, composed of nothing but varieties of *Narcissus*, of which there were no fewer than forty-four in the bouquet. The large trumpet kinds were most conspicuous as they stood out from a dense groundwork of less showy sorts. It was a masterpiece in the art of bouquet making, and strikingly attractive and uncommon. A large basketful of *Daffodils* mixed with *Ferns* was also shown by Mr. Aldous, and, like the bouquet, was much admired.

An extensive collection of Narcissi, including nearly 200 varieties, was exhibited by Messrs. Barr & Son, King Street, Covent Garden. It included not only the older kinds, but many new seedling varieties not yet in commerce. We should say that every known variety of the Ajax section or Trumpet Daffodils was shown, from the noble *N. maximus* to the tiny *N. nanus*, minor, and *pumilus*, and had it been rather earlier the tiniest of all, *N. minimus*, would have been represented. Here was ample material for a close study of cultivated Narcissi, but those who knew only the older types were no doubt puzzled when they came to the new hybrids, such as the Barri, Humei, Burbidgei, Vincenti, Nelsoni, and Leedsii races, all of which are intermediate between type species. It was rather too early for the *N. incomparabilis* type, but there was a good sprinkling of varieties; and of the Poet's Narcissi there were some fine bunches of *N. poeticus ornatus*, one of if not the earliest of all. From this vast collection we singled out about a dozen which would, we consider, represent most of the various types. The selection was *maximus* (which should always be included), *bicolor Empress*, *lorifolius Emperor*, *cernuus pulcher*, *luteus major* (similar to *maximus*), *obvallaris* (the Tenby Daffodil, very early), *Hudibras* (a fine trumpet variety), also *stellatus*, *N. incomparabilis Harpur Crewe*, *Leedsii amabilis*, *Vincenti Katherine Spurrell*, *N. odorus*, any or all of the poeticus varieties, Humei and its varieties. Messrs. Barr & Son deserve praise for bringing together such a wonderful array of Narcissi. The group was awarded a silver Banksian medal.

Some choice Primroses, the pick of a large collection, were shown by Mr. R. Dean, from his nursery at Bedford, Ealing. Among these were *Magenta Queen*, a beautiful sort with very large finely-shaped blooms of a clear, bright magenta. *White Queen*, similar in flower, but white with yellow centre, and, like the last, remarkably floriferous; *Polyanthuses Scarlet Gem* and *Orange Beauty* were both beautiful duplex or Hose-in-hose sorts, the first being a bright red, almost a scarlet, the other a rich orange-yellow. Mr. Dean also showed plants of *Myosotis dissitiflora* the best of all the Forget-me-nots, together with the pure white flowered variety of it, which is a lovely plant, a charming contrast to the other.

From the society's garden at Chiswick, Mr. Barron exhibited a miscellaneous group, consisting chiefly of *Polyanthus*, *Narcissi*, *Spireas*, *Azalea mollis*, some admirably grown *Cinerarias*, *Primula rosea* and *cashmeriana*, *Carnations*, *Tulips*, and *Begonia carolinæfolia*, a pretty species with elegant sprays of small rose-pink blossoms. These gay flowers, intermixed with some huge specimens of *Pteris serrulata*, *Adiantum farleyense*, and other fine-leaved plants, was a much admired feature of the show.

Fruit.—The most important exhibit was a collection of Apples from Messrs. Rivers, of Sawbridgeworth. It numbered some sixty dishes and as many varieties, and the fruits on the whole were in admirable condition. Some of the most noteworthy were *Blenheim Orange*, *Wadhurst Pippin*, *Betty Geeson*, *Beauty of Kent*, *Reinette du Canada*, *Lord Burghley*, *Rymer*, *Gloria Mundi*, *Cornish Aromatic*, and *Syke House Russet*. A good-looking Apple named *Moss' Incomparable*, in excellent preservation, was shown by Messrs. J. Veitch, who also exhibited fruits of the new Pear of French origin called *Directeur Alphand*, an illustration of which was given in THE GARDEN, p. 632, Vol. XVIII. The committee desired to see it again. A certificate was proposed and seconded, but as the rule is not to grant a certificate unless at least six fruits are exhibited, the certificate was withheld. It is a large, handsome-looking Pear and a good keeper, but its eating quality is not highly spoken of. A cultural commendation was voted to Mr. McIndoe, Hutton Hall, Yorkshire, for a dish of Early Beatrice Peach. The fruits, of course, were small, but were admirably coloured. A cultural commendation was also given to Mr. Fife, Ditton House, Thames Ditton, for a fine dish of President Strawberries. Messrs. Lane, Great Berkhamstead, exhibited samples of their new Prince

Albert Apple, a large handsome sort, of good quality, and highly spoken of.

Committees.—The members present were: *Floral*.—Mr. B. S. Williams (chairman), Messrs. G. Henslow, G. F. Wilson, J. Douglas, H. Bennet, W. Bealby, J. Laing, H. Ebbage, J. Wills, J. Cutbush, H. Cannell, T. Moore, S. Hibberd, H. Ridley, G. Duffield, H. Turner, H. Ballantine, J. Dominy, W. B. Kellock. *Fruit*.—Mr. J. Lee (chairman), Messrs. G. Goldsmith, J. Willard, J. Roberts, W. Paul, J. E. Lane, W. Denning, A. Sutton, R. D. Blackmore, L. A. Killick, J. Woodbridge, J. Smith, F. Rutland, H. J. Veitch, R. Hogg, and G. Bunyard.

Lecture.—Mr. Henslow drew attention to some Azaleas, the forms being innumerable. Now, the old *A. indica* was very rare at the beginning of this century. *A. pontica* appears to have been the species with poisonous honey, and which stupefied the soldiers of Xenophon. It has been used in its native country, east of the Black Sea, for medicinal uses. *Rhododendron ponticum* was supposed erroneously to be the deleterious plant. A third genus, *Rhodora*, of which *R. canadensis* was introduced by Sir J. Banks in 1767, is closely allied. Indeed, though called genera, they can all three be cross-fertilised, which proves them to be the same genus. Mr. Henslow then made some remarks on physiological affinity not always corresponding with morphological, in that plants may differ very much in structure can yet be grafted on one another or cross-fertilised. Thus, *Garrya elliptica* can be grafted easily on *Aucuba*, and *Hibiscus* will fertilise *Abutilon*. The lecturer called attention to a curious phenomenon sometimes seen in Tulips, in that a leaf or petal may be half green and half coloured and situated on the stem. The coloured part ceases to grow, so that it checks the growth of the peduncle. This heads over, and may even crack and decapitate the Tulip.

Scientific committee.—Sir J. D. Hooker in the chair.

Peas, &c.—Mr. MacLachlan showed Peas received from America attacked by *Bruchus Pisi*, also dipterous larvæ cases found about the roots of *Dendrobium crassinode*, and a beetle (*Donacia* sp.) with *D. Devonianum*. The two latter were received from Col. E. S. Berkeley.

Fossil cone.—Mr. Boulger showed a specimen of *Pinites hexagonus* from the Gault, related to *Pinea*, which, like recent species, is still associated with *Sequoia*.

Narcissus sp.—Dr. Masters showed specimens from Prof. M. Forster, amongst which was the rare *N. rupicola* of Spain.

Sclerotia of Potatoes.—Mr. G. Murray replied to certain comments of Mr. A. Stephen Wilson upon his remarks at the last meeting. Mr. Murray adheres to his opinion that there is no sufficient proof of the mycelium arising from the plasm state, and asks if a seedling be so severely attacked, why is it perfectly healthy? He cannot yet pronounce what they are without further material.

Puccinia Buxi.—Mr. W. G. Smith showed specimens of *Bux* badly attacked by this fungus, which will germinate on the Olive in twenty-four hours.

Greyia Sutherlandii.—He showed drawings of flowers of this plant, pointing out the long and short styled conditions, though the stamens were long in both cases. The flowers are provided with a circlet of glandular bodies of unknown use.

Violets killed by cold.—Mr. G. Lee, of Clevedon, sent Violet plants completely killed throughout by the late severe cold weather.

Shrubs injured by cold.—Mr. Loder showed many kinds of shrubs severely injured by the late cold, the temperature having fallen to 3° on March 10.

Camellia reticulata.—Mr. Boscawen sent a blossom with the observation that "it had been out-of-doors unprotected for years against a wall with an east aspect. This *Camellia* is by far the hardiest of all; not a leaf has ever been injured."

Frost at Lamorran.—He also sent a list of temperatures for March, the lowest of which was 22° of frost on Saturday, March 10.

OBITUARY.

JOHN COLLINSON, for forty years head gardener at Eaton Hall, died the other day at Chester, aged eighty-one. In bygone days Mr. Collinson was a prominent exhibitor of fruit, both at Chiswick and Regent's Park, competing successfully with such good gardeners as Ingram, Spencer, Fleming, and Hill—all now, alas! gone. Ten or twelve years ago he retired from the gardens at Eaton Hall with a pension from the duke of his full salary, with a house and garden rent free. He was interred at Eccleston Church, the Duke of Westminster, Lord Arthur Grosvenor, and Lord Henry Grosvenor being among the numerous relatives and friends present at the funeral.

WE have to record with regret the death of Mr. JOSEPH SPYERS, which took place a few days ago at Torquay. Mr. Spyers till within the past few months had been Orchid grower for some ten years to Sir Trevor Lawrence at Burford Lodge, Dorking. His skill as an Orchid cultivator was universally acknowledged, and of this the celebrated collection alluded to bears ample evidence. Besides being an expert cultivator, Mr. Spyers was a frequent contributor to the gardening periodicals—THE GARDEN amongst others, and his writings always contained sound practical information. He was held in high esteem by Sir Trevor Lawrence, whom he had served so long.

WE hear also of the death of Mr. HERBERT SMITH, eldest son of Mr. James Smith, of the Darley Dale Nurseries, Matlock, at the early age of forty-six.

BOOKS RECEIVED.

"The Lily of the Valley," by William Roberts. London; L. Upcott Gill.

"Prize Essays on Celery Culture," written for D. Landreth & Sons, Seed Growers, Philadelphia.

"Landreth's Prize Essays on Onion Culture," published by D. Landreth & Sons, Seed Growers, Philadelphia.

CATALOGUES RECEIVED.

Hooper & Co.'s (Covent Garden) Rustic Garden Furniture Landreth's (Philadelphia) Almanack and Catalogue.

Bruant's (Poitiers) General Plant Catalogue.

B. S. Williams' (Upper Holloway) New and General Plant Catalogue.

Barr & Sons' (Covent Garden) Descriptive Spring Catalogue.

Delesalle's (Lille) Plant Catalogue.

Ellwanger & Barry's (Rochester, N. Y.) Catalogue of New and Rare Roses.

B. Harlow (Macclesfield) Horticultural Appliances.

Lovell & Son's (Duffield) Strawberry Plants.

Cape bulbs (*E. F. Paris*).—We are unacquainted with any wholesale dealers in such things, except those you mention.

Odontoglossum Alexandræ (*T. L. Cater*).—The flower you send represents a very pretty and scarce variety, and rarely have we seen a flower with such a rich suffusion of rosy purple tint in the sepals.

Rabbits and Berberis japonica (*H. F. C.*, p. 323).—Rabbits are not fond of *Berberis japonica*, but in times of scarcity, i.e., during severe frost and snow, I have known them to nibble it.—J. B. WEBSTER.

Names of plants.—*J. D. N.*—1, *Davallia decora*; 2, *Pteris cretica*; 3, *Poly-tichum angulare proliferum*; 4, cannot identify for want of spores; 5, *Pteris hastata*; 6, *Hypolepis* (?), possibly *distans*.—*A. C.*—*Adiantum*, forked variety of *A. concinnum*. If all the fronds are forked like the enclosed it is not known in commerce.—*J. Jennings*. *Maxillaria Harrisoniæ*.—*Puzzled*.—*Allium neapolitanum*.—*T. S. (Coventry)*.—The Fern is *Davallia Nova-Zelandiæ*. The Orchid flower did not reach us; please send again.—*C. A.*—*Canadian Blood-root* (*Sanguinaria canadensis*).—*W. M. (Perth)*.—*Odontoglossum spectrum*. A very finely coloured variety of *Dendrobium nobile*, one of the deepest we have seen. We do not recognise the *Burlingtonia*, but will endeavour to ascertain the name. The *Cattleya* intermedia is marked in an uncommon way.—*J. B.*—1, *Cyrtobolium Karwinski*; 2, *Oncidium sphacelatum*; 3, *O. stelligerum*.—*Col. S. W.*—*Narcissus moschatu* s. *Plants* tied in Moss no name attached, *Anemone vernalis*, *Scilla sibirica*, *Pulmonaria angustifolia*, *Narcissus albicans*.—*M. J. (Arbroath)*.—*Clematis montana*.

No. 596. SATURDAY, APRIL 21, 1883. Vol. XXIII.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NOTES AND READINGS.

WELL-PRESERVED APPLES AND GRAPES.—I have before me now fine examples of the Northern Greening Apple, grown by Mr. Batley, of Wentworth Castle, Yorkshire, that were gathered in 1881 and 1882—both examples sound, firm, and excellent. Mr. Batley informs me that he has often had Apples two years old stored in a fruit room of a very common description partly sunk in the ground, the shelves not being sparged in the usual way, but consisting of plain deal boards laid closely together, so that no air circulates amongst the fruit from beneath. This storehouse is at the present time still well filled with as fine home-grown Apples from old orchard trees as we have ever seen. The trees are not formally trained, but are old, though carefully looked after, and the plantation has been gradually weeded out, till now Mr. Batley thinks he has got just the varieties he can depend on and needs. His Grape room is a dry loft in the sheds behind the vineries, and here are to be seen some of the most perfect examples of the black Alicante ripened at the end of last October, the Vines from which they were cut still standing at rest, and not a bud on the move. The foot-stalks of the berries are perfectly green, and not a speck of bloom is rubbed off. In past years we have seen the same variety in equal perfection in June. Once Mr. Batley exhibited two bunches at South Kensington that attracted much attention and were awarded a first-class certificate—two moderate-sized bunches that afterwards sold for £4. The Royal Horticultural Society wrote requesting Mr. Batley to furnish it with an account of his culture, which he did, but although that is years ago the paper is still in the archives of the Society.

FLUED WALLS FOR PEACHES.—From the same garden and the same gardener many years ago used to come constantly to the Barnsley autumn show grand Peaches that invariably were awarded a first prize. These came from an open flued wall, where some hothouses now stand, and Mr. Batley declares that his fine outdoor Peaches departed with his flues, which he regards as far before protectors and other novel appliances recommended as substitutes. He still grows Peaches outdoors in the same exposure, but the crops do not equal the old ones. Heated walls are now regarded as old-fashioned and out of date, but Peach culture in the north has been a dead letter in the open air ever since they were given up. The warm bricks repelled late frosts from the blossoms and ripened the wood in autumn, the two main points in open-air Peach culture.

PEARSON'S GOLDEN QUEEN GRAPE.—The same good grower reckons this to be one of the best late white Grapes in cultivation. Grown in a Muscat temperature, he says, it assumes the golden colour claimed for it originally by the raiser, and has a distinct Muscat flavour. No examples we ever tasted, however, possessed the last quality in a degree to be sensible to the palate.

HARDINESS OF HYBRID RHODODENDRONS.—It would be useful to learn some particulars on this subject. It is well known that many of the garden hybrid Rhododendrons are of mixed blood derived from species obtained from different parts of the world and of different degrees of hardiness. Probably there are no varieties so hardy or vigorous as the old ponticum so extensively planted in past times, enduring our severest winters with impunity, and thriving in different kinds of soil; but planters are now inclined

to employ the better and gayer coloured hybrids, and there is some doubt about their suitability for many situations. A grower of Rhododendrons in the south, who has planted the latter somewhat freely, says he has been disappointed to some extent, not a few of the plants having died or made but a feeble growth and flowered but sparingly. Without some experience or special information on the subject, it would not be advisable to plant hybrids extensively, unless it be the harder descendants of *catawbiense* and *ponticum*. Any of the varieties, but especially the tender ones, are greatly benefited by shelter from cold winds, hence should occupy the lee side of plantations, have a dry bottom, and be thickly mulched with dead leaves and other decaying vegetable matter during the winter as a protection. Like Roses, Rhododendrons are greatly benefited by such treatment.

PEREGRINE.

AURICULAS AND POLYANTHUSES.

NEXT Tuesday brings us again the annual show of the National Auricula Society at South Kensington. On the Tuesday following the northern section of the Society will hold its great show in the Manchester Town Hall, and on the Wednesday local Auricula shows will be held at Rochdale and Newcastle-on-Tyne. It will be a busy time for florists and an exciting one for those who have carefully tended their pet plants throughout the hard winter and the harder spring, and who must in spite of the inclement season contrive to have their plants in perfect condition, and fit for the stage, in competition for the coveted prizes.

Auriculas and Polyanthuses may be said to lie dormant through the winter, and, alas, many of them have lately slept the sleep of death! With some Polyanthuses in particular the mortality has been very great; the cold, damp weather continuing so long, has caused the plants to rot away, so that some collections have dwindled down to a few survivors. Congleton Queen and President have gone by hundreds. Many of the survivors are weakly and want genial weather to make them vigorous and to give them growth, for as a rule all are stunted and lack the usual wealth of bloom which characterises the Polyanthus in a good season. Last year they were nearly all over by the show time; this year they are late; but for all this there is likely to be a good display, and there are some good seedlings going up from Lancashire for the prizes so wisely offered by the southern section of the Society.

Auriculas, as a rule, look well this year. They are hardier, and their habit of growth fits them better for extreme cold, so that whether grown in frames or in cool greenhouses they have an equally healthy appearance, and are just coming freshly into bloom at the showing time, so that we may look for a large and effective display.

The last month of dry weather has helped Auriculas. The awakening takes place in February, when from a tightly furled plant the leaves gradually unroll, and display their delicately mealed foliage, sometimes edged with a white line, as with Richard Headly, or with a white and deeply serrated edging, as with Mrs. Douglas and Frank Simonite, or heavily mealed to a creamy whiteness, as in Catherine, but always freshly beautiful and charming even without the future promise of flowers. Then the truss appears, nestling deep down in the crown of leaves, and as March passes it is gradually lifted aloft from day to day, and on sunny days so quickly that you fancy you can almost see it grow. Next the buds begin to separate, and you have to keep them carefully apart with soft wool, so that the flowers may be circular and even, and you thin out the superfluous buds, so as to leave a sufficient number to fill the space without crowding the truss; and you have to consider the time, so that your flowering be neither too early nor too late, for it is better far to show a flower waxing than when it is past its best. If you try to retard the growth by moving plants to a cooler or shadier place, you frequently find they lose ground, and so you have to watch them where they stand, and to regulate the shading, giving sunshine or shade to meet the

requirements of the day, keeping back the over early and coaxing on the laggards, aiming for the happy result of equal blooms in all the classes at the precise day.

And what a thrill passes through the mind of the florist when he sees his John Simonite, or Acme, or Alexander Meiklejohn, his Prince of Greens, and Colonel Taylor coming well; when his Lancashire Hero wears its best green edge instead of its grey; when Lovely Ann is in correct form, for she is capricious, and wears at least four different dresses, which she doffs and dons as it pleases her. Then he has to see that his self does not come earlier than the rest, as they are very apt to do, and that he has good plants in each and all of the four classes, for it sometimes happens that you lose the prize because you are deficient in self, although very strong in the three edges, or you may very easily be weak in green edges when you abound in grand plants of all the rest. And so it will be seen that there is abundant room for anxiety and plenty of daily work to be done in caring for a large lot of Auriculas and Polyanthuses, and therefore the florist requires many wholesome qualifications for his hobby, and patient, persevering work for many months before a show. Poor Tom Mellor used to say that he never lost heart if his own plants were poor, because he thought others might probably be as poor as his were, and it often proved to be so when the rival plants were staged. Likewise, when your own are good it does not do to be over-confident, for the chances are that good plants may be plentiful elsewhere. The season is the same to all, and the best cultivator wins the day. The London and Manchester shows are for the large growers. It takes a bold man to show in these against the large collections of such amateurs as Mr. Horner and Mr. Whitburn and the trade collections of Mr. Turner, Mr. Booth, and Mr. Pohlmann. The Rochdale and Newcastle shows should be left more to the small amateurs, especially the weavers and colliers and handicraftsmen, who make this florist hobby their aim and great delight. These local shows should be encouraged everywhere.

WM. BROCKBANK.

Brockhurst, Didsbury.

PLANTS IN FLOWER.

CALCEOLARIA VIOLACEA.—Flowers of this charming little Slipperwort have been sent to us by Mr. Wolley Dod, from Edge Hall, Malpas. He adds that it is nearly or quite hardy with him in Cheshire, though it does not flower well in the open border. The flowers are small and helmet-shaped. Their colour is a delicate mauve copiously spotted with purple. It is well worth pot culture in a greenhouse.

NARCISSUS CAPAX.—I send you three blooms of this the Queen Anne's primrose double Daffodil. Two of them are from the open rockery exposed to the N.E. blasts and close to the coast; the other is from the alpine house. You will notice little difference in the flowers, which speaks volumes for their ability to withstand our heavy gales without injury.—W. H. BROWNE, *Aldborough Hall*. [The finest blooms we have seen this season.]

HELICODICEROS CRINITUS, sometimes known as *Arum crinitum*, is one of the most singular of all Aroids. A plant in the T range at Kew is now bearing a second inflorescence, which is something unusual in these plants; at all events it never occurs in the allied *Arisæma*. The stem of this remarkable plant is curiously spotted, and the leaves are divided in such a manner as to give them the appearance of a pair of horns standing erect. The flower (inflorescence) is about twice the size of that of the common *Calla*, somewhat similar in shape, but curled back above, so as to display the inner surface, which from the density of the hairs placed there appears to be wholly purple, whereas the surface itself is yellowish green. Like many of these annual stemmed Aroids, the flowers of this plant have a very disagreeable odour. Although grown in a warm house at Kew, where, along with a fine col-

lection of *Arisæmas*, it appears to be quite at home, this plant is said to be almost hardy, requiring protection only during the most severe weather. As a pot plant, however, it would appear to be most at home. If grown out of doors, the tubers should be taken up and stored during winter in a cool frame, for a wet cold season would most likely prove fatal to them. It is a native of Corsica and several adjacent islands, and appears to have been cultivated in this country so early as 1777.

FLOWERS FROM DUBLIN.—Herewith I send you *Nicotiana affinis*, side branch only; *Sarracenia flava*; *Narcissus Horsfieldi* and *Jonquilla*; *Spiræa Reevesi*, graceful spray, lovely when fresh; *Asparagus consanguineus*, fine for bouquets, and very enduring in water; *Lachenalia luteola*, often misnamed *L. tricolor*; *Iris (Moræa) chinensis*; and Ghent *Azaleas*, lovely in pots in the greenhouse along with Japan Maples, Solomon's Seal, Hoop-petticoat Daffodils, and similar plants.—F. W. B.

MAGNOLIA FUSCATA.—The whole of the southern end of the temperate house at Kew is now filled with the delicious fragrance of this *Magnolia*, a fine bush of which is planted in one of the borders there, and is at the present in full flower. Being of easy culture, one would expect this *Magnolia* to be more frequently met with than it is, especially as it is nearly hardy. Its blossoms are, however, not showy; on the contrary, they are dull purplish brown in colour, and hid beneath the foliage. Their only charm is their sweet scent.

AGAPETIS BUXIFOLIA.—This is a neat branching Ericaceous shrub, well furnished with small, bright green, glossy foliage, and bearing a general resemblance to the *Vacciniums*, except when in flower; the shoots are studded with bright red tubular blossoms about an inch long and borne in great profusion. They hang down gracefully from the branches, and have a wax-like appearance common to the *Thibaudias* and some of their allies. It requires greenhouse culture, and is now in flower in the temperate house at Kew.

THE YELLOW ROOT (*Xanthorhiza apiifolia*).—To lovers of showy shrubs this would scarcely commend itself, yet a fine mass in the dell near the flagstaff at Kew is just now very interesting. It is a small bush, with yellow creeping roots, from which suckers are thrown up in such profusion as to soon form a large clump. The leaves are irregularly pinnate, and the minute flowers, which are borne in comparatively large branching spikes, are a peculiar dark purple in colour. A cool, rather moist soil suits it perfectly. It is a native of North America and quite hardy.

ANTHURIUM ANDREANUM.—I send you a flower of this *Anthurium* for your opinion. It measures 7½ inches by 6 inches. It is the largest flower we have had, but perhaps not the best shaped one. The flowers have increased in size as the flowering has gone on. The variety from which this flower is taken is dwarf compared with some I have seen, and the flowers of dwarf growing plants are superior to those on plants that grow very tall. Are there two varieties? or what is the cause of the long stem in the case of some kinds?—T. C. ANDERSON, *Milner Field, Burghley*. [A remarkable flower, very brilliant in colour.]

The hardy *Primulas* in Mr. Ware's nursery at Tottenham are just now well worth a long journey to see. Never have we seen the charming *P. rosea*, the undisputed queen of hardy *Primulas*, so numerous or so finely flowered. This does best when given plenty of moisture. The snow-white *P. nivalis*, too, is lovely, particularly plants of it that have had the slight protection of a frame in hard weather. Some of the plants (large spreading tufts) are literally masses of snowy blossoms. The innumerable forms of *P. acaulis* include such beautiful ones as *platypetala* and its double form, the scarlet-flowered variety.

RHODODENDRON AUCKLANDI.—The Himalayan *Rhododendrons* in the temperate house at Kew are now rapidly approaching the flowering stage; indeed, the blossoms of some of them have already expanded. *R. Aucklandi* is at its best, but it does not bear this season so many flowers as usual. The

latter are white, slightly suffused with blush, about 6 inches in diameter, and borne in an open, bluntly pyramidal shaped truss, so that even though few in number, they render the plant one of the chief ornaments of the house in question. A large plant of a bright coloured form of *R. arboreum* is also in full bloom, and in a few days the list might be much increased.

AMARYLLISES AT WESTONBERT.—In his garden at this place, near Tetbury, Mr. Holford has got together the finest private collection of *Amaryllises* in the country, mostly seedlings raised at Westonbert. The flowering bulbs alone number from 900 1000 besides a large collection of seedlings raised from some of the finest varieties. Mr. Holford is fond of the *Amaryllis* family, and watches with the keenest interest the opening of new flowers. Bright self colours are his special favourites, and there is scarcely a week throughout the year in which one could not see *Amaryllises* bloom at Westonbert. The plants are very healthy; they are grown in a vinery plunged in stable manure underneath the Vines.

BROWNEA ARIZA.—This magnificent flowering stove shrub is just now, says the *Irish Farmer's Gazette*, commencing to make the stove conservatory at Glasnevin particularly attractive. Its great glowing, pendulous, crimson tassels are indeed marvels of floral beauty, which even the most indifferent cannot fail to admire. The more familiar species, *B. grandiceps*, of which there is a grand specimen in the same compartment, is not likely to afford this season its usual gorgeous display of flower, as it has only recently been retubbed, which, of course, will interfere with the flowering this season, but only, doubtless, to make it all the more profuse another year. The finest collection of these noble flowering trees anywhere is that at Lakelands, Co. Cork. If we remember rightly, it includes some fifteen species.

PHRYNIUM SANGUINEUM.—If we except the *Cannas*, the *Maranta* family is not particularly strong in floral attractions, yet in this *Phrynium* we have a striking exception. True, it is a common plant, but grown generally only for its foliage, and as the ornamental character of this is best seen in young or dwarf compact flowers, the proper habit of the plant is seldom allowed to develop itself. At Kew just now, however, there is a fine specimen of this *Phrynium* some 5 feet high and bearing long-stalked, dense panicles of reddish coloured flowers of the most attractive kind. These flowers last for some weeks in perfection, and therefore form good subjects for vases, &c. The foliage of this *Phrynium*, which is like that of most *Marantas* in shape and texture, is dark green above and purple beneath. It is a stove plant and should be treated similar to the *Marantas*.

THE BROMELIADS AT KEW are rapidly assuming a much healthier and more promising appearance since their removal from the Palm house into more suitable quarters. We noticed in flower the other day some interesting kinds, amongst which *Caraguata cardinalis* was particularly noticeable. It is a rare plant of recent introduction, not unlike the better-known *C. Zahni*, but differing from it in the foliage being longer and less distinctly striped with purple and in the more brilliant colours of the inflorescence; the latter consists of brilliant red bracts surrounding some bright yellow ones in the middle, from which the white flowers are pushed several at a time. *Billbergia Liboniana*, an old, but pretty *Bromeliad*, bears drooping panicles of tubular flowers 3 inches in length; the sepals, which are 1½ inches long, are vermilion-red and the petals deep violet. *Pitcairnia echinata* has a tall branching spike of yellow and white tube-shaped flowers, the sepals of which are covered with thick fleshy hairs, which have won for it the name *echinata*, or hedgehog-flowered. *Tillandsia splendens* is a handsome foliaged plant, the leaves of which are ornamented with broad chocolate bands. The flower-spike is sword-shaped, 15 inches in length, and bright red, the flowers, which are comparatively insignificant, being yellow. *Macrochordium tinctorium* has an *Echmea*-like inflorescence and small black flowers

set in a head of whitish wool. *Billbergia viridiflora* bears a drooping spike of green flowers, those on the lower end having at their bases long, dark crimson bracts. Several other less noticeable species are also in flower.

LATE CHRYSANTHEMUMS.—It may possibly interest some of the readers of THE GARDEN to know that *Chrysanthemums* are still in flower with us. We have been cutting blooms every week since October, and could, I am certain, if we so desired it, continue to do so for some weeks longer, having still some plants well set with flower buds. I find, however, that as the days lengthen and the weather becomes warmer, the flowers become thin, flimsy, and poor just in proportion to the amount of heat and light to which they are subjected.—JOSIAH JEFFERY, *Derry, Co. Cork*. [With this came blooms of Fair Maid of Guernsey and Venus, still fresh and good.]

CEREUS MALLISONI is the most attractive plant in flower just now in the Cactus house at Kew. A fine specimen of it grafted on the night-flowering *Cereus* (*C. McDonaldiae*, of Honduras) has numerous flowers on long, round, fleshy stems, which depend grotesquely from the rafter to which the plant is fixed. The blossoms are very showy, being about 4 inches across and of a bright cherry-crimson colour. This is one of the most satisfactory of all the *Cacti* to grow, for it never fails to produce a copious annual crop of blossoms. Whether it succeeds better grafted on the night-flowering *Cereus* than on its own roots we are unable to say, but the Kew plant evidently thrives admirably so treated. *C. Mallisoni* is, we believe, of hybrid origin, and has been many years in gardens. It likes a warm, dry atmosphere and would flourish well at the warmest and driest end of an ordinary stove.

RUDGEA MACROPHYLLA.—This is again in flower in the T range at Kew. We do not remember to have seen this plant anywhere except at Kew, and are surprised that so fine a stove-flowering plant should be so little grown. It was introduced some fifteen years ago by Mr. B. S. Williams, of Holloway, where it flowered and was figured in the *Botanical Magazine*. It is a thick woody-stemmed plant with stout leathery leaves. It grows to a height of 6 feet and bears on the ends of the shoots globose heads of white fleshy flowers not unlike a large head of *Bouvardia* blooms. It is a slow growing plant, and not easily propagated. The best way is to cut an old plant in hard and to take off for cuttings the young shoots as soon as ripe with a little of the old wood attached to them. Being a native of Rio Janeiro, it requires a moist stove temperature and plenty of water at the root when in flower. It is an attractive plant, and for the last fortnight has been one of the most interesting plants at Kew.

CENTROSTEMMA MULTIFLORUM.—This pretty *Asclepiad*, often known as *Cyrtoceros reflexum*, and resembling both in foliage and flowers some of the *Hoyas*, is a really serviceable plant if grown so as to form a compact shrub and treated so as to induce it to bloom freely. The flowers, which are in umbels similar to those of *Hoya carnosa*, are produced from the axils of the leaves on the young wood in summer and are creamy white, the lobes being well reflexed and tipped with yellow. It is not a climber, as has been stated by some, but grows to a height of from 5 feet to 6 feet if not kept cut back. For tying to a pillar or post in a stove this plant would prove serviceable, and as it likes moisture and thrives under the same conditions as the *Hoyas*, its cultivation is extremely simple. A good plant of it is now in flower in the T range at Kew. Near the *Centrostemma* is a well flowered specimen of *Hoya campanulata*, of which a woodcut was given in THE GARDEN some time ago. It is one of the best of the *Hoyas*, and from its free flowering character it may be recommended for cultivation in stoves of limited dimensions, as quite small plants of it produce flowers annually.

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NOTES ON BIRDS

In the Garden, Sheen Lodge, Richmond Park.
(Continued from p. 334.)

THE WRY-NECK (*Jynx torquilla*).—Welcome is the loud repeated monotone of the bird, which, like the cuckoo, harbingers the spring. The keeper's name of "cuckoo's mate" is suggested by this contemporary arrival. And as they proclaim the advent, so they become simultaneously silent, arriving and departing together.

THE SWIFT (*Cypselus apus*) introduces the summer by its lofty aerial flights; rarely have I noted the arrival before the entry of June. Its favourite nesting-place is, with me, beneath the thick reed thatch of the cottage, and very deeply has its way to the nest been bored therein year after year.

in any tree of the garden. An old Thorn bush shows occasionally an impaled cockchafer.

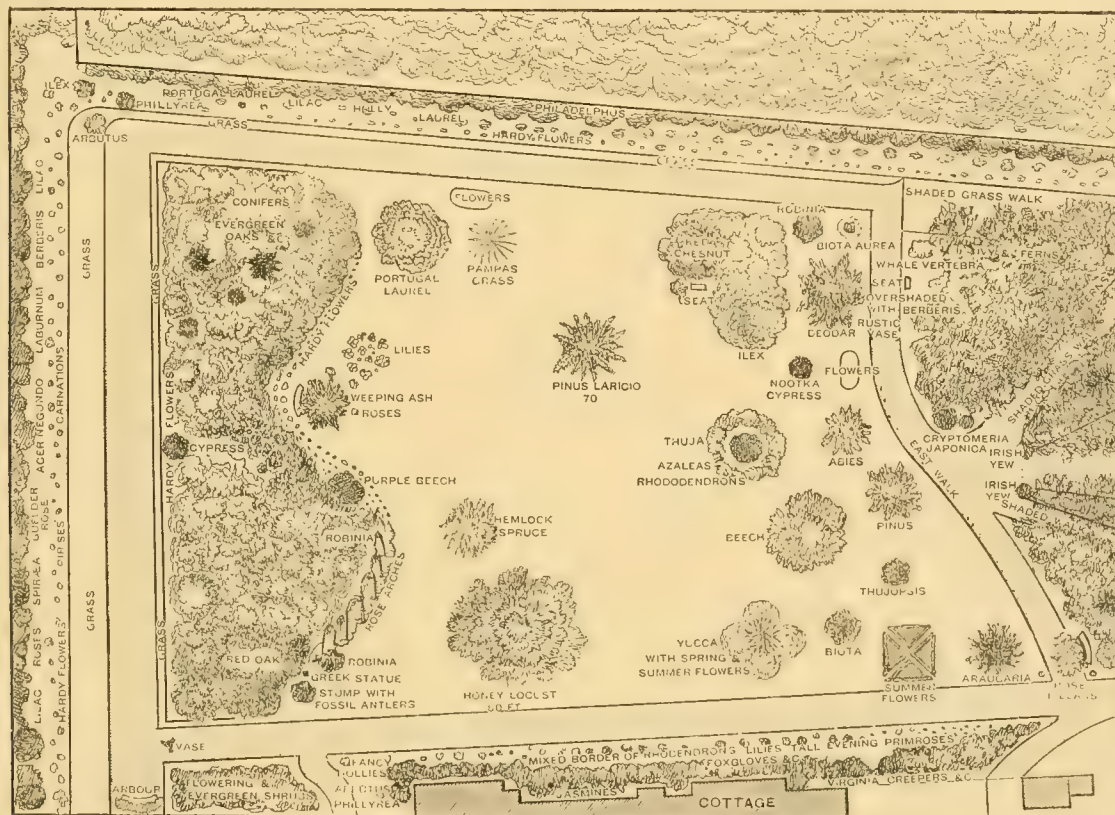
JENNY WREN (*Motacilla troglodytes*) stays with us the year round.

CHIFF-CHAFF (*Motacilla loquax*) announces its early arrival, at the middle or before the end of March, by its shrill, metallic, bitoned "chilp-chiip" from the topmost bough of an Acacia or other tall tree. My grandsons call it the "little blacksmith." Like the common wren, it makes a domed nest, but usually in a sheltered shrub, never in such odd localities as, with other observers, I have found the common wren's nest and its numerous family.

THE WILLOW WREN (*Motacilla trochilus*) proclaims its arrival on April 1, or thereabouts; its ten "tweets" cease to be heard in July; its nest is often hidden in the Ground Ivy; and it

has startled him in this calm dawn of prevailing frost? The handsome greater tit takes his place, and not until he is satisfied does the smaller one resume his breakfast. But the pugnacious robin is not to be so scared. It is true he cannot cling while fighting like the tits; but he takes his stand on the window-sill, ruffles his plumage out to make the most of his size, and attacks *Parus major* by successive flights, assailing him from below. The tit gives way, and the redbreast then makes a series of flying pecks at the suet.

When the hard frost has held for a few weeks, the poor shivering, starving blackbird dismisses his shyness, and from the window-sill takes also his flights at the tempting bait, and the robin gives way. Finally the tits return, and little, if any, of the heat-imparting food is left when they have finished their breakfast. Awaking from a



Plan of Professor Owen's garden at Sheen Lodge, Richmond Park.

THE SWALLOW (*Hirundo rustica*) and the HOUSE MARTIN (*Hirundo urtica*) are earlier arrivals by a few weeks. The latter, one spring, made its nest beneath the verandah at the angle of this with the cottage wall. The frequent traversing of the sheltered way and occupancy of the seats commanding an extensive view of wood and water along the park failed to frighten the parents from their choice of nesting-place, scarcely a yard above the head of the sitter. The young on their first venture from home flitted no further than the antlers of the deer suspended under the verandah; the next day, encouraged by the parents, they flew to the fence dividing the front lawn from the park; and soon after they accompanied the older birds in their aerial chase, distinguishable always by their shorter and less forked tails. We were careful to abstain from undue notice or disturbance of the trustful parent birds. However, they never returned to the verandah, where their deserted nest still remains.

RED-BACKED SHRIKE (*Lanius collurio*).—A year rarely passes without a visit from this gay and active butcher bird; its nest I have failed to find

usually rears two broods before it returns to winter, like the chiff-chaff, in Africa.

THE GOLDEN-CRESTED WREN (*Regulus cristatus*) adorns the garden for a greater proportion of the year. It seems to be a partial or not distant migrant, and does not tarry like the tits through the winter.

These lively little birds—the GREATER TIT (*Parus major*), the BLUE TIT (*Parus caeruleus*), with the rarer LONG-TAILED TIT (*Parus caudatus*)—I tempt into view at the time of hardest frosts. Then to the leafless branch of a creeper, which crosses my bedroom window, I suspend by a wire, with a fishing swivel, a small wire cage, about the size of a nutmeg. This is filled at night with a lump of suet. At early dawn I note from my pillow the swift flight of a little bird to a branch of the Gleditschia, also in view, on which it turns or jerks about as if moved by a spring. Then mustering courage it darts upon the suet cage, clinging like a parrot to the wire, and whirling about to show all its plumage. It is the blue tit; but hardly has he enjoyed a few pecks when he suddenly lets go and is off again to his post on the great tree. What

morning doze and noting their gay colours, active flights, and clinging powers, these little birds have seemed to me to represent in the garden the scansorial parrots of warmer climes.

FLYCATCHER (*Muscicapa grisola*).

CREPER (*Certhia familiaris*).—Only once or twice have I got a glimpse of this little active, but inconspicuous bird, running up and down the trunk and larger boughs of a garden tree; and I was not surprised at the remark of a little grandson, then with me, to whom I pointed out the climber: "I thought it was a mouse."

BLACKBIRD (*Turdus merula*).

THROSTLE (*Turdus musicus*).—There are a few old Cherry trees in the garden; one of them a Bigarreau. This I netted in my first summer's possession to preserve the tempting fruit. When the dish came to table, I thought of the frequent pleasures which the morn and evening warblings of the little robbers had given me, and felt ashamed at fencing off what I could cheaply get, as fresh and better, from neighbouring market gardens. I never repeated the practice, but left Bigarreus

with the other Cherries as "salary of the orchestra."

But their notes I found, as seasons ran on, were not the only repayment. I often had to listen to complaints of neighbours at the damages they sustained from snails and slugs. I found that they or their gardeners kept up ceaseless war against the fruit pilferers. Now the rarest zoological phenomenon in my garden is a living slug; a snail I remember not to have noticed. The extirpators are the thrush and the blackbird. No bird's-nest of any kind is ever disturbed here; that order is stringent. I have felt surprise, as both blackbirds and thrushes rear, as a rule, two broods a year, that their numbers never seem to increase. The young songsters, I suppose, are driven off, compelled to migrate to other groves. As many remain, however, as amply repay me for the Cherries by their clearance of vermes and mollusca; and then I still have all the pleasure which the white blossom of the old fruit trees yield in early spring. 'Tis true, a similar pleasure in autumn by the scarlet berries of Hollies and Barberries is cut short by my molluscivorous friends.

MISSAL-THRUSH (*Turdus viscivorus*).—In the autumn season, even to its end, the bold, loud notes of this fine bird are pleasant to the ear. I was engaged in planting, early one spring morning, when I was startled by a rushing flight directed, as it seemed, at my head by a largish bird, with an angry cry. I turned round to see who the audacious enemy was and where he fled to, when, from a neighbouring tree, a missal-thrush turned about, and made another vicious dart, passing close to my head, which I jerked aside. I now saw that on the tree from which he made his first attack was the nest in a somewhat exposed position, and the flower-bed was near it. It was a rude "notice to quit;" so I gave up my work and retreated. A few days after I found that the nest was deserted. It was not finished when this boldest of the thrush tribe had been disturbed at the work.

REDWING (*Turdus iliacus*).—If this winter immigrant favours us with a warble it is in early March, on the eve of its flight to its northern nesting latitudes.

REDSTART (*Motacilla hippolais*).—Her nest is commonly in some hollow of the old park wall, which bounds a part of the garden. The glossy black waistcoat of this visitor attracts notice about the middle of April: he is not seen here after September.

REDBREAST (*Motacilla rubecula*).—The pretty welcome plaintive note of our constant guest is almost the only one to be heard throughout the winter season. The robin is a bold and also a trustful bird. He will venture, at the hardest period, to take his pet "meal-worm" from your hand. The males in spring are desperate fighters.

NIGHTINGALE (*Sylvia luscinia*).

HEDGE-WARBLER (*Accentor modularis*).

GARDEN-WARBLER, OR LESSER FAUVETTE (*Motacilla passerina*).—A deceptive little bird to determine by note, from its faculty and practice of imitating those of other birds.

PIED WAGTAIL (*Motacilla yarrelli*).

GREY WAGTAIL (*Motacilla boarula*).

Both kinds of these *Cantores* occasionally enliven the lawns during their breeding seasons. The gayer coloured, yellow-breasted grey wagtail is the rarer of the two. Near our "sheen pond," or rather "mere," the pied wagtail (*Motacilla alba*) may be seen; but of late years, with the increase of visitors to our corner of the park, due to rapid growth of the village, they have not returned.

A waste appendage to the garden, known as the "nettle nook," seems to attract the **GARDEN WARBLER** (*Sylvia hortensis*). There or thereabouts I have usually first noticed its arrival in mid-April. Its streams of demi-semi-tones, like a musical scale, well suggest its name.

SKYLARK (*Alauda arvensis*).—This bird nests and rears its brood in the meadow to the west of

my Privet hedge; but as I listen to its carol as the songster soars over the garden to be lost in the blue, the rich trill diminuendoing to pianissimo by a gradation worthy of the most practised orchestra, I cannot exclude the skylark from my list.

THE YELLOW BUNTING (*Emberiza citrinella*), or yellow hammer, builds her simple, almost slovenly, nest yearly in the flowering thorns or copse bushes, and usually rears two broods. The Blackberries in autumn seem to be special attractions, but I have not noticed an increase in the numbers of this pretty ornament of the garden during the last twenty years. Its ally, the **CIRL BUNTING** (*Emberiza cirius*), announces its presence from the topmost boughs of our old Elms in autumn it seems to have gone south.

RICHARD OWEN.

INDOOR GARDEN.

CAMELLIAS IN THE GROWING SEASON.

MARCH, April, and May are the months during which the majority of Camellias make their growth and form their bloom buds, and the more luxuriant and substantial we can make these growths now the greater in both quantity and size will the blooms be. A proper condition of the roots is one of the main promoters of success, without which other attentions will prove unavailing. I must therefore especially impress upon all who desire to have their Camellia plants in the finest possible condition the necessity of looking to their roots at the outset, and then by proper attention afterwards success will be ensured. While making its growth we know of no hard-wooded plant which will stand watering at the root more freely than the Camellia, and where the drainage is in good working order water should be applied unstintingly. Whether in pots or planted out, aridity at the roots or in the atmosphere is an evil of the greatest magnitude in the case of Camellias. The soil in which our Camellias luxuriate is never really dry at any time, but it is extra wet during the growing season, and it would be satisfactory to me if the leaves could be kept wet night and day at this time. As it is they are heavily syringed morning and evening, and the ground underneath is always humid—indeed, almost steaming. Under these conditions the young growths are produced in clusters of from four to a dozen, as thick as the quill with which I write, in length from 8 inches to 12 inches, and all with at least one and many with five and six bloom buds. One or other of half a dozen plants in the conservatory begin to open their blooms in October, as they did last year, and now in April there is still some fine blooms opening. Where many cut flowers are in demand,

A **SEVEN MONTHS' SUPPLY OF CAMELLIA** blooms is very acceptable, and the plants are well worth all the attention we can give them during the growing season as well as at all other times. All kinds of dirt and insects should be cleared off the old wood before the young growths have made much progress. When in bloom it is difficult to syringe them without blemishing the flowers. As a rule this operation has to be stopped during the flowering season, and then the plants sometimes become unclean; in all such cases it is well to have them thoroughly cleaned before the young leaves are formed. Sponging is one of the surest ways of cleaning them, but it is rather tedious, and where dirt and insects are not very hard and fast heavy syringings will remove the greater part. In the case of Camellias which are planted out, of course they are stationary, and cannot be moved into any particular atmosphere, but this need be no drawback against their perfect development, as they will just grow as freely and more satisfactorily in an ordinary greenhouse or conservatory than in any vinery or hot, steaming place. When the plants are in pots or boxes, they are generally shifted into some other house to make their growth different from that in which they have been blooming, but a very hot house

should always be avoided in such cases. There is no denying that Camellias will make long shoots in a close heated, shady atmosphere, but the finest flowering plants will never be produced in such a place. A temperature of 60° at night and 70° by day with sun heat is most suitable to the substantial growth and perfect development of the wood and buds of the Camellia. A liberal admission of fresh air on fine days does them much good, as the growth is then rendered firm from the first, and its thorough ripening early in the season is an absolute certainty. Apart from securing plenty of wood and buds, the

RIPENING OF THE WOOD is of the utmost importance, and too much attention cannot be given to this, as imperfectly opened flowers and buds dropping prematurely are some of the results of dealing with unripe wood. It is now many years since one of our Camellia plants was shaded during the growing season, and the advantages of full exposure to the sun at this stage has been proved to us over and over again. At first we were half afraid that the plants, and particularly the young tender growths, would be scorched and ruined, but nothing of the kind occurred; on the contrary, when fully exposed to the healthy influence of the sun's rays, the wood was shorter jointed and the leaves thicker and deeper green than we could manage to get them in the shade. In the case of shaded plants the sun often plays sad havoc; those in charge of them are generally very particular in shading them at first, but by-and-by when more exposed the tender leaves nourished in the shade become blotched and spotted by the sun or through exposure to draughts. There is nothing more satisfactory than sturdy growth produced in the full heat of the sun and with plenty of clean water at the roots. With the latter in proper order there is nothing to fear. The earliest wood will, as a rule, give the earliest blooms, and when Camellia flowers are wanted in October and November, early growth and early ripening of the wood will supply these without much difficulty. When once the bloom buds have been formed syringing should cease and more air should be given, but nothing like a dryer state of the roots should follow. CAMBRIAN.

GARDENIA INTERMEDIA.

THIS is the species or variety in most general cultivation. Whether the name is botanically correct or not, I cannot say; but it is so far truly descriptive, that *G. intermedia* is about midway in size between *G. Fortunei* and *G. florida*. *G. Fortunei* is without doubt the noblest *Gardenia* in cultivation; but then, as a rule, it blooms but sparsely, yielding but one flower, while *intermedia* or *florida* will yield a dozen. *G. florida* is also most floriferous, but it is too small for the present fashion for button-holes. When the latter return, as they probably will, to their normal and more reasonable dimensions, *G. florida*, and even *radicans*—the latter now so seldom seen—will probably have a great future before them as button-hole flowers. For the present, however, *G. intermedia*, which is all that can be desired in purity and fragrance as well as in size, is in full fashion. It is well, however, to bear in mind that size of flower as well as floriferousness are to a very large extent matters of culture. It is no uncommon thing to see the self-same sort in different gardens of widely differing sizes. A liberal regimen develops size; a starving one dwarfs it more in the matter of *Gardenias* than in regard to other flowers. Apart from rich soils or stimulating manures, even the mere addition or withholding of heat and moisture may enlarge or cut down the size of *Gardenia* blooms one-half or more. The particular question of the most suitable

TEMPERATURE FOR GARDENIAS can hardly be said to be settled within 20°. In other words, the most successful cultivators range from 70° to 90°. With a moist atmosphere and plenty of water at the roots the latter is by no means excessive. With a semi-saturated atmosphere it is a fact difficult to overheat *Gardenias*, and time is gained

as well as size developed under what may be called a forcing *regimen*. Gardenias also seem filled with a fuller fragrance when thus rapidly developed. It must, however, be noted that a high temperature apart from a moist atmosphere is specially injurious, and results in bud dropping and heavy crops of scale, spider, or mealy bug. The former mishap is one of the most disappointing *contretemps* in Gardenia culture, and the presence of the latter pests may generally be accepted as proof of the lack of good cultivation.

FLORIFEROUSNESS is also largely a matter of manipulation or culture. Gardenia blooms should never be cut with their branches attached, but each picked off separately, and for this obvious reason. It is the natural habit of Gardenia shoots to produce three or more shoots from the base of each flower bud; cut the flower with its branch and all these are removed. Pick the flower out with its elongated leaves intact, and the whole of these shoots grow into flowering branchlets furnished with a terminal flower-bud. By careful attention to this apparently small matter, Gardenia plants advance in prolificness by the rapid leaps and bounds of multiples, by threes or more. Thus the one shoot becomes three, the three nine, the nine twenty-seven, the twenty-seven eighty-one, and so on. In this way are flowers not only multiplied, but the plants advance in bulk. Nor is this process of multiplication only repeated once a year, but twice. For the whole tendency of the present high and forcing culture of Gardenias is to compel the plants to yield two crops a year instead of one, as well as to have both crops finer and more plentiful than they used to be. In relation to this

SECOND CROP OF BLOOM, the saving of time incidental to high and forcing culture becomes of the greatest importance. For example, assuming the first crop of flowers to be gathered in March, a supply of wood may be made and sufficiently ripened to yield a second crop in September and October. Neither is it found in practice that the autumn or winter bloom seriously lessens or injures the spring flowering of the plants. The demand for Gardenias has now become so insatiable, that no doubt a continuous supply will have to be forthcoming. Cultivation, however, can hardly be said to have yet reached this stage, though it is seldom that a stray Gardenia bloom cannot be found in Covent Garden or other markets. But the chief seasons at present are the early spring and late autumn, and it is a wondrous advance on the ancient culture of these plants that resulted, as a rule, in a scanty supply of blooms once a year to have forced them to yield two plentiful harvests within the twelve months. In several respects, too, this second harvest is better, as well as more valuable, than the first. The first is very apt to come in with a rush. There is a prodigality of Gardenias succeeded by a famine, the flower seemingly preferring to run in abreast in battalions many hundreds strong. We have a magnificent feast of Gardenias, succeeded sometimes within a short time by a complete fast. A good deal may be done to prolong the feast by having several small pits or houses instead of one larger one, as well as by growing Gardenias in pots. But grow them how or where we may, Gardenias have a strong tendency to bloom abreast in the spring. But in autumn this inconvenient tendency is far less pronounced, and the plants unfold their harvest of sweetness and beauty in a more leisurely way, extending it over two months or more. The advantages of this habit of continuous blooming in the autumn or winter can hardly be over-estimated. But, it may be asked, is nothing more than liberal diet and forcing conditions of temperature and atmosphere needful to insure this double harvest of Gardenia blossoms within the year? Yes, a rest is needful, and some cultivators also think a lightening of the spring load of bloom useful in adding to the numbers and size of the autumnal ones. Whether the latter is needful or would prove useful depends on the strength of the plants. Where these are vigorous and in robust condition the dual crop does not seem to hurt

them. As to the so-called rest, it is only comparative. The plants should be kept somewhat cooler and drier for about a month or six weeks. Much more air should also be given during the resting period. This tends to harden and consolidate the growth of embryo flower buds, and also makes them more sensitive to respond to heat and moisture when these are given, so that really time is saved and not lost in the forcing of Gardenias by an interregnum of rest between. The question of

BOTTOM HEAT or no heat for Gardenias may be said to be still in suspense. They are equally well grown and bloomed without and with bottom heat. In all cases, however, in which the harvests of bloom are expected from the same plants within the year bottom heat should be provided. Bottom heat, in fact, may be said to be the very key of the position of a rapid and safe start. With the roots sufficiently moist and in vigorous health a bottom heat of from 75° to 85° may not only be applied with safety, but with the happiest results in hastening the development of the buds and their full expansion with perfect blooms.

D. T. FISH.

NEW FRENCH CHRYSANTHEMUMS.

THE Chrysanthemum as a florists' flower was never more popular than it is to-day; as a decorative plant it is more and more extensively cultivated every year. Chrysanthemum exhibitions, the fine displays made in the Temple Gardens and in sundry of the London parks during the autumn months, have shown how easy it is to have a conservatory gay with flowers during the dullest and most foggy time of the year. Quite recently I have read that one of the large conservatories in the Royal Gardens at Frogmore was last season made very attractive by means of hundreds of Chrysanthemums, all of which is most encouraging. In no other country is the Chrysanthemum so well grown as in England, near Liverpool, and in London especially, but it is to some of us a source of regret that while we cultivate this plant so well nearly all the new kinds are imported from the Continent, and we hope for the time to come when every grower will save seed and raise a few new seedlings every year. As it is, most of the new varieties are raised either in the Channel Islands or in France. With regard to those from France I am indebted to M. Lemoine, the well-known horticulturist of Nancy, for the following select list of kinds recently sent out.

1. EARLY-FLOWERING VARIETIES (viz., those which flower from October 15 to November 15).—Alexandre Dufour (Délaux), Japanese, full flower of a rich violet colour; Amarantina (Délaux), Pompon, perfect in shape, purple amaranth with white points; Curiosité (Boucharlat), Pompon, poppy colour with gold centre; Etincelle (Lacroix), Japanese, very large and very dark crimson tipped with gold; Ile Japonaise (Délaux), large and very full petals curled, violet-rose with a light silver tint; Mdle. Lacroix (Lacroix), Japanese, rosy white changing to pure white; Mdle. Maney (Délaux), Pompon, very full, delicate rose, the reverse of the petals tinted silver.

2. POMPONES.—Apothéose (Lemoine), flowers full, purple-carmine; Arbre de Noël (Lemoine), flowers very full, brilliant orange tinted with scarlet; Laïs (Lemoine), flowers of medium size, sulphur tipped with gold; La Mascotte (Lemoine), flowers full, reddish brown and violet; La Traviata (Délaux), flowers brownish red, tinted with dark scarlet; Lavinia (Lemoine), flowers middle-sized, light violet; M. Robillard (Délaux), late flowering, lilac-rose edged with white; Séduction (Lemoine), flowers full, reddish brown; Volcan (Lemoine), flowers small, mahogany red.

3. LARGE-FLOWERING VARIETIES.—Gloire Lyonnaise (Boucharlat), flowers middle-sized, piped petals, centre white, with reddish brown tips; Grenadière (Boucharlat), flowers large, garnet red pointed with gold; Jeanne d'Arc (Lacroix), flowers snow white, reverse of the petals lilac; Mdle. Croizette (Lemoine), flowers dark rose, changing to delicate rose; Mdle.

Madeleine Tezier (De Reydellet), late flowering, perfect in form, snow white, flowers in bouquets; Tragédie (Lemoine), flowers full, violet-rose; Vereschagine (Lemoine), dark rose spotted with purple.

JAPANESE.—Admiration (Lacroix), petals long and tubular, delicate lilac, turning pure white in the centre; Fr. Délaux (Délaux), flowers very large and full, crimson-red, tinted with fiery red, centre curled, reverse golden; Général de Lartigue (Délaux), flowers very full, petals curled, fiery red, reverse yellow; J. Délaux (Délaux), flowers full and very large, dark brown, tinted with crimson, reverse gold. Among the Japanese varieties sent out in 1882 several did not flower. This list will be interesting to our own growers, and allow me to suggest that as the same name is now applied not unfrequently to very dissimilar varieties, the *bona fide* raiser's name be added on the labels of all exhibited plants, as is generally done in the case of the Auricula.

F. W. B.

Eucharis amazonica.—We grow this queen of winter flowering plants here in a large Pine pit or stove plunged in tan in various sized pots, and great quantities of bloom have been cut from it throughout the winter months. Fresh tan is put into the pit in the spring and autumn of each year, and the plants are in no way subjected to the drying-off system. I cannot speak too highly of this system of growing Eucharis, for the amount of bloom produced by these plants throughout the past winter has been and is still something very remarkable.—G. DRUMMOND, *Wilton Park*.

Tar varnished pipes.—I know of nothing more pernicious to vegetable life than heated tar effluvium, and I know of only one effectual and immediate means of eradicating it, and that is to remove the pipes from the house and fire them until they are nearly or quite red hot. A more simple and inexpensive means (though not so quick or certain as fire) is to clear the house of everything as far as possible, throw open all means of ventilation, and then get the pipes as hot as it is possible to get them; then dress them two or three times with limewash, so as to get a thick coat on them. If one dressing is not found to be effectual, the pipes should be scraped or washed and again heated and dressed as before; but if the water in the pipes can be made to boil so much the better, as the limewash will have greater power to draw and absorb the tar from the pores of the pipes in which it is imbedded.—R. WESTCOTT, *Raby Castle, Darlington*.

—In order to obviate the injurious effects of tar varnish on hot-water pipes your correspondent must make the pipes hot, at the same time opening the ventilators to allow the destructive gas to escape. Get sufficient lime fresh from the kiln, put it into a bucket, and slake it with water, allowing it to boil well. As soon as the boiling ceases give the pipes a good coating with the lime, applying it with a brush all over them. Allow it to remain on for several weeks, when it may be removed by keeping the pipes damp with a syringe for a few hours. It may then all be scraped off. Allow the pipes to get thoroughly dry; then give a coat of thin paint made of boiled linseed oil and lamp-black.—JAMES SMITH *Waterdale*.

—“Subscriber” need not remove the tar varnish from his hot-water pipes. He should clear his house of plants, keep on a strong fire to keep the pipes hot, with plenty of ventilation for a few days, when all smell will disappear, and all danger to plants will be removed. This is our own practice always when we blacken our pipes with tar, and we never have any bad results herefrom.—JAS. BARRON, *Old Meldrum, Aberdeenshire*.

—In removing tar varnish has your correspondent ever tried alcohol methylated or turpentine? I think these would kill his piping. He could then paint them with “calcarum” or the “Torbay” paint?—READER.

Campanula Vidalii.—This is one of the most useful of plants for the conservatory or greenhouse, and as a Campanula one of the most interesting in the genus. It is a half hardy perennial of dwarf shrubby habit, forming a woody stem about

9 inches or a foot in height, on the top of which short branches clothed with serrated fleshy leaves about 3 inches long are borne in abundance every year. Some of these branches lengthen out to about 2 feet, and bear on the upper half pure white bell-shaped flowers, drooping and very fleshy. These shoots after flowering require to be cut away, as they do not branch again, the shorter ones and others newly formed on the top of the stem being those from which the flowering shoots are developed in the following year. We grow our plants of this Campanula in a cool frame in winter, potting them in the autumn in a good loamy soil, so that a steady growth may go on through the winter. As the shoots lengthen, the plants are removed into the greenhouse where their flowers have a striking effect amongst Begonias, Fuchsias, &c. Seeds ripen freely every year, so that a stock of this plant is easily procured. It is said to be quite hardy, and although I have never seen it tried-out-doors all the year round, it may yet prove a useful plant for the herbaceous border as well as for the greenhouse.—B.

ROSE GARDEN.

SPRING AMONG THE ROSES.

WRITING on April 4, I can say we have had four days and one night of spring, for the first two nights of April registered 10° of frost. Already the sap has started on its course through the Roses, and is trying to find its way along blackened pith and seared-looking wood. In many cases it seems at a loss to find its way, and runs into tiny transparent silvery-looking globules on the heft of the knife. They glisten like quicksilver in the bright sunshine, and suggest new hopes as well as fresh dangers. Only a few days since all the Roses were firmly bound in the cast-iron-like fetters of frost of a strength of 20°. Every started bud and all spongy soft wood are destroyed. And yet hardly has the sun come forth with any vernal warmth than the arrested sap bounds once more to the front and asserts its presence and power. The latter hardly seems impaired by its stoppages, for in all Rose shoots not hopelessly killed the moving sap is found. So plentiful, indeed, is it in injured shoots and branches, that it seems more like a mere solution into fluid of what the frost had rendered solid than a conveyance of fresh sap from the roots. Be that, however, as it may, the spring has once more filled our Roses with fluid in an active and growing state. Hardly has it breathed upon our Roses than they live anew and grow afresh, and this state of things summons the rosarian to prompt decision and immediate action. The duty of those who had not pruned their Roses is tolerably clear—to prune forthwith without a day's delay. March severities will also have indicated pretty clearly the points to prune to. In general terms all injured wood should be cut off, and the pruner should go back to a healthy bud on sound wood. In many cases this will be, to the pruner of dwarfs, at the ground line. Neither is this so great an evil as it may seem, unless on account of the loss of time and material. Cutting to the ground line will, renew the youth, and brighten and improve the ultimate results in not a few Roses. As to standards, many of them will also have to be cut back to the Briers, which is synonymous to the ground line in dwarfs. Dormant buds seem to have, on the whole, passed through this black March better than growing branchlets. This is singular, one bud bearing cold better than many.

Those who had already pruned before the terrible frosts of March will have much more difficulty in deciding what to do. The frosts have so many different effects on different varieties, and also affects the colour of the shoots so differently, that it is really a difficult matter to test the amount or extent of the injury sustained. The pith test is perhaps the safest and most reliable. Where the pith is green and of a proper character, the shoots will force adventitious buds and recover. This may be accepted as an axiom however hardly bit the wood may be by the frost.

But where the pith is black or brown, or seems deranged or decomposed, the Roses will generally become diseased or die outright. But they will not do so at once and right away. No; those shoots with the worst pith often break the soonest and the strongest and look the most promising. But these breaks and blooms are but the haste and hurry of disease on death-stricken plants. Could one only gauge the depth of the injury to the pith and cut beyond that, the Roses might mostly be saved. But the injury to the pith is most difficult to trace. In many cases it is not a straight line of injury from top to bottom; pieces are missed here and there. Sound pieces are found around harder nucleus of buds, and then again the pith is blackened, and thus cutting to the sound healthy pith becomes difficult in practice. It is, however, really the only safe and general rule that can be laid down after frost-bites. It needs wonderful courage, however, to adhere to it. We began the other day on our dwarfs to pick out the injured wood by the pith test, and gave it up. So many promising buds had to be sacrificed, that we decided to see what they promised to be after a week or so before proceeding further.

The colour of the wood test is even more uncertain and capricious. At first sight the darkest or yellowest wood might be thought the most severely frost-bitten. But this does not seem to be always the case by any means, as tested by actual dissection. Among all these difficulties of dealing with frost-bitten Rose wood there is one general principle that may bring much comfort to semi-distracted rosarians. It is this—the more severely they prune, the better for the future well-being and beauty of the plants. The Roses are weakened more or less by the cold; hence the more they are reduced in area, the less will their impaired strength have to do, and the more effectually will they do it. Thus, by concentrating vital force by pruning, we virtually augment it. Consequently, though we must have fewer flowers and a later harvest of blooms, we may even yet have finer ones through the cutting severities of this late winter, now, it is to be hoped, merged for good in the vernal genialities of real spring weather. If so, rosarians may yet be able to say of March, 1883, with the French lady, "that any weather is better than none at all."

D. T. FISH.

Rose Cheshunt Hybrid.—We have here a specimen of this Rose, now in full bloom, on the roof of a house from which frost is excluded. I counted on it the other day between 80 and 90 fully expanded Roses and about 200 buds, and we have cut about four or five dozen blooms off it already. The plant covers about 9 feet of roof, and is planted in a border 9 inches wide and 3 feet long.—J. W. LONGFOOT, *Pull Court, Tewkesbury.*

Gloire de Dijon Rose.—Of all the Roses in cultivation, this, in my opinion, is the most useful. It is the last Rose of summer and the first of spring. Indeed, with two or three plants in a cool greenhouse, and the same number on any wall out of doors, a constant supply of blooms may be had from February until November. In constitution it is most robust, as there is no situation in which it will not succeed, and I cannot remember a Gloire de Dijon dying of either disease or old age; one of our plants here I know will soon be out of its teens, and still it grows as robustly and blooms as freely and profusely as the youngest of them. During the last three weeks we have cut at least two hundred blooms from this plant which occupies a restricted place in a cool conservatory. Another one which was planted in a miniature form at the end of an unheated Peach house three years ago has this spring produced five hundred buds and blooms; and this is only one crop, as successional ones will follow until the end of the season. If this Rose has a fault at all, it is in being over-floriferous. In many instances it is allowed to injure itself through bearing too many flowers; if left to itself there will be a bloom from every eye, and there is hardly any way of preventing this, except cutting off the bloom. The shoots should be cut well into the main stems, and this will induce fresh shoots to push

forth, and it is these which, before long, bloom again. At the same time, next year's crops must be seen to, and we find that the best way to provide for these is not to depend wholly on spur pruning, but to lay in a number of young shoots, which always spring from the base of healthy plants, and in the winter time some of the oldest of the branches may be cut away to make room for these. Sometimes these young shoots may be 10 feet or 12 feet in length, but this is none too long, as in spring they will break regularly, and produce a host of massive gorgeous blooms. Out of doors the only profitable way of growing this Rose is against a wall where it will have plenty of head room. In dwarf or standard form in a bed it is lost. As a natural rambling bush it would be better, but against the walls of mansions, villas, cottages, churches, it is at home. A well-drained bed, with plenty of rich soil and a never-failing supply of moisture, are its only wants throughout the season; and should green fly appear at any time, liberal syringing will at all times dispel it.—J. MUIR, *Margam.*

Roses indoors.—I never saw such a fine display of Roses in March as I saw the other day in a house devoted to their culture at Woodwater Park, Weybridge. On the roof were the following kinds, vigorous in growth and one mass of bloom, viz., Glory of Waltham, Souvenir d'un Ami, Gloire de Dijon, Céline Forestier, Anna Alexieff, Maréchal Niel, Lamarque, Mdle. A. Wood, and Mdme. Levet, a grand Rose. These are planted out in a well prepared inside border. A stage in the centre of the house is occupied with finely bloomed Hybrid Perpetuals and Teas in pots. There was no mildew, and the plants were otherwise unblemished.—A. I.

Rose leaves (A.M.).—The Rose leaves which you enclose are attacked by red spider; syringe them well with water, taking care that the undersides get the full force of the deluge of water. Red spider has a great dislike to moisture; if possible keep the air about your Roses rather damper than you have been doing. If this is not sufficient to stop the attack, syringe with 4 ounces of sulphate of lime, 2 ounces of soft soap well mixed, and then dissolved in 1 gallon of hot water.—G. S. S.

ORCHIDS.

LARGE VARIETY OF DENDROBIUM NOBILE.

THE annexed illustration represents the exact size of a flower of *Dendrobium nobile* sent to us a short time ago by Sir William Marriott, Down House, Blandford. Not only was it large, but both it and the flowers which accompanied it were unusually well coloured, their sepals and petals being flushed with a rich deep purplish carmine, while the massive labellum in each case was marked with an intensely deep maroon-crimson blotch. Such varieties as this are extremely rare, many Orchid cultivators of wide experience having never seen any form of *D. nobile* at all equal to it. An appropriate varietal name for it would be *giganteum*. It is a companion variety to that called *nobilius*, which bears flowers that measure just upon 4 inches in diameter, and which are extremely deep and rich in colour.

Orchids in flower in Mr. Bull's nursery, Chelsea, include the following noteworthy kinds: In the Cattleya house are many fine varieties of *C. Mendelli*, just commencing to flower, and taking the place of *C. Trianae*. The rarely seen *C. speciosissima* is finely in bloom, and one plant bears two large flowers in one sheath. This kind can only be compared with some of the finest forms of *C. gigas*. Among the *Laelias* is a new variety of *L. elegans* called *Mastersi*, in the way of the beautiful variety *alba*, but the rich amethyst colour of the lobe of the lip is carried round the rim of the throat, which, with the white sepals and petals, renders the flower extremely handsome. Of *Cymbidium eburneum*, the very distinct variety *Dayanum* is finely represented by several flowering specimens. This variety may be at once distinguished from the type by the broad

purple band which runs down the middle of the labellum. A new *Oncidium* called *cryptocopsis* is worthy of note. It is in the way of *O. serratum*, and similar to another new and rare kind which has flowered here for the past few seasons, called *O. tetracopsis*. The flowers are large, yellow and brown, borne on a long spike. Among rare *Dendrobiums* is *D. Draconis*, a very handsome species belonging to the nigro-hirsute or black hair-stemmed section. It resembles *D. infundibulum* somewhat, but the markings on the labellum are of a deeper, brighter orange-red, a colour which contrasts well with the waxy white sepals and petals, which shine as if varnished. In habit of growth and mode of flowering it is similar to *D. infundibulum*. *D. leucolophotum* is another new and rare kind. It may be best described as being like *D. barbatum*, but is of taller growth, the stems more resembling those of *D. superbiens* than any other. The spikes are borne

the spike to branch, a character rather uncommon in this *Orchid*.

LONGEVITY OF ODONTOGLOSSUM CRISPUM AND VEXILLARIUM.

DOUBTLESS there are plants of these *Odontoglossums*, as of other *Orchids*, that after getting over the hardships consequent on their importation grow for a time, and then die off in a way that gives rise to the question of their ability to last long under cultivation. But there is proof enough of an opposite character to show that there is no ground for coming to the conclusion that these, in common with most *Orchids*, will not go on for an indefinite time provided the treatment is such as is conducive to their healthy existence. Most growers, I think, will have found that *O. vexillarium* is not so easily kept in good condition as *O. crispum*, although when once it gets fairly established after

losses that take place in this way, although outside the question now raised, have much to do with the impression frequently entertained as to *Orchids* being short-lived.

A good many species that used to be looked on as impossible of being long kept in a healthy state do as well as others supposed to be more enduring, such, for instance, as *Cattleya citrina* and *Cymbidium eburneum*, that, when the right management is hit upon, continue to grow as free and healthy as the commonest *Dendrobe*. A good many years back when the spot disease (brought on by semi-darkness, insufficient air, and a reeking atmosphere) was so rife, the conclusion came to by some looked upon as authorities was that the highly artificial conditions under which *Orchids* required to be grown were such as not to admit of their having more than a limited existence. But now, when a more reasonable course of treatment is followed, little of the disease is seen. Those who have had anything to do with *Orchids* will have learnt that with them more than other cultivated plants there are some species much more delicate and difficult to deal with than others; neither is there anything surprising in this if a little reflection is directed to the widely varied conditions under which they grow naturally. When the extent of this is fully realised, the wonder is that so many species from so many different parts of the world can be induced to thrive in the same house.

T. BAINES.



Large flowered variety of *Dendrobium nobile*, from Sir William Marriott's collection, Down House, Blandford.

from the top of the stems, and the flowers are pure white. *Odontoglossums* form the finest feature in this nursery at present, and the large display of them in bloom includes some rarities. *O. Ruckerianum* is represented by the finest form we have ever seen, its flowers being fully twice the usual size and superbly marked. Among the numerous forms of *O. gloriosum* is one called *pictum*, remarkable for the close, yet large, spike of flowers, which are far deeper in the markings than those of any other in the collection. The name is appropriate, and the plant well deserves it. Amongst the *Alexandra* varieties are some lovely forms, particularly those with a suffusion of rosy purple in the flowers. *O. Andersonianum*, *O. mulus*, *O. hebraicum*, *O. triumphans*, and a host of others are also in fine condition. The *Harryana* section of *Masdevallias* is just beginning to bloom, and already such splendid forms as *brilliantissima*, *vivicans*, and *lilacina* enliven the *Masdevallia* house with their glowing colours.

Odontoglossum Andersonianum.

—We omitted to mention in our report of the last meeting at South Kensington that a remarkable specimen of this *Orchid* was shown by Mr. Clinckaberry, Forby Hill, Enfield. It bore a spike nearly a yard long, carrying twenty-five large flowers having a creamy white ground and abundantly spotted with chestnut-brown. It was one of the finest forms of *O. Andersonianum* we had seen. There was a decided tendency in

importation it usually goes on freely enough where there is a continuance of the treatment first found to answer. Not a few of the failures that take place in *Orchid* culture are traceable to a want of following the well-proved maxim of leaving well alone—a mistake that usually arises from an inclination to adopt the treatment someone else follows who seems to get on faster. These two *Odontoglossums*, particularly *O. vexillarium*, have not been so long in cultivation as some *Orchids* in a way to give absolute proof of their ability to keep on in a healthy condition for an indefinite time; but there are enough examples of *O. crispum* of the early importations as full of strength and vigour as ever they were to give promise of their going on equal to the most enduring. If the fact that so many more of these plants have been imported than evidently are now in existence was taken as conclusive that they necessarily wear out and are short-lived, the case might be said to be proved, for there is little doubt that a large percentage of the vast quantities of these *Odontoglossums* that for many years have now been brought over are non-existent; and the same may be said of other *Orchids* to a greater or less extent proportionate to the ability the individual species possesses to bear hard usage—not alone the hard usage inseparable from collecting and transit, but the still further weakening by being cut up into small bits in the manner often practised, to which collectively is attributable the death of so many. The

Oncidium inscriptum, like a good many other *Oncids*, is deficient in brilliancy of colours, but nevertheless, owing to the length of its flower-spike and its thick, fleshy, or waxy-looking flowers, it is not without interest. A plant of it in the cool *Orchid* house at Kew bears a spike 13 feet in length, with branches at intervals of 6 inches about a foot or so long. The flowers are nearly as large as those of *Oncidium crispum* and somewhat similar in shape. They are chocolate-brown, with a narrow margin of pale yellow round the undulated edges. To lovers of the curious amongst *Orchids* this *Oncidium* presents attractive features even in collections in which more gorgeously coloured flowers predominate. At Kew this *Oncidium* flowers freely every year, and there it is where one expects to find such interesting, though not showy, plants.

Phalænopsis Parishii.—The silvery green foliage with which this pretty little plant is furnished distinguishes it from the rest of the *Phalænopsids*. Its flowers, which are borne on a short spike, vary from two to six on each spike, and are about the size of a sixpence. The sepals and petals are creamy white, well reflexed so as to give prominence to the white column with its purple spotted base, and the turf-cutter-shaped labellum, which is dull purple in colour. The lip hangs by a thread; therefore if blown upon it moves quite freely, and on its top there is a moustache consisting of long bristle-like white hairs, or rather four or five long and the rest shorter. This *Phalænopsis* is a native of Moulmein, and is now in flower in the East Indian *Orchid* house at Kew.

Eulophia streptopetala, now in flower at Kew, is an old-fashioned and rare plant, not very handsome if judged by the standard of brilliant colours and large flowers, but still interesting. It is terrestrial, has bulbs and foliage resembling those of *Calanthe veratrifolia*, and produces a flower-spike about 2 feet long, which bears about a dozen flowers of the size of those of *Lælia harpophylla*. The form of these flowers is somewhat singular, reminding one of a bird just alighting, the two petals being fixed horizontally and curved exactly as a wing is. These wing-like petals are primrose-yellow, and the *Cattleya*-like lip is of the same colour, with chocolate-brown sides. The sepals are green, spotted with brown. This plant thrives in a cool house and should be potted in a mixture of peat, loam, and Sphagnum, and given plenty of water while growing. It is a native of South Africa, and, like many of the terrestrial *Orchids* from that region, requires a long period of rest after making its growth.

IN MADEIRA.

ESCAPING from the grey northern seas—too often tormented by storm—into the gardens at Madeira is one of those changes grateful to all, but most so to those who have passed through a cold and flowerless English winter. Reaching the steep shore, a bank of purple is noticed between two houses. It seems a plot of Wallflowers with a purple hue, but one who knows the place says it is the Bougainvillea! We have all heard of its effects in some warm countries, but words cannot do justice to its superb colour and abundant blossom. There is the splendid rosy purple kind which is not seen in England, and it runs over bower and wall and trellis and house, becoming in early spring a flood of the richest purple-rose. Flowering in winter this kind is not so easily grown in England as the rose-coloured one which blooms in summer. Not less surprising is the red variety, or species, never seen with us, for probably the same reason. A large, second-story verandah in Count Lambert's house has its pillars clad with this red kind, and the effect is very fine. There seems no limit to the free growth of either. The commoner *B. glabra*, often seen in England, is also here in flower, but it is scarcely noticed beside the other kinds. Near Major Bolton's house there are some wide trellises covered with Bougainvillea to such an extent that the house seemed to float in a flood of this glorious creeper's coloured leaves.

Though the Bougainvilleas are the showiest plants, and their effect on rock, wall, or house both beautiful and new to the northerner, it is no less pleasing to see many old friends of the warm greenhouse here all happy in the open air and in free bloom—Cherry Pie, Pelargoniums in various colours, Plumbago, scarlet Salvias, large red Hibiscus, Acacias, the Coral Tree, Calla Lily, *Bignonia venusta*, and others; the scarlet Passion Flower, Ice Plants, the beautiful Macartney Rose, the New Zealand Speedwells, the bright-flowered Russelia, here with many coral flowers on graceful bushes in the open air; Azaleas, white and red, along with our Rosemary, Periwinkle, and an occasional Pansy, and many Roses; the Trumpet Flower, white and orange; Camellias in large bushes, with Rhododendrons, Oak-leaved Pelargoniums, fragrant and spicy, the showy Gazania, and many others. Among these flowers, those that strike one most for their value are the Bignonias and the bright scarlet Passion Flower. The last grows as high as 40 feet, and freely bears its vivid flowers. It is, we think, the Vine-leaved Passion Flower, and it ought to be in every stove in England.

BIGNONIA VENUSTA is a noble climber, with a bold free habit and long graceful shoots, with the handsomest heads of orange blossoms one could desire. It is well to see it here, because it shows us the error of attempting the culture of such a plant in a pot in England or in any place where it has not plenty of room above and below. In a roomy, warm greenhouse a fine feature may be made of this plant. Our old friend *Euphorbia jacquiniæflora* is a most graceful shrub here, best perhaps as a standard with a stem 2 feet high, and breaking then into a number of long shoots, brightly set with blossoms, and more graceful in habit than any Fuchsia. The plant, as grown in England, is too small for its rare habit to be seen. The old Poinsettia is a big shrub here, and some Aloes are round bushes, one with very handsome large coral blossoms. There are myriads of the bells of Abutilons, and Cannas 10 feet high with showy red flowers, and the great Cape Amaryllis with a white and pink head of flower more than a foot through, and the rich purple Ipomæa, and the Vinca rosea and blue *Eranthemum* of our stoves—all in flower in the open air, with the fringed Chinese Iris, the Florentine Iris, *Scilla peruviana*, the common Periwinkle, and everywhere the Heliotrope, the ground shaded by great Camphor trees and Indian Fig. Among climbers, *Thunbergia laurifolia*, with its large purplish flowers, is superb over trellised archways, the foliage is so good and the flowers very numerous. In our stoves this does not often get a chance of showing its vigour and beauty: it

is a very fine climber. The Lantanas show over the walls by the streets their varied flowers, so vigorous are they here, though they are not so welcome as the fragrant and spicy Oak-leaved and many other Pelargoniums, Heliotropes, and Azaleas that perfume the warm air.

The Belladonna Lily is in wild profusion, and becomes a weed, quantities of it being thrown out in the hope of eradicating it. The blue African Lily (*Agapanthus*) also grows quite freely, and must be a pretty feature in summer with its many blue heads. The true wild Hyacinth—parent of our cultivated Hyacinth—is wild, or apparently so, in various places.

THE PELARGONIUM is the joy of the gardens in winter, and no doubt for many months, not in circles or lines, but growing softly and naturally, now forming a hedge, now a tall shrub. A line of scarlet varieties look over a wall, bounding Dr. Grabbam's garden, towards the sun. Over them lean the branches and foliage of large old evergreen trees; below the grey wall. Seen from a point outside and below the wall, this formed a curious and brilliant picture such as any artist might be proud to paint. In Major Reeve's garden there were high fences on each side of the main walks formed of an Oak-leaved species in full bloom. It is indeed a paradise for Pelargoniums, and the new kinds sparkle with pure and brilliant colour in Mrs. Hinton's and various other gardens where they have taken the trouble to obtain them. The old citron-scented and other Cape Pelargoniums are also all happy as bushes in the open air and in every garden. The Aloes, tame and poor in our glasshouses from want of bloom, here sparkle with many graceful spikes of flower; when they form old and wide bushes their effect is good. Growing over a high wall bordering Mr. J. Blandy's garden they project into bold masses. Relieved by similarly free and large masses of the light blue Plumbago of our greenhouses, and the vivid scarlet Passion-flower too seldom seen in our warm houses, they, all untrained and untouched, combine to form a rare garden picture.

THE NOBLY-FORMED *Ruscus androgynus*, a native of the island, is one of the most valuable plants in it, and one of the best ornaments of its gardens. Its fine form of leaf and bold, graceful habit make it one of the noblest plants for a high pillar in a conservatory or a piece of high wall in any house. It will do with very slight aid in the way of artificial heat, and would do in an unheated house. Here it grows freely in the open air. There used to be a good plant of it in the Crystal Palace, but it is not so common as it deserves to be in our houses. There was a very handsome wreath of it in Prince Demidoff's garden at Florence. It has various uses, and would be admirable in connection with good stonework. A plant over the entrance to Mrs. Cossart's quinta wreaths round the stonework in a very fine way without concealing it.

The fine effect that should be got in the gardens is put out of the question by the same practice that mars our own efforts—the mixed shrubby kind of planting which hinders all definite and many happy special effects. Where the range of form and foliage is so great as the climate permits of here, the good effects might be more varied and finer than usual. But the muddled, meaningless effect of the shrubbery in England is repeated all over the world in gardens. We are so much concerned with the individual, that we do not consider how much we lose by the way it is placed. Only here and there where a fine Alexandrian Laurel covers 50 feet of a high wall, or a Monstera with noble foliage forms a group by itself, or an enormous many-stemmed *Strelitzia* springs up in the air, making us forget all but its own noble Banana-like growth, do we get an idea of how much is lost by the usual "mixture." Owing partly to the vigorous growth of the plants, it is the fashion here to clip them till their natural shapes are lost, and the flowering beauty of the plant is destroyed too. Things like the double *Spirea*, in which flowers spring from the sides of old branches forming wreaths, can show no beauty when cut in as with a scythe, looking at last like cushions on the top! They should be cut in without de-

stroying their natural form, and thinned out at the same time. The Camellias, of which there are groves in some gardens, are not, so far as we could see, shorn in this way, but they are so much in want of thinning that the flowers are smaller than they should be. The trees are often a dense mass of shoots, the leaves less fine than is usual in England.

One of the prettiest effects is that of the Arum Lily (*Calla*) in the garden. It is one of the flowers that improve in the open air; many seem better under glass. In Mrs. Taylor's garden, at a height of over 2000 feet, it was in fine bloom in the first week in March—a large colony, thick in the centre, and then spreading into scattered groups and dots, and finally holding its white vases out of a low hedge near and running a bit into Holly trees and under Pines. It was a picture of graceful wild gardening.

A winter home of the Rose.—With our Rose sticks trimmed in sharp and close till far into the spring, it is difficult to realise the wild grace which some Roses show in this isle in winter. They are happy in the south of Europe, but not as here, where they ramble like Passion-flowers and bloom as if frost and east wind were banished from earth. One's "scientific" notions of pruning Roses get a little shaken in the face of a shoot of Lamarque that has gone up "on its own hook" to sun itself on the crest of a Brazil Araucaria 30 feet high in the garden of the Carmo Hotel. From the higher windows one sees there a tuft of white Rose reposing on the top of the tree—such a Rose as one never sees out of doors in England. Major Reeve told me he counted thirty-two flowers and buds at the end of a single shoot of Lamarque in his garden near the sea.

THE LAMARQUE ROSES in Mrs. Cossart's garden form hedges of such fair and large white Roses as we never hoped to see. We have no really good white Rose in England, as Lamarque grows poorly with us in comparison. Its raiser would be proud if he saw its beauty here. Two trellises of Roses border a drive; one is of Lamarque alone, and this is nearly covered with full-blown large white Roses. The hedge on the opposite side is mixed with green climbers; the Roses have not been pruned very close, and the effect is even better here. Near at hand there is a large specimen of the so-called Pepper Tree (*Schinus*). Through this to the top there are large snake-like branches of the same Rose quite naked and pruned back on the day when hedges of the same kind are so full of flower. Nothing could so well illustrate the value of this climate for Tea and Noisette Roses, of which this is here the queen. The Pepper Tree was whitened with blossoms of this fair Rose on Christmas Day, and early in the year the great climbing stems were cut in. In such ways it is easy to have several crops of the Rose during the winter, and, indeed, Lamarque may be had in Madeira nearly all the year round.

CLOTH OF GOLD ROSE is no less remarkable where it has a chance. There is a wondrous tree of it in Mrs. Foljambe's garden, covering many yards of trellis-work arching a broad walk, and then running up the Cypress and other trees near, showing its flowers here and there through them. Its stem is like a tree; its nobly-formed blooms larger than we have ever seen in any Rose in Britain, the form of the flower being superb. Among the shoots on the trellis-work sprouts here and there wreaths of the purple Kennedy, contrasting well with the soft yellow Roses, and forming a feature new to one from English gardens. *Rosa lavigata*, with its large single blossoms, so fine in form and pure in tone, is as good as either of these double ones. As a hedge bush or bower it is full of flower; anyone who can grow this Rose should not be without it. Bushes of it here were more effective from the profusion of the large white cups than were plants of the same size of the white Azalea. In the bush form of this Rose the long shoots were bound round and round, which served better than cutting them in. We never saw a single Rose so fair!

Trees.—The climate is an admirable one for trees, as is shown well in the English cemetery, where there is an old Pepper Tree (*Schinus*), a fine, picturesque object. We had no idea it formed so good a tree when old. Here, too, the large Bamboo is over 30 feet high; and the evergreen Magnolia a tree large and healthy. The Norfolk Island Pine (*Araucaria excelsa*) is also at home here with the Date Palm, the Dragon Tree, which is a native of the island as well as of Teneriffe, and the Eastern Cypress. The Cedar of Goa is common, graceful in all stages, and, when old in a hill quinta, gives a good Cedar-like effect. A beautiful tree is the native Juniper (*J. Oxycedrus*), of which a tall tree in Mrs. Cossart's garden has almost the dignity of a Cedar. The fragrant wood is much used in fine cabinet work by the natives. Old specimens of the Cedar of Goa are broken and fine in form, having a Cedar-like aspect. In the young state it is graceful, and it is much used in all the gardens—an admirable tree for temperate climes. The Cedar of Lebanon does not seem to thrive here.

THE LILY OF THE VALLEY TREE (*Clethra arborea*) of our old greenhouses, now seldom seen, is here a good-sized evergreen tree, 30 feet or more high, and, as may be imagined by those who know it, a fine object in flower at that size. The strong and stout hammock poles used in this place are made from its straighter side branches. The Australian Gum Trees, now being so extensively planted in temperate countries, do well here. They are so often seen in the young and tapering state, that their fine character in the mature one is not much known to European gardeners. Old trees in Mr. Leland Cossart's garden are as picturesque as old Ashes or Birches. Very large, and leaning to the south, they, associated with large *Dracænas*, form a beautiful aspect of vegetation. This garden, at a height of 2000 feet, is rich in sub-tropical vegetation, and has many large Camellias and Australian plants, and the finest Norfolk Island Pines. The altitude, however, is sufficient to prevent many of the plants from thriving which get on well in the ground near the sea.

The great number of trees that may be grown may be judged of by those on Dr. Grabbam's lawn, where the Allspice tree (a beautiful evergreen and large tree with a creamy white stem), the Camphor tree, Coral tree, Sago Palm, Locust tree, and other trees from hot countries grow happily with our English evergreen Oak, the common Tulip tree, the Cypress of Greece and Italy, and the Til and other trees native of Maderia. What might be done in the way of a botanic garden in this island may be judged of in the same way. Probably in no place in Europe could so many species of beautiful sub-tropical and temperate country plants be grown. But public spirit to do anything of this kind does not exist. Interesting as the island to the naturalist is, there is no museum or galleries where specimens of its flora or fauna are preserved for public use, though the getting of representative collections from such a small area would be easy, and result in a welcome and useful addition to the not too numerous attractions of the capital.

Among the low-flowering trees the *Schotias* are curious and beautiful—good and broken in shape, and flowering freely at from 12 feet to 15 feet high—the flowers dark crimson in close bunches below the leaves. The best were in Mr. Hayward's garden. The graceful *Jacaranda*, often seen in our stoves, is here a medium-sized tree, as remarkable for the beauty of its many purple Foxglove-like flowers in racemes, almost covering the tree, as for the elegant Fern-like leaves which it bears in our stoves.

THE BOMBAX TREES in Mrs. Stoddart's garden are superb. Of one the main roots stand above the ground like the backs of great crocodiles covered with spines. Another species has a stem like the mast of a great ship, and the foliage turns a blaze of crimson in autumn. The flowers of these great trees, covered all over with stout, fierce spines, are said to be handsome. The Screw Pines (*Pandanus*) and the handsome *Plumerias* attain fine dimen-

sions in the same place, and there is a specimen of the Coral tree that is common in a small state in our gardens, but here an old and most picturesque tree. The Dragon tree is seen in many gardens. A native of the island, it was once plentiful, but the people destroyed it in getting the sap for dye. Now the last native plant or two may be seen on inaccessible cliffs, and cultivated specimens are very striking in Mr. Selby's and other gardens. At Mrs. Stoddart's one sees the Screw Pines fruiting abundantly with the Maiden-hair tree (*Salisburia*) and the Palma Christi finer than one often sees them in Europe. The Palma Christi was far the largest we have ever seen—a forest tree, in fact.

Fruits.—Among fruits the Loquat is very fertile, and its juice refreshing. Oranges do not seem good. Our markets would take a good deal that could be grown here, and Mr. Holloway has established the culture of Pine-apples on an extensive scale under glass. With this and fermenting material, all the heat required is obtained. The houses are very large, 60 feet in diameter, but the culture did not seem so successful as should be expected under such good conditions. The Custard Apple does well, and the Banana is a common crop everywhere. With such high ground near, the cool country fruits are also grown—the Peach not so well in the low ground, but better on the hills; it is not, however, paid much attention to. The edible Passion Flower fruits freely; it is, as usual, the best of the Passion Flower fruits. Major Bolton finds many of the English Grapes do admirably. Perhaps we may some day see our own Grapes grown for us in countries where fire-heat and glass are not required. He has also made an extensive experiment in silkworm culture, which promises to succeed. The industry had been destroyed in the island through disease. Thinking the failure might be explained by the want of careful and cleanly culture, he made a trial which promises to be very successful and instructive. The *Phylloxera* has greatly injured the Vine in this island; but some American Vines resist the pest, and by regrafting on these, it is believed the evil will be subdued.

The trade that has grown up in Bananas for the London market is already important, and promises to be much more so. The peasants, who used to go round, hat in hand, to find a buyer for their wine, and often failed to do so, are now almost courted for the large bunches of Bananas, for which the demand is greater than the supply. It is a gain in all ways to use the direct products of the earth, and find them more profitable than turning, with painful care and many years of time, Grapes into wine, for much of this was fiery stuff. The dwarf Banana is the kind usually grown, owing to its resisting the winds better than the taller kinds. The rapid steam transit allows of the fruit being sent to London in good condition. The silver Banana, one of the taller kinds, is also grown to a smaller extent.

THE MONSTERA of our stoves, the great leaved plant with the oval openings in the leaf, is an admirable plant here as an ornament, and its fruit is said to be very good by those who ought to know. Our experience of it in England is not favourable; but then the Madeira sun is pretty constant and warm. In any case, the plant is worth growing for its fine form and wholly distinct foliage—in a warm country, admirable for a terrace or in association with stonework; in a cool one, no less useful for the cool house, large fernery, or conservatory, though it is rarely grown in any. It must be planted out and allowed to ramble freely if it is to show its picturesque beauty.

Mr. Leacock made some successful experiments with turpentine and resin in the prevention of the *Phylloxera* ravages, but is now growing a stock of the American Vines, proved to have no attraction for the pest—particularly the Taylor Vine. Grafted on these, the Vines will be pest-proof, though whether there may be any difference in the wine it is too soon to say. Very subtle and apparently trifling changes sometimes lead to important results. The sulphate of carbon was being applied to the Vines at the instigation of the Government, so there are hopes of defeating the *Phylloxera* in

various ways. The idea that the wine of the island is deficient through the misfortunes of the Vine is a mistaken one. The stocks in the island are abundant, and in the stores of the best houses good in quality. It is too commonly supposed that the island wines are not now obtainable, the fact being that there are large stocks of good wine in the island, and that the Grape is grown, and grown successfully, to a large extent. Should the remedies against the *Phylloxera* prevail, there is no reason why it should not be grown as much as ever, but the climate and other advantages of the island point to a much more profitable aim—the growth of fruits and early Potatoes for our markets. The only difficulty would be that as soon as the Government sees any progress made in this way it is certain, judging by present experience, to tax the article exported, and thus destroy the people's chance of a good market for their produce.

The Avocado Pear does well, and so does the Rose Apple and the Mango, of which there is the good Bombay variety. The Custard Apple does admirably; it varies a good deal, and some of the kinds are excellent. The Pitanga is a good small red fruit borne on a low tree of the Myrtle race. The Pomegranate bears well, and Dr. Grabbam praises highly a small species of Guava (*Psidium littorale*) which fruits in a very small state, and is excellent in flavour. It would be worth growing in our hothouses, in which the old small Guava was fruited easily enough.

Vegetables.—A very useful experiment has lately been made here by Mr. Leacock in the growth of Potatoes in winter for the supply of the London market early in the season. In early spring those from Lisbon and the Channel Islands are often very small and poor. Here, in February, tubers of Myatt's Ashleaf were as good as one could desire for any season. Samples being packed for Covent Garden were the best we have seen of early Potatoes. Grown among the Vines, and dug out before the canes bud out, the Potatoes are a catch crop; and this experiment may lead to a profitable industry for the natives. The island has distinct advantages for early crops over the warmer parts of Europe that lie nearer to us, and we hope they may be made the most of, both for the islanders' sake and our own markets—always ready for great quantities of early Potatoes, if large and good, as these are. Peas, which do admirably in the winter here, have also lately been sent to Covent Garden successfully. The quick steamers passing to London from the Cape and calling at Madeira will very much facilitate this commerce.

The *Caladium esculentum* of our stoves and sub-tropical gardens is everywhere grown in moist or irrigated ground as a vegetable, and often is naturalised in the stream beds. It is, when boiled, a vegetable of fair quality—better than an ordinary Potato. The Sweet Potato is much grown, the Demerara variety being the most fertile; three crops are gathered from it in the warmer districts near the sea. Its modest, *Convolvulus*-like flowers, seldom appearing in some other countries where it is grown, are often seen nestling among the leaves. Pumpkins and Gourds are in great variety, and form a great part of the food supply. The Chou-chou is also much grown and used. Tomatoes grow finely, and a supply could probably be sent to our markets. The climate is good enough to allow of the growth of the tenderest vegetables out of doors in winter, Peas and French Beans being then plentiful.

The Flora and the Landscape.

Creeping up the hills one sees everywhere cultivation of some sort, from the Sugar Cane and Sweet Potato to the Vine and the Yam (*Caladium*). The spot not cultivated must be very small and much out of the way. The never-ending attempts to cultivate weary the sightseer, and one doubts while climbing if there is any space left in the island for wild wood or copse. But the Chestnut woods are reached at last, and here and there a carpet of Grass appears, while Pine woods are on the hills, and above them patches of hail and snow on the upper mountains. The scenery so far is interesting and bold, but it is forgotten

in looking for the first time over a grassy ridge or rock into the "grand corral," one of these awful valleys flanked with mountain walls, colossal in their height and terrible in their steepness. Smaller mountains start up in the valley and are crested with evergreen trees far and sheer below us, and there are also arid and castled peaks among them, only stained with broad silver Lichens. Soon we pass on to the mountain country where such scenes are the rule, and much more beauty than one can tell of. The sun is warm above the silver mists that roll up from the sea into the unearthly valleys, levelling them up from time to time, and clear above stands the saw-like ridge of the upper mountains. A desolate hardness and bareness, like that of the Rocky Mountains, is modified here and there as we go on by bushes of the Tree Heath, and soon trees of Laurel-like character are seen, enriching the foregrounds and softening the rocks. In a day's walk from sea to sea, from Funchal to San Vincente, there is time but to glance at the many mountain pictures that are seen when the weather is fair. Como or Tyrol have nothing more remarkable than this island group, though it has not the cold charm of vast fields of snow; the distant purplish ranges, when all is clear; valleys receding into space till the terraced fields are dim afar, and only the bold towered crags that guard them show clear. Much is lost by the grey mists which fill valleys as we pass, but they only take possession of some parts of the country, and we are passing close under a wall of rock a thousand feet high above us, with Fern and bush as abundant as if the slope were soft and easy for soil or rain. Nowhere else do the rocks form such perfect walls; those in the Maritime Alps are severe in their way, but nothing to the Madeiran in their height, length, and danger to the passer-by. In many places the vertical, or almost vertical, crags are embossed with large Houseleeks, and they are rich in silver and gold Lichens which spread into broad patches and finely colour the stone. Owing to the need of passing rapidly to fixed points, it is difficult to see as much of the objects of interest as one would desire. Some large trees of the Til are very picturesque and fine in form. Their main stems are clothed with the Hare's-foot Fern, the finely cut leaves of which form lacework over them.

The poorest of the Irish people seem "bloated aristocrats" compared to men and women occasionally met with in these valleys, yet the Portuguese Government tax them severely, and even have imposts on the importation of their food. The houses they live in are wretched in the extreme—small thatched huts, worse than those the native races in some savage countries live in. The wealthier and more enterprising classes are not let off any easier; heavy and vexatious taxes fall upon them, and the taxes on raw material are such that any enterprise is almost impossible. Miserable as the people often are, however, they show some love for gardening, and every little house has a few flowers, often strange ones for cottage gardens, if we can apply the term cottage to the little houses. Frequently where a wall is used it is hollow in the upper portion and filled with soil, in which flowers and trailers are set—a good plan where people resort much to walls, and this wall garden is called *allegrette*, meaning "a bit of joy!"

The island was clothed with trees to the water's edge, it is said, at one time; but the natives cut the wood without mercy, and are in this way spoiling the land. With plenty of trees on the hills to keep the stream-springs constantly supplied, the fertility of the island would be secured. Take away the trees and shrubs, and the rains rush down to the sea at once, doing harm, perhaps, on their way. In this way we see the harm is done, even if the belief held by some is not true, that the woods attract the rain clouds. The goat is even worse than man in his tree-destroying ways—nibbling off every rising tree, natural or planted. It would be a mercy to remove the goats from many a once fair land they have devastated, as is said to be the case with Greece. Rabbits and goats are the most powerful

enemies of the gardener and planter. One wishes their natural enemies, the wolf and fox, were allowed to clear them off where man himself does not take the business in hand.

The crest of some old Laurel-greened land long at rest beneath the Atlantic, Madeira too was Laurel-wreathed from mountain valley to the shore when the Portuguese first set their feet here; but now all is changed. Richly clad with vegetation then, say, to the shore, the settlers soon seized all the good ground for their crops, cut down the accessible woods, and terraced the slopes of the hills so far as they would yield a patch of ground as big as a kitchen table. The streams and springs were turned from their natural courses from hill to ocean, and guided through cemented little channels to where they were required for the cultivator's wants. Here and there on the faces of the colossal cliffs of the north coast still are seen the long and silvery slender waterfalls, but these will in their turn be absorbed into the irrigating and watering channels. The higher valleys and rocks are, however, still green with the evergreen tree flora of the island and with the rich growth of Ferns it bears. The mountains are very high for so small an island—5000 feet to 6000 feet, and more in one case; and they naturally are embraced by clouds and mists when the low ground is warm in the sun. Ferns, therefore, thrive, and that bold and graceful Fern, *Woodwardia radicans*, is even encouraged to grow more freely in moist places, so that it may be enjoyed by the cows—said to like it much as green fodder.

Under the trees and in the Grass by the wayside a close turf of short but large *Oxalis* leaves is formed, and from it in early March many large deep rose flowers are peeping. It is a *Wood Sorrel* (*Oxalis purpurea*), and a very pest it has proved to the garden-loving folk, invading their gardens and exterminating every blade of Grass on their lawns. It is pretty itself early in the year; but when it fades away, only leaving bare earth and brown patches, then the lawn-maker hates it, and to no purpose, for no human effort seems capable of getting rid of it. By the wayside, too, and often on the margins of the cultivated fields, a yellow *Oxalis* (*cernua*) is very common, and the double form of it pretty.

In the calm air of our greenhouses some plants have a beauty which they do not keep out of doors, no matter how fair the climate. The old white greenhouse Trumpet Flower (*Brugmansia suaveolens*) is of this class. In some parts of the island naturalised bushes of it take possession, to the exclusion of other things, of the banks of water-courses and moist spots near them. Yet under these circumstances it is never so good in flower as under glass, the flowers being of a duller white. The white *Azalea* is another case in point. Of many bushes in many varied situations not one seemed pretty—not one so good in effect as an ordinary plant in a greenhouse in full bloom. This is owing to the fact that the bloom, texture, and pure tone induced by the artificial climate of the house help the effect of white flowers very much; besides, the subdued light may suit them better. On the other hand, the *Calla Lily* looks even better than when protected by a house, and so do many other plants—*Agaves*, *Bignonias*, *Bougainvilleas*, and the various tropical and sub-tropical trees which assume their natural habit in the open air. It is pleasant to meet old favourites that one sees often enough stiff and distorted in a pot forming trees of fine form or bushes of surpassing grace, like our old friend, the *Euphorbia*, which here bears its vivid wreaths with such a dainty grace.

R.
[We regret that we have been disappointed in the execution of an engraving of a good Madeira garden to accompany this article, but hope to give it at another time.]

Decay in the Willow.—Such is the vitality of the Willow, that decay will often go on for years without necessitating the removal of the tree; indeed, an old Willow forms a picturesque object, and, unlike many other decaying trees, one from which little or no danger need be apprehended from the

falling of dead portions. If the decay has just commenced it may perhaps be arrested by removing the diseased part and cementing; but if hollow, and the supply of sap is maintained by but a small portion of the trunk, it will be well to encourage the still living portions to push out roots. To further this end the hollow portion may be partially filled with soil to serve as a medium for the conveyance of the roots to the ground, and the whole plant should be secured against strong winds, otherwise such old trees are often liable to be blown over. Why cuttings go off I cannot understand, Willows being proverbially easy to strike; perhaps the soil is too hot and dry. All that I do is to cut up the shoots (not necessarily small twigs, but often as thick as one's thumb) into pieces about 18 inches long, and bury them for two-thirds of that length in the ground, when they root and grow away freely.—ALPHA.

GARDEN FLORA.

PLATE CCLXXXV.

COMPARETTIAS.

(With a coloured figure of *C. macroplectron*.)

AMONGST small, yet attractive, plants of popular Orchids the genus *Comparettia* occupies a foremost position, though, like *Ionopsis*, *Burlingtonia* and several other small leathery-leaved epiphytal Orchids, its species thrive but indifferently under cultivation. With us, as with most growers, I believe, they flower well enough the first season after arrival, but to establish and grow them on year after year is not easily accomplished. The treatment under which *Comparettias* have as yet proved fairly happy with us is simple enough, though we seem to be behindhand as regards a proper knowledge of their requirements under cultivation. We grow them on blocks with a little fresh *Sphagnum* about them, and water frequently during the summer months. During their growing season they are suspended in the East India house, and on the completion of the little growth they make they are placed in a cooler house. It may be that the heat of the warm house is too much for them, yet they do not come to much if one tries them in a cooler temperature—that is, during their growing period. They do not appear to like much sunshine, spot, the deadliest of all enemies to Orchids, being the result of exposure to bright light.

The accompanying coloured plate represents a recently introduced species and one of the most beautiful. Some confusion seems to exist between this species and *C. rosea*, with which it has been stated to be identical. It may be well, therefore, to point out the differences between these two plants, and at the same time to offer a note or two on *Comparettias* generally. That *C. rosea* of *Paxton's Magazine* is abundantly distinct from *C. macroplectron* of Reichenbach there can be no doubt.

C. MACROPLECTRON was introduced in 1878, and named and described in the following year. It is a bulbless species, bearing three or four leaves on each growth, from the sheathing petioles of which the flower-spike springs. The flowers are larger than those of *C. rosea* or of *C. falcata*, another well-known kind, and are characterised by the length of the spur, which is at least twice as long as in any other cultivated species. The lip is broad and squarish, slightly toothed at the sides, and of a pale rose colour thickly marked with red spots, as are also the sepals and petals. It is a

* From a drawing made in Baron Schroeder's garden, The Dell, Egham, in September last.



very pretty little Orchid, and being a free flowerer is likely to become a favourite. I saw a good specimen of it in flower at Kew a few weeks ago.

C. ROSEA.—Although quite distinct from C. macroplectron, this kind seems so near the older C. falcata, that I suspect the one is most likely a variety of the other; and as the latter name has precedence over Paxton's, I suppose the name rosea will have to be dropped, or at least exist only as a varietal name.

C. FALCATA has smooth, oblong, clustered pseudo-bulbs, sometimes sheathed with brownish scales. The foliage is thick and smooth, rather leathery in texture, and borne singly on each bulb. The flower-stalk is about 12 inches long, and bears from 3 to 6 rich purple or crimson flowers with spurs about 1 inch long.

C. COCCINEA has oblong channelled bulbs, the young ones being covered by the sheathing bases of the three or four leaves which are borne on each bulb. These leaves are narrow, about 5 inches in length, of a leathery texture, and the underside is of a purplish colour. The flowers of this species are very prettily marked, the sepals and petals being yellow edged with red, and the lip entirely of the latter colour. This species is rarely seen in cultivation, being rather difficult to manage, and, moreover, not by any means plentiful in its native habitat.

C. SPECIOSA.—This I have not seen. Reichenbach describes it as being very beautiful, quite comparable with C. macroplectron. It has even been compared with *Oncidium concolor*. At Burford Lodge I believe the first flowers of this plant in this country were seen, and it is said to have quite come up to the expectations formed of it from the collector's description. The colour of the flowers is as follows: Sepals and petals light orange, the base of the labellum being of the same colour, while the blade is cinnabar. These flowers are borne ten on a spike, and as they are described as large and showy for the genus, the plant must be a very desirable one. As far as I know, few if any plants of this species are in cultivation now.

B.

SINGLE-HANDED LAWN MOWERS.

HAVING used many of the old machines, and also the majority of the newer forms which have been brought out from time to time, including the Archimedean, Excelsior, Climax, Coventry, and others of a like class, I most unhesitatingly give the palm to the Excelsior in its four-bladed form for easiness of working, quality of work, ready adjustability, and durability, and also for cutting either short or long, wet or dry Grass. During three years of constant work one I used cost only about 2s., which was for oil, of the quality of which I am very particular. A boy of twelve can easily use a 14-inch Excelsior on any ordinary lawn, and a 16-inch machine runs as light as the ordinary 12-inch machines with the old-fashioned cutters, and the handles being adjustable can be raised to suit any height, thus applying the maximum of power with the minimum of fatigue. Three 14-inch machines worked by three boys of fifteen or sixteen would do more work in a stated time than two of "J. D. B.'s" 28-inch machines worked by six men, thus effecting a great saving and doing the work equally well. I might incidentally mention that last year at the Chertsey Flower Show, held in Oatlands Park, the local agent asked me to exhibit for him, as he was not up in that class of work, and both on the first day, when the rain fell in torrents, and on the second day of the show, both 14-inch and 16-inch machines cut Grass 4 inches or 5 inches high under trees, the bottom being very rough and uneven, and many gardeners who saw the work and tried the machines expressed themselves satis-

fied with the work done and with the lightness of draught of the machines. I should recommend "J. D. B." to try the Excelsior before purchasing, because if not pleased with it after a reasonable time it can be returned, and without any expense whatever to him.—W. J. MAY, *Walton-on-Thames*. [Other letters in favour of this machine have also reached us.]

—I think "J. D. B." (p. 282) cannot do better than purchase two 14-inch Barnard, Bishop & Barnard Lawn Mowers. I have had nineteen years' experience as a gardener, and have had all sorts of machines to deal with. I do not consider any equal to theirs for several reasons; first, one can sharpen the cutters one's-self with a little oil and emery paper, and by turning the cutters backwards, for which a handle is supplied. Next, the rollers are heavier than usual; consequently they run steadier, and the cutters go deeper, and take a better grip than those of other machines.—T. M., *Bolton*.

—"J. D. B." is quite right in his opinion that two men with 12-inch lawn mowers would do more work than three with a 28-inch one, and would be less fatigued. We feel sure if the "Invincible" were tried, the operators would derive every satisfaction from its use.—JOHN CROWLEY.

SEASONABLE WORK.

FLORAL DECORATIONS.

ONCE more we have from hardy shrubs and trees a good supply of flowers that are useful in a cut state. A useful early flowering plant is the double blossomed white Peach, which looks exceedingly well against a background of common Laurel. In a cut state it will look well with the golden yellow *Kerria japonica*. The foliage of *Berberis Aquifolium* would no nicely as a background for an arrangement of this kind. *Pyrus japonica* and its white variety make a nice change. When using these flowers secure a few fresh green growths also, to arrange with them. The early flowering hardy *Rhododendrons* are always valuable. Like the *Pyrus*, these arrange best by themselves. We find three or four trusses of two distinct colours of these hardy American plants to group well together for a sideboard decoration. Besides all these there are *Laurustinus*, *Ribes sanguineum* and its white form, and other shrubs which, for cut purposes, ought to be more valued than they are; and where a supply can be thus got, as at the present time, from the open air, less pressure should be put upon that from the houses. Of hardy bulbous plants, the Bluebells (*Scilla campanulata* and *patula*) are valuable aids in floral decorations. A few spikes look pretty arranged with *Hoteia japonica*, or in a dinner-table arrangement they associate well with the Amazonian Lily. Of plants easily grown under ordinary greenhouse treatment, *Choisya ternata* is a valuable shrub, as are also the *Eriostemons* (*E. linearifolium* in particular). We have these in flower now, the latter plant being in that condition nearly all the winter. Both of these shrubs are most valuable for bouquet work. A few pots of Musk will be an agreeable change in the house where this plant has been forwarded; so also will early Stocks and small plants of *Heliotropes* and forced Pinks, not forgetting *Mignonette* from autumn-sown seed.

FLOWER GARDEN.

WALLFLOWERS, Primroses, and Polyanthus may be sown now, and good varieties of the two last should be increased by division as soon as they have done flowering. New plots of Violets should be made as soon as runners can be had; from these early plantings good flowers are frequently produced in quantity throughout the autumn and winter. The Czar and Victoria Regina are the best winter bloomers, simply because they are the hardiest. In order the better to insure a long succession of flowers in spring different aspects should be chosen. We plant a few at the foot of

the fruit tree walls in every aspect; from the south we gathered quantities of blooms in January, and from the north and east aspects they have not yet done flowering. Lily of the Valley is amenable to the same mode of culture, and the season of flowering is also proportionately extended. Beds of this Lily should now be top-dressed, and new beds made by dividing the roots that have been forced. Plant single crowns in lines 9 inches apart and 3 inches asunder in the line; press them firmly into the soil, and then mulch with cow manure, which should remain on the whole of the summer; next season some good flowers may be expected, and the following one they will be as fine as those from imported crowns.

GENERAL WORK.—This, to a large extent, still consists in the preparation of plants for summer arrangements. We are at present busy making up hotbeds, consisting of stable litter and lawn mowings, for *Alternantheras*; putting in cuttings of *Mesembryanthemum cordifolium variegatum* in boxes, which are placed over the pipes in vineries to strike; pricking off seedling *Tagetes*, *Pyrethrums*, *Zinnias*, *Asters*, and *Stocks*, also potting off *Coleuses*, *Iresines*, *Heliotropes*, and *Petunias*, and planting out *Lobelias* and *Verbenas* in turf pits, and *Calceolarias* and *Violas* in the open air. Dahlias and sub-tropical plants require the extra space thus gained, and some of these need larger pots, our rule being never to let them get root-bound, as that cripples the growth of the plants for the whole season. The outside operations now are principally mowing and sweeping; preparing beds and borders for planting; pruning and tying up, or nailing in climbers; sowing hardy annuals, and making successional sowings of Sweet Peas, *Mignonette*, and *Virginian Stocks*; weeding, and in mossy places, salting walks and roads.

INDOOR PLANTS.

STEPHANOTIS AND GARDENIAS.—Plants of these two fragrant white flowers started in a brisk heat some time back will now come rapidly forward. The *Gardenia* is a sun-requiring plant, as however much heat it receives the flowers do not make much progress until the sun gets some power. Use every means to keep down scale and mealy bug which will now increase apace. If the growth of the *Stephanotis* was well ripened last autumn, the plants will generally show flower freely on the young shoots as soon as formed. Do not use too much atmospheric moisture, as where subjected to an over-humid atmosphere, the bloom is usually proportionately deficient.

PERPETUAL FLOWERING CARNATIONS.—Where there is a well-managed stock of these, the principal lot should now be fast pushing up their flower-stems, for, although from their perpetual blooming habit with a sufficient number of plants their flowers may be had all the year round, still they come much finer and in greater abundance during the spring and summer. The plants will be much benefited by the application of manure water once a week. This will not only assist the earliest flowers, but also the successional bloom. A little soot added to the manure water will be found an advantage, as besides its manurial properties, it tends to banish worms, and there is no insect that appears to like depositing its eggs on plants that have the odour of soot about them.

TUBEROUS BEGONIAS.—If not already started, the old bulbs of these should at once be set to work, repotting them in good, fresh soil, and giving root-room proportionate to the size of the bulbs, for though they may be considerably assisted by liquid stimulants, yet with free-growing subjects like these Begonias, that form large heads in little time, a good amount of space is requisite for the roots; if too much confined, the amount of growth and flowers forthcoming will be limited.

TENDER ANNUALS.—Even in gardens where plants of a permanent character are made the principal feature some of the handsomest annuals suitable for pot culture may be grown with advantage. Such things as *Balsams*, *Globe Amaranthus*,

Rhodanthe Manglesi, *Celosia pyramidalis*, and the old-fashioned Cockscomb, when well managed, are amongst the most effective plants that can be grown for summer decoration, and when in flower they can be placed about in conservatories and similar structures where it would not be expedient to set plants of more value. The feathery plumes of the *Celosia* are unequalled as regards effect when grouped with plants of more bushy habit. The principal matter to be kept in view in the cultivation of these things is to give them sufficient room and keep them close to the glass from the time the seed germinates until they are in bloom. It is not advisable to place the seeds in too much heat; an intermediate temperature, such as that obtainable from a moderate hot-bed composed of leaves and manure in about equal quantities, answers best. Pits or frames now occupied with bedding plants will in most places be at liberty in a short time, and will be available for them in their subsequent stages.

LINUM TRIGYNUM.—Where yellow flowers are prized, combined with a plant that occupies little room, this old-fashioned Flax is deserving of cultivation. If seeds of it are sown at once they will make nice blooming plants before autumn. It is somewhat liable to the attacks of red spider; consequently a constant use of the syringe will be necessary, dewing the plants over every day. 6-inch or 7-inch pots are large enough, stopping once or twice to induce a bushy condition.

LISIANTHUS RUSSELLIANUS.—This deserves a place wherever there is the means of giving it intermediate warmth, as so treated it does much better than where it receives more heat. The seed should be sown on the surface of the soil in a pot, covering it little or none, with the exception of a piece of glass, which should be placed over the top of the pot. The latter should be set in a pan containing a little water that will be absorbed by the soil, thereby obviating the necessity of watering overhead, which displaces the seeds and retards their vegetating. It is biennial in habit, plants raised from seed sown now blooming in May, June, or July the ensuing year.

TODEA AND TRICHOMANES.—Many who have attempted the cultivation of these elegant Ferns have failed through keeping them too warm. No heat is required, except simply to keep out frost. They require to be confined within a glazed case, for though they will live exposed to the atmosphere of an ordinary cool fernery, yet they do not get on so well as if less air was given them. Any that need more root room should be repotted, being careful not to disturb the roots more than is unavoidable, as now, when growth is commencing, any mutilation of them will interfere with the development of the young fronds. Keep the soil well supplied with water, as the least approach to dryness is most injurious at all times, but much more so during the early stages of growth than at any other time. In giving water be careful not to wet the plants overhead, as if this is not avoided they always have a brown, shabby appearance.

LYGODIUM SCANDENS.—Where large stands or baskets are required to be filled with flowers this climbing Fern should be grown in sufficient quantity to admit of its being used freely, as its elegant long sprays have a beautiful effect when entwined amongst flowers and other green foliage.

FRUIT GARDEN.

VINES.—By this time the Vines in the latest houses will be fit for stopping if the operation has not already been performed. Syringe well twice a day until the branches become prominent, encourage a short-jointed, sturdy growth by ventilating freely through the early part of the day, close with brisk sun heat to save firing, and allow the temperature to range about 60° at night. If the inside borders have not been watered since the Vines broke, now will be a good time to give them a thorough watering—if gross, with pure water;

if weak, with liquid or guano added—which will carry them on until after the fruit is set, when they may be again watered and mulched with short manure. Pay regular attention to daily details in succession houses, and on no account let the thinning of the berries get behind, otherwise a tedious operation of this kind, which requires great patience, is sure to be hurried over and imperfectly performed. Fertilise Muscats now in flower, also Black Morocco and other shy-setting kinds, using Hamburgh pollen if it can be obtained or has been preserved in a dry, warm place. A camel's-hair brush should be used in preference to drawing the hand down the bunches, and the atmosphere of the house should be dry and warm when the operation is performed.

Examine the foliage in out-of-the-way corners in the early house, and if a suspicious-looking leaf is found, either sponge at once with weak tobacco or soap water, or apply the usual remedy to the pipes for the destruction of spider. At the same time look well to inside borders, and if found dry, a condition under which spider makes rapid strides, water freely with guano water and mulch with short stable manure which has been well worked as for a Mushroom bed. Damp this frequently to keep the atmosphere charged with moisture, maintain a low night temperature by giving front air, and, most important of all, see that the Vines are not carrying more fruit than they are likely to swell up and finish. Many people overcrop and suffer, but we never hear the grower or the consumer complain when a moderate crop colours and ripens well.

GRAPE ROOM.—The dry atmosphere which prevailed throughout the past month was favourable to the keeping of late Grapes in rooms not affected by sudden changes of temperature, and such kinds as Gros Colmar and Alnwick Seedling are still fresh and plump. The last named being the first to break in the spring, and the first to ripen when grown with such varieties as Lady Downes, Alicante, and Mrs. Pince, and its quality being so good, the proof that it is a good keeper will at once stamp it as one of our best spring Grapes. It will now be necessary to keep the room as cool as possible, by admitting a constant circulation of air and keeping the shutters closed all day, as light and sun heat will begin to have an injurious effect upon the colour and texture of the berries. Keep the bottles well filled, remove all decaying berries, and keep down dust by occasionally washing the floors with warm water in fine weather.

PEACHES AND NECTARINES.—The most trying and critical period in Peach culture is the stoning process, which lasts about five weeks, and so great is the strain upon the trees, that during that time no outward change is perceptible in the size of the fruit, but good work is going on within, and as soon as the old lime rubble, so often recommended for Peach borders, has been converted into bony foundations for the luscious pulp, the last swelling for ripening will be very rapid, and forcing may be pushed on under a much higher temperature than would be safe through any of the preceding stages, but it must be borne in mind that hard forcing is not recommended, as trees placed under high pressure are short-lived, and the fruit they produce is generally small, flavourless, and deficient in colour. To have the fruit fine and well coloured, low temperatures, ranging from 45° at the commencement to 58° at the finish, with a free circulation of air on all favourable occasions, are points which must have attention, and where they are neglected the mediocre fruit so frequently met with will be the result. Having kept the trees regularly syringed and ventilated to prevent fluctuations through the stoning period, the first sign of a move forward will denote the time for the final thinning, an operation upon which many fruit growers disagree, one man asserting that his trees carry twelve fruit to a foot, while others, myself amongst them, find one good Peach to every square foot of trellis covered with foliage is a heavy crop for trees to carry for a number of years in succession. Pinch the points out of all growths which will be removed after the crop is gathered to throw size into the fruit.

Tie down the young shoots where a free and easy style of growth has been adopted during the stoning process, and elevate the fruit well above the foliage, point upwards by the use of short pieces of lath placed across the trellis. Give another watering to inside borders, and mulch well to keep the surface roots moist and active during the time the fruit is ripening. If soft water cannot be obtained for syringing, water free from lime should be used, otherwise the sediment will mark the fruit and detract from its appearance when ripe. Follow up the usual routine in succession houses and keep everything in order by the timely performance of the various operations now crowding upon each other. Disbud, tie down the shoots, and thin the fruit in late houses. Use the syringe freely all round, and give all inside borders copious waterings with water at the mean temperature of the houses in which the trees are growing.

CHERRIES.—When the fruit in the early house is set, daily syringing must be resumed, and continued until the stoning process is complete. In the meantime the stopping of superfluous shoots to form spurs, and the tying-in of others where young wood is needed, must have attention. As days increase in length and the sun gains power, the temperature with a circulation of air may range from 50° to 60°, and a few degrees higher after closing with solar heat; but it will not be well to make much advance on the minimum temperatures given the other day, say 45° at night, unless the weather is very mild, when 50°, or perhaps more, may be maintained without having recourse to fire-heat. Keep all insects in check by timely application of the usual remedies. See that the roots are well supplied with water, and have the surface well mulched to prevent the escape of moisture when the fruit begins to ripen.

FIGS.—Favoured by a tolerably good season, the most forward fruit on pot trees will soon begin to ripen, when watering may be gradually reduced, but at no time must the trees feel the want of water, neither must syringing be entirely discontinued, otherwise spider will speedily follow the check and give much after trouble. From this time forward the house may be freely ventilated in favourable weather, and the temperature may range from 60° to 65° at night and 70° to 75° by day with a rise to 80° after closing on bright afternoons. Maintain a circulation of warm air through the night. Keep the young growths neatly tied down to give the ripening fruit the full benefit of light and solar heat, and as ripe Figs can be kept for a few days laid on a hair-sieve in a dry room, make a point of gathering all that are ready at short intervals, and immediately give a good watering with tepid liquid, and syringe copiously to help forward the advancing crop. In succession houses where the trees are planted out, pinch or remove the side shoots and tie down leaders to prevent overcrowding, but do not stop the latter until they have reached the extremity of the trellis, as the Fig, unlike many other kinds of fruit tree, keeps producing a succession as long as it continues growing. In some parts of the tree stopping is quite necessary to prevent the fruit from being too much shaded by the foliage, but stopping should not be practised after the turn of the summer or when the trees are weakened by forcing and unable to push young growths from the eye nearest the point at which the shoot has been stopped. Trees in late houses may now be well syringed and watered to help the crop along; ventilate freely to insure a firm, short-jointed growth, and close early with sun-heat to save firing through the night. Examine spring-struck cuttings, and shift them on as they require more pot room. If kept in or over bottom-heat with their heads near the glass, they may be got into 12-inch pots by the autumn, and strong enough to bear fruit next year.

STRAWBERRIES.—If these plants still occupy shelves in Peach houses and vineries, lose no time in getting them removed to safer quarters, and thoroughly cleanse the houses or the parts in which they are likely to have left the nucleus of a colony of spider before it has time to extend to

the permanent and more valuable occupants, where it will do more mischief than the Strawberries are worth. If a hot-water pit, in which the plants can be placed near the glass, is available, this will be found the best place for their reception, as there they can be copiously syringed and shut up early with sun heat to swell the fruit, and the pots being less exposed to bright sun and draughts of air, feeding can be more effectually and economically carried on than when elevated on shelves in lofty houses. By this time the stock will have been reduced to the late kinds occupying 7-inch and 8-inch pots, and as these will now be making an abundance of foliage and throwing up their flower-scapes, see that they have plenty of air and water, and syringe well when the pit is closed for the day. If the plants have not been disturbed since they were stored away in the autumn and space is available, a general turn over and partial replunging, giving the best more room by turning out the weakest to form a later batch by themselves, the crop will well repay the time and trouble expended upon them. Let the crocks be examined as the work proceeds, and correct any derangement that may have been caused by worms; also ram the soil well back to the sides of the pots to insure the even passage of water, and top-dress the surface with a mixture of rich loam and rotten manure. To secure extra fine fruit, thin off weak blossoms before they open, fertilise those left when ready, and tie up to light sticks when they begin to swell.

KITCHEN GARDEN.

OF Celery, which is always useful and enjoyable when well blanched and well grown, our early sowing now pricked on tin boxes for the second or for the main crop is well above ground; for the last crop of all we sow in the middle of this month; this proves most useful for soups in early spring. Early Broccoli, such as Veitch's Autumn Giant, good old Walcheren, and White Cape should, if not already done, be sown at once—under glass if possible. To sow seeds outside is not a good system; the young seedlings do not grow and flourish in the same manner as if raised under glass, and weakly, crippled plants are not the thing if success is a consideration. Defer sowing the later kinds until the 1st of May. Scarlet Runners we grow in miniature trenches, the same as Peas; the trenches should be taken out at once, well manured, and dug deeply, breaking the soil well as the work proceeds. We then put an inch deep of burnt refuse on the top of the broken soil, and wait until the second week in May; then with a cultivator we mix the ashes and the soil in the trenches, draw a shallow drill down the middle, and in this plant the Beans, in single rows, earthing, them up, when large enough, until the ground is level before staking. This method of planting Scarlet Runners makes them to a great extent independent of dry, hot weather. Peas that are sufficiently grown should be staked after slightly earthing them up; and here we must remark that Peas are very much benefited by staking; it keeps that worst of all enemies—the surface wind—at bay. We consider wind far more dangerous than frost for all outside Peas. Our earliest Pea, Ring-leader, is showing flower, but we have Minimum in pod, grown in boxes under glass, no fire-heat being used. We are just finishing planting Potatoes, for which the land is in fine condition and the weather perfectly glorious; therefore, if these two important matters have anything to do with raising good crops, we venture to prophesy that success is certain. We have just begun to cut spring Cabbages; they are not large, but fairly solid, and good in flavour. Hicks' and Black-seeded Brown Cos Lettuces, both good winter varieties, we have been cutting for use all winter, and just now we have a very good supply. Hicks' Hardy is the best so far as colour goes. Tomatoes grow apace just now. Keep the side shoots thin, and supply them with water abundantly, but nothing more at present. When a good crop is well set, treat them to a little manure water, but not

too much—1 quart of manure water to 3 galls. of clean soft water. French Beans should now be sown in small pots, and planted out under south walls or in warm corners for an early supply outside.

PUBLIC GARDENS.

THE YELLOWSTONE PARK.

THIS Great Northern Wonderland, according to the *New York Tribune*, is just now exciting lively public interest. Hemmed in by mountain ranges whose crests glitter with perpetual snow, the marvels of this volcanic basin were unknown until within a few years, and although Congress wisely set it apart and dedicated it to the people as a park for ever, it has been so remote and inaccessible that comparatively few visitors have yet explored it. Last autumn, however, General Sheridan reported that too many tourists and hunters had been there already, and that the work of defacing the park and killing the game had been most industriously prosecuted. It was recommended that an added area of forest land should be embraced within the park boundary as a game preserve, and that the whole be policed by the army to prevent further depredations. General Sheridan's report occasioned some discussion, and people began to think how their priceless possession might be preserved. For this purpose a company of gentlemen has been incorporated under the title of the Yellowstone Park Improvement Company. It covenants in its proposed lease to protect the park from marauders. Some provision for the comfort and entertainment of visitors to the park will be needed, and preparation for this purpose must be made too within the park, for its present boundaries contain some 2500 square miles. But of course great caution should be exercised in granting exclusive privileges. The first thing to be cared for is the park itself. The elemental forces which made the world here display themselves as they are not manifested in any other part of the earth's surface. The scenery, too, has a unique impressiveness, as if some distinct preparation had been made for this heart of the continent, from which water flows to the Gulf of California, the Pacific, and the Atlantic through the Gulf of Mexico. The preservation of this wonderland as it is, in all its original grandeur, should be the prime condition exacted from any or all who are granted privileges from the Government. And this protection should mean more than simply guarding the forests from fire and the geyser cones from being battered down. The danger from "improvements" is quite as serious as any threatened by the wantonness or thoughtlessness of visitors. The most sublime scenery, when scarified by a brutal engineer, may lose all its impressiveness, and the obtrusive ugliness of some misplaced hotel can disfigure the noblest landscape. Not a road should be graded nor a single structure erected in Yellowstone Park until plans have been submitted to some artist of recognised taste. Provision against the vulgar intrusion of distracting and incongruous objects should be another condition in any lease of park privileges.

Preservation of open spaces.—Miss Octavia Hill has done well to call attention to the fact that the North-Western Additional Powers Bill, just coming before a Parliamentary Committee, proposes to absorb one of the only too scarce open spaces of the metropolis, the disused cemetery lying between the Euston Station, Hampstead Road, and Little George Street. Now is the time for public opinion to make itself felt in the matter. We know by sad experience how these things are done. A company makes out a good case—public interest, of course—for taking or spoiling some little bit of ground not yet covered with houses. The people injured by such a course have no real power of making their opposition felt. They cannot afford to make a counter offer. Most of them are but half conscious of the importance of the matter, especially if, as in the present case,

the place is only a disused burial-ground. The Board of Works offers a lame opposition, but makes no effort to obtain the assistance of an efficient public opinion. Judgment practically goes by default against the inhabitants of the neighbourhood. Next year the ground is covered with coal-trucks, or it may be an engine-repairing house, and one of the lungs of that district is gone for ever. The maintenance of even the smallest open space in the midst of our teeming population is a matter of supreme necessity. The fact that the ground is at present disused makes no difference. If not used now it may be used hereafter, when the need will be even greater than at present. Besides, open spaces, even if closed, are invaluable as reservoirs of purer air than that of courts or alleys. The question, indeed, is too clear for argument; and yet perhaps Londoners will never be able to protect themselves against these encroachments until such purely local questions are left to be decided by a local representative body.

Park at Versailles.—It is to be hoped that the French authorities will soon do something towards the restoration of the roads, ornaments, and plantations of the park at Versailles, which is falling into a pitiable state of desolation and decay. The masonry and statuary are broken in many places, and the latter are blackened with damp. The trees and turf are neglected, and weeds and underbush choke up the once trim glades. The roads, particularly during the recent wet weather, have been in a frightful state, and altogether the once lovely park presents a melancholy spectacle of ruin and neglect.

Mitcham Common, a lung rather of Croydon than of London, is in danger of being annihilated by the speculative builder and the lord of the manor. A local committee is endeavouring to contest the rights of the aggressors, but can only raise £600 for that purpose. They, therefore, the other day presented a petition to the Corporation of the City of London for their assistance. It is to be hoped that the City will give it in this case as they have done in many others; but it is rather anomalous that the borough of Croydon should be unable to help its 80,000 inhabitants in this matter.

FRUIT GARDEN.

TEMPERATURE FOR FORCED VINES.

UNTIL I opened THE GARDEN last week I thought I had read enough of "Peregrine's" writings to convince me that he was not a stickler for hard and fast lines; but I must confess that he has disappointed me in this matter, as a reference to his remarks (p. 285) respecting the night temperature that Mr. Barron recommends for early forced Vines will show. He makes a difference of 5° a subject worthy of special note, which, to me, looks something like hair-splitting. As regards the night temperature for Vines started in November, allow me to tell "Peregrine" that we have here an early vinery that has been forced for fourteen consecutive years. To this house we always begin to apply fire-heat in the middle of that month, and my rule is from the first to keep the temperature at 60° both night and day until the Vines have broken regularly from one end of the rod to the other. The night temperature is then reduced to 52°, and the day temperature increased to 62°. At this point it remains until the Vines commence to bloom, when the heat is increased 10° both night and day. These figures, it may be well to state, apply to fire-heat only. A range of 10° to 20° is always allowed for sun-heat. It seems to me that "Peregrine" has not sufficiently taken into account the time of year. Starting Vines in November is very different from doing so in the middle of March. Vines will not only bear from 5° to 10° more heat to get them to move in November than in spring, but they will take from two to three weeks longer to break. The question of a fortnight does not seem much as regards breaking, but it makes all the difference at the time when the fruit should be ripe, and

unless this is understood the inexperienced might be considerably inconvenienced by being thrown a fortnight out of their reckoning. According to my experience no one can go wrong who has to start Vines in November if they commence with a temperature both night and day of 60°—that is, assuming that there has been a preparatory process, which every good gardener would of course be sure to carry out. In order to make this more apparent, let me describe the way in which I treat our early Vines. They are pruned in the middle of September, and I always prune to the best bud, which is generally the third or fourth from the spur. The most prominent bud is not necessarily the best; the bud most likely to yield the best shaped bunch is that which has matured an ordinary sized leaf; the buds to be avoided are those that have produced the smallest leaves near the spur, and the largest, which are generally about the fifth or sixth from the spur. The Vines are then let down from the wires and laid upon the border. At the end of October we give the rods a dressing of nicotine soap; all the glass and woodwork are also well scrubbed with warm water, the pipes are painted with lamplack and oil, and the walls whitewashed. The house is then shut up close, and remains so through the fortnight preceding the middle of November when actual forcing is commenced with a temperature, as I have said, of 60° both night and day. I do not say that my practice differs in any material degree from that of others; nor do I claim to have better results. I have merely given these details to show that even in Grape culture hard and fast lines are not always the best; and in

FORCING POT VINES I have many times proved that when the Vines have been thoroughly ripened and hardened by exposure to the open air, it is necessary to increase the temperature after the first fortnight to 65° in order to induce them to break in a stated time, nor has the crop suffered in any way from this temperature. The great secret is to reduce the heat to a safe point as soon as the buds have made 2 inches of growth. In cases in which it is immaterial whether the Grapes are ripe by the middle of May or the end of that month, slow forcing is all very well. Under both systems good Grapes are obtainable where the requisite degree of skill is brought to bear upon the work, all other things being equal.

C. J.

Top-rooted Vines.—With reference to my note on this subject in *THE GARDEN* (p. 251), my attention has been called to the fact that the writer's notes, which "Peregrine" (p. 209) supposes to have reference to double or top rooting, will not bear such a construction, and though when I first read them I myself so interpreted them, on closer examination I must acknowledge that I was in error. The writer does not allude to double rooters at all, but simply to the tops of Vines that had been cut off at the winter pruning, and which he proposed to layer in the border in exactly the same way as are our double rooters, hence the error.—*W. WILDSMITH, Heckfield.*

The Musch-Musch Apricot.—The middle of April is, of course, too early to speak decisively about the Apricot crop in general, but not too early to speak of the behaviour of this particular variety in connection with the circumstances as regards weather through which it has lately passed. Even in Somerset Apricot trees have felt their full share of the late inclement March, for coming, as it did, in its worst form just as the trees were in full blossom, they have suffered to a degree not experienced for some years past, with the exception of the Musch-Musch. The particular tree to which I allude, though treated in no way different from the others, if so well, is bristling with young fruits on every branch; indeed, so thickly are they set, that we shall have to remove quite two-thirds of them. This we shall be glad to do, for the fruit on the Moor Park variety is so far apart that we shall be glad of the thinnings from the Musch-Musch to send to the kitchen as green fruit. It appears to me that the Musch-Musch is a much

hardier variety than the Moor Park, but that, unfortunately, is about the only merit it possesses; in no other way is it equal to the Moor Park, for it has a large stone, and the flesh is thin and not of the best flavour.—*J. C. C.*

WEIGHTS OF SMOOTH CAYENNE PINES.

I AM surprised that the Smooth Cayenne Pine is not more extensively cultivated in this country than it is. In my opinion it is the very best variety in cultivation at the present time. The following two lists represent the production of two separate pits of this Pine grown without any bottom-heat, except that supplied by a bed of leaves. I have grown this variety for more than thirty years, and during that time I have not missed many months without having ripe fruit of it fit for table. I therefore consider it a most useful Pine both for early and late fruiting.

Pit planted with rootless suckers on August 9, 1881; first ripe fruit cut on January 25, 1882:—

Date. 1882.	No.	lbs.	Date. 1882.	No.	lbs.
Jan. 25 ..	1 ..	3	July 28 ..	1 ..	7½
28 ..	1 ..	3	29 ..	1 ..	5½
30 ..	1 ..	4½	31 ..	1 ..	5½
Feb. 3 ..	1 ..	4½	August 5 ..	1 ..	7
16 ..	1 ..	3½	7 ..	1 ..	5½
1 ..	1 ..	3½	8 ..	1 ..	6½
1 ..	1 ..	3	19 ..	1 ..	5½
1 ..	1 ..	2½	Sept. 18 ..	1 ..	6½
23 ..	1 ..	3	22 ..	1 ..	6½
1 ..	1 ..	4	Oct. 2 ..	1 ..	7½
1 ..	1 ..	3½	6 ..	1 ..	7½
1 ..	1 ..	3½	Nov. 7 ..	1 ..	5½
March 14 ..	1 ..	3½	25 ..	1 ..	7½
25 ..	1 ..	2½	1 ..	1 ..	7
29 ..	1 ..	3	1 ..	1 ..	7½
April 11 ..	1 ..	3	1 ..	1 ..	6½
16 ..	1 ..	4	Dec. 9 ..	1 ..	8
May 16 ..	1 ..	3½	1 ..	1 ..	7
20 ..	1 ..	3	13 ..	1 ..	7½
22 ..	1 ..	3½	22 ..	1 ..	7½
23 ..	1 ..	2½	1 ..	1 ..	8
June 14 ..	1 ..	4	1 ..	1 ..	6½
20 ..	1 ..	4½	24 ..	1 ..	7
26 ..	1 ..	4	26 ..	1 ..	6½
July 17 ..	1 ..	6½	28 ..	1 ..	7½
22 ..	1 ..	6½	31 ..	1 ..	6
1 ..	1 ..	5	1 ..	1 ..	7
26 ..	1 ..	6½	1 ..	1 ..	6½
1 ..	1 ..	5½			

Pit planted with rootless suckers on September 17, 1881; first ripe fruit cut on February 1, 1882:—

Date. 1882.	No.	lbs.	Date. 1882.	No.	lbs.
Feb. 1 ..	1 ..	2½	Sept. 27 ..	1 ..	7½
3 ..	1 ..	4½	Oct. 21 ..	1 ..	8
23 ..	1 ..	3½	23 ..	1 ..	6½
27 ..	1 ..	3½	24 ..	1 ..	7½
March 28 ..	1 ..	3½	25 ..	1 ..	8½
April 8 ..	1 ..	3	28 ..	1 ..	7½
15 ..	1 ..	4	30 ..	1 ..	5½
1 ..	1 ..	2	1 ..	1 ..	7½
1 ..	1 ..	3½	1 ..	1 ..	6½
1 ..	1 ..	2	1 ..	1 ..	5½
17 ..	1 ..	3	Nov. 2 ..	1 ..	5
24 ..	1 ..	3½	1 ..	1 ..	6
June 18 ..	1 ..	6	4 ..	1 ..	5½
21 ..	1 ..	5½	Dec. 7 ..	1 ..	7
July 24 ..	1 ..	4½	9 ..	1 ..	6
25 ..	1 ..	5½	10 ..	1 ..	6
28 ..	1 ..	6	13 ..	1 ..	6
31 ..	1 ..	5½	15 ..	1 ..	6½
August 11 ..	1 ..	3½	1 ..	1 ..	7½
1 ..	1 ..	5½	1 ..	1 ..	7½
Sept. 12 ..	1 ..	7	1 ..	1 ..	7
1 ..	1 ..	5½	10 ..	1 ..	4
1 ..	1 ..	6	22 ..	1 ..	5½
1 ..	1 ..	7	28 ..	1 ..	7
1 ..	1 ..	5½	1 ..	1 ..	6
1 ..	1 ..	5½	1 ..	1 ..	6½
20 ..	1 ..	5½			
26 ..	1 ..	7			

Each pit contained seventy-five plants. D.

HISTORY OF GRAPES.

THE ABERCAIRNEY AND WHITE LADY DOWNES GRAPES.—It is very desirable that the history of cultivated Grapes should be correct; therefore allow me to furnish you with some particulars regarding the Abercairney seedling, which I see is classed in "Vines and Vine Culture" as synonymous with West's St. Peter's, which hitherto has never been regarded as the same. I was familiar with the Abercairney seedling growing side by side with Oldacre's West's St. Peter's, at Drumlanrig in 1855 and 1856 in the late vineyard there, and the two were totally unlike. I understood also that the Abercairney variety was raised by the father of Charles and James McIntosh, respectively of Dalkeith and Drumlanrig, and if I remember correctly it was Mr. James McIntosh who told me this. It is also called Moray's Grape, probably because that is the name of the owner of Abercairney. I am very well acquainted with the West's St. Peter's, and regard Mr. Barron as mistaken in the matter. I think the Abercairney Grape was lately described by one or more correspondents of the *Chronicle* (Mr. Gilbert, I believe, was one), and the description given of it there was not that of the St. Peter's, but more like what I remember the Abercairney to have been like. As to the white Lady Downes, I have always understood it was a seedling from the black sort of that name, not crossed by any other kind, and in Burbidge's "Cultivated Plants," where the history of the variety is furnished by the raiser of it himself, it is so described. It is a pertinent question to ask, therefore, where did Mr. Barron discover its Muscat of Alexandria parentage? which it does not resemble in any respect, ranking next to the Gros Colmar as regards flavour.

CANNON HALL MUSCAT GRAPE.—"Vines and Vine Culture" says of this Grape that "its origin is uncertain;" that "the earliest trace of it is at Cannon Hall, Yorkshire." The facts are that the history of the Grape is well known, and the traces of its existence at Cannon Hall have always been of the most visible description. I have seen the very large, old Vine at Cannon Hall a great many times. Mr. Wilson, who was gardener there for about thirty years, told me it was the original Vine, and he found it there when he went from Claremont, where he was foreman to Charles McIntosh some forty years ago. This old Vine, being feeble, was done away with a few years ago in the course of alterations in the garden, but one of its progeny, nearly as old and large as the original, is still there and looking well. I saw it a week ago. It has a stem about as thick as one's leg at the base, and the rods are about 35 feet long. Another vineyard is planted exclusively with it, and the plants look remarkably well, all showing fine bunches. The Vine is regarded as a kind of heirloom in the family, and Squire Stanhope, or his present gardener, Mr. Clark, could, I daresay, give all the particulars of the Vine's origin and history at Cannon Hall, and which has never been disputed.—*J. S. W.*

Black Prince Strawberry.—I am pleased to see "H." (p. 319) speaking so well of this variety, and including it as one of the sorts worth growing. In my opinion it is decidedly so, and were I compelled at any time to confine myself to one variety of Strawberry, Black Prince would be the one. For forcing under glass or for growing in the open air there are no other kinds so early or so prolific, and few, if any, are better flavoured. Here it is ripe at least twelve days before any other sort, and by growing some of the plants on an early border and others in a late position it is surprising the succession of fruit which may be had from it. When well cultivated many of the berries become as large as those of Keen's Seedling, and it is the deepest coloured of all Strawberries. In bright, sunny weather the fruits are almost black and the flavour peculiarly rich. For preserving it is especially well adapted, and I am surprised that those who grow Strawberries for market do not have a large quarter of it. In some years I have seen it reported that Strawberries were 10s.

per pound in Covent Garden. These must evidently have been forced fruit, but at the same time we had abundance of Black Prince ripe in the open air, and this could have been sold at the time with a good profit at half that price.—J. MUIR.

GARDEN DESTROYERS.

THE RED SPIDER.

(TETRANYCHUS TELARIUS.)

THE red spider is not correctly speaking an insect, though it is commonly spoken of as such, neither is it a spider, as its name would imply, but an acarus or mite. Whether its name is correct or not, it is a most destructive and troublesome pest wherever it makes its presence felt; it by no means confines itself to one or only a few kinds of plants, as many insects do, but it is very indiscriminate in its choice of food, and it attacks both plants grown under glass and those in the open air. When these pests are present in large numbers the leaves on which they feed soon present a sickly yellow or scorched appearance, for the supply of sap is drawn off by myriads of these little mites, which congregate on the undersides of the leaves, where they live in a very delicate web, which they spin, and multiply very rapidly; this web and the excrement of the red spider soon choke up the pores of the leaves, which, deprived of their proper amount of sap, and unable to procure the carbon from the atmosphere which they so much need, are soon in a sorry plight. However promiscuous these mites may be in their choice of food plants—Melons, Cucumbers, kidney Beans, Hops, Vines, Apple, Pear, Plum, Peach trees, Limes, Roses, Laurustinus, Cactuses, Clover, Ferns, Orchids, and various stove and greenhouse plants being their particular favourites—they are by no means insensible to the difference between dryness and moisture. To the latter they have a most decided objection, and it is only in warm and dry situations that they give much trouble, and it is nearly always in dry seasons that plants, &c., out-of-doors suffer most from these pests. Fruit trees grown against walls are particularly liable to be attacked, since from their position the air round them is generally warm and dry, and the cracks and holes in the walls are favourite places for the red spider to shelter in, so that extra care should be taken to prevent them from being infested; this may best be effected by syringing the trees well night and morning with plain water, directing the water particularly to the undersides of the leaves, so as, if possible, to wash off the spiders and their webs. If the trees be already attacked, adding soft soap and sulphur to the water will destroy them.

SULPHUR is one of the most efficient agents known for killing them; but it will not, however, mix properly with water in its ordinary form, but should be treated according to the following recipe: Boil together in four gallons of water 1 lb. of flowers of sulphur and 2 lbs. of fresh lime, and add $1\frac{1}{2}$ lbs. of soft soap, and, before using, 3 gallons more of water; or mix 4 oz. of sulphate of lime with half that weight of soft soap, and, when well mixed, add 1 gallon of hot water. Use when cool enough to bear your hand in. Any insecticide containing sulphur is useful. The walls should be well washed with some insecticide of this kind. Old walls in which the pointing is bad and the bricks full of nail holes, &c., are very difficult to keep free from red spider. They should be painted over with a strong solution of soot water mixed with clay to form a paint. To a gallon of this paint add 1 lb. of flowers of sulphur and 2 oz. of soft soap. This mixture should be thoroughly rubbed with a brush into every crack and crevice of the walls, and if applied regularly every year would probably prevent the trees from being badly attacked. As the red spider passes the winter under some shelter, frequently choosing stones, rubbish, &c., near the roots of the trees, keeping the ground near the trees clean and well cultivated will tend greatly to diminish their numbers. In vineries one of the best ways

of destroying these creatures is to paint the hot-water pipes with one part of fresh lime and two parts of flowers of sulphur mixed into a paint. If a flue is painted in this way great care should be taken that the sulphur does not burn, or much damage may be done, as the flues may become much hotter than hot-water pipes. During the earlier stages of growth keep the atmosphere moist and impregnated with ammonia by a layer of fresh stable litter, or by painting the hot-water pipes with guano made into a paint; as long as the air in the house is kept moist there is not much danger of a bad attack. As soon as the leaves are off the canes should be dressed with the recipe already given for painting walls, and 2 inches or so of the surface soil removed and replaced with fresh, and all the wood and iron-work of the house well scrubbed. If Carnations are attacked, tying up some flowers of sulphur in a muslin bag and sulphuring the plants liberally, and washing them well in three days time has been recommended.

TOBACCO WATER and tobacco smoke will also kill these pests, but as neither tobacco nor sulphuring the hot-water pipes can always be resorted to with safety in houses, by far the better way is to keep a sharp look-out for this pest, and as soon as a plant is found to be attacked to at once clean it with an insecticide which it is known the plant will bear, and by this means



Fig. 1, red spider (magnified); A 1, ditto (natural size); 2, underside of head; 3, foot; 4, spinneret.

prevent other plants from being infested. These little mites breed with astonishing rapidity, so that great care should be exercised in at once stopping an attack. A lady friend of mine had some Castor-oil plants growing in pots in a window which were badly attacked, and found that some lady-birds soon made short work of the mites and cleared the plants. The red spider lays its eggs among the threads of the web which it weaves over the undersides of the leaves; the eggs are round and white; the young spiders are hatched in about a week, and they very much resemble their parents in general appearance, but they have only three pairs of legs instead of four at first, and they do not acquire the fourth pair until they have changed their skins several times; they are, of course, much smaller in size, but are, however, in proportion just as destructive as the older ones. They obtain the juices of the leaves by eating through the skin with their mandibles, and then thrusting in their probosces or suckers (fig. 2), through which they draw out the juices. These little creature are so transparent, that it is very difficult to make out all the details of their mouths accurately. The females are very fertile, and breed with great rapidity under favourable circumstances all the year round.

THE RED SPIDERS, as I have already stated, are not real spiders, but belong to the family Acarina or mites, a family included in the same class (the Arachnida) as the true spiders, from which they may be easily distinguished by the want of any apparent division between the head and thorax

and body; in the true spiders the head and thorax are united together and form one piece, to which the body is joined by a slender waist. The Arachnida are followed by the Myriapoda (centipedes, &c.), and these by the Insecta or true insects. The red spiders belong to the kind of mites called spinning mites, to distinguish them from those which do not form a web of any kind. It is not quite certain at present whether there is only one or more species of red spider; but this is immaterial to the horticulturist, as their habits and the means for their destruction are the same. The red spider (*Tetranychus telarius*—fig. 1) is very minute, not measuring more than the sixtieth of an inch in length when full grown; their colour is very variable, some individuals being nearly white, others greenish, or various shades of orange, and red. This variation in colour probably depends somewhat on their age or food—the red ones are generally supposed to be the most mature. The head is furnished with a pair of pointed mandibles, between which is a pointed beak or sucker (fig. 2). The legs are eight in number; the two front pairs project forwards and the other two backwards; they are covered with long stiff hairs; the extremities of the feet are provided with long bent hairs, which are each terminated by a knob. The legs and feet appear to be only used in drawing out the threads and weaving the web. The thread is secreted by a nipple or spinneret (fig. 4) situated near the apex of the body on the underside. The upper surface of the body is sparingly covered with long stiff hairs.

G. S. S.

APHIDES AND SULPHUR FUMES.

MR. D. T. FISH has been making some observations on the early appearance of these pests, but if the following remedy is adopted, neither aphides, red spider, nor scale need give much trouble at least on wall trees, which may be cleansed effectually not only of all of them, but every other parasite, and the walls made to look almost as fresh and clean as when new, for all Moss and Lichen shrivel up at once and disappear. This is effected by burning sulphur under the trees in winter while dormant, the fumes of which rush up the face of the wall among the branches and spurs without doing the least harm to the bark, which becomes bright and polished, like that to be seen on trees near a town, where smoke and vapour act in a similar way. Smears of all kinds are not only objectionable in appearance, but consume much time and labour. With a few pounds of sulphur and some old cracked pots or pans, a man or boy may soon go round a garden and do more good in one hour fumigating than could be accomplished in a week by putting smear on with a brush. To make the most of the sulphur, favourable weather must be chosen, which is when the air is still and heavy, and when what draught or motion there may be in the atmosphere is towards the wall to be smoked. Orchards may be fumigated in the same way by putting a pot of fire under each tree, or moving from one to the other instead. This kind of fumigating must be done before the buds have burst their scaly coverings, as I need hardly say burning sulphur is fatal to leaves and young growth. To be healthy, trees must have clean bark, and this the sulphur gives them, or rather it destroys all that seals up their pores, and the parasites thus made to lose their hold are washed off by the rain or carried away by the wind.

J. SHEPPARD.

Confervæ (*C. E. F.*).—The curious substance you found entangled on the Rushes is evidently a mass of some confervoid growth which has become blanched and dried in the sun. The confervæ grow in large patches like so much green hair in ponds and streams. What you found probably grew in some pool, which dried up, leaving the confervæ in a thin layer on the bottom; this dried into the papery tissue you found, which was washed away afterwards and was caught by the tops of the Rushes. It is a very beautiful object under the microscope. There are some points about this substance which I am trying to clear up. I will reply again when I have done so.—G. S. S.

FLOWER GARDEN.

SELF-COLORED DAFFODILS.

No reader of THE GARDEN can have failed to observe the very interesting discussion which has been going on of late respecting the existence of self-coloured Daffodils. Although I make not the slightest pretension to any such authority in the matter of Daffodils as may most rightly be claimed by your various correspondents, I still possess a tolerably extensive acquaintance with them, the result of forty years' observations. The particular current dispute as to the existence of self-coloured Daffodils would most certainly be settled in the affirmative could a floricultural jury, pledged to the truth, the whole truth, and nothing but the truth, see what any other visitor to Mr. Brockbank's garden might have seen two days ago. Without anything being pointed out to me, I was asked to look first at a bed, some 50 yards in length, of garden miscellanea, dotted all over with little clumps of the wild English Pseudo-Narcissus, plenty of which occurs in the meadows near the Mersey. Many shades of yellow, both of perianth and vase, are here to be found, and among the specimens are several in which there is no substantial difference in the colour of the two portions of the flower. These "wild" ones, I understand, have been obtained from various parts of the country.

After this, Mr. Brockbank showed me his large collection of the Tenby Daffodil, *Narcissus obvallaris*, and among these are other examples as plainly unicolour as it is possible for a Daffodil to be. Something, of course, depends upon the conditions or circumstances of the plant; but that is not the question. The question is, do self-coloured exist, not how are they brought into existence, and Mr. Brockbank's garden certainly proves that they do exist. A well-known local florist, Mr. H. Brownhill, who happened to come in while I was there, was asked if he thought he could find a self, and he at once fixed upon the same individuals. In very exposed situations the vase, or, at all events, the upper portion of the vase, of *obvallaris* no doubt does acquire a darker tint than the six pieces of the perianth proper. But this does not alter the fact of unicolourness in individuals placed differently. I have not the slightest desire to befriend any grower in particular simply out of personal regard. I merely state the facts as palpable to the stranger.—LEO GRINDON, *Manchester*.

— Mr. Brockbank asks if all Daffodils are bicolor. My answer is that no Daffodil at present known to me has perianth and cup of precisely the same shade of yellow. If Mr. Brockbank chooses to call *N. maximus*, *N. obvallaris*, *N. spurius*, &c., "self Daffodils" for practical purposes of garden classification I can offer no objection, but when he asks me if two or more shades of colour are the same, as he has practically done several times recently in these pages, I, of course, reply in the negative. Mr. Brockbank sent me a faded flower of *N. obvallaris* as having perianth segments and crown of exactly the same shade of yellow, but I found and proved that it was not so. When Mr. Brockbank is good enough to quote the names of those who, as he says, agree with him, he surely is aware that what anyone may have told him is not legal evidence to me. I ask Mr. Brockbank to prove his flower to be what he says it to be, and this he either cannot or will not do. I do not wish to save a kettle, but I do wish to be convinced of the truth or error of Mr. Brockbank's observations, and he is good enough to remember that I mentioned no conditions, so that he is free to prove this question of colour identity, which is, as I believe, impossible. I insist on proof as on a problem in mathematics. Among hosts of Tenby's in bloom (see p. 331) "we found one clump especially in a quiet corner wherein almost all were selfs." This quotation proves Mr. Brockbank's test plant to be but a shifting index of colouration, it seems, and quite on a par with his artificially grown specimens. I also have partisans on my side, and many of them; indeed, one of them suggested

that the evidence, so far as Mr. Brockbank had yet gone, was more suggestive of hot water than of the kettle.—F. W. B.

NARCISSUS TORTUOSUS.

IN THE GARDEN (March 24, p. 277) Mr. Brockbank says this "appears to be a rare Daffodil" because it is not offered in Barr's, or Ware's, or in Messrs. Backhouse's catalogue for 1882. May it not, let me ask, be offered under some other name, such as *N. cernuus*, or perchance *N. moschatus*? I write with a knowledge of Mr. Brockbank's variety, he having kindly sent me a bloom of it, a withered one, it is true, but simply the *N. moschatus* of the nursery gardens, except that it is smaller than *N. moschatus* generally is (? *N. moschatus minor*). As to its whiteness—"pure greenish white without a shade of difference between crown and perianth divisions"—we all know that yellowish *Chrysanthemums* and other flowers yield blooms of more delicacy and purity of whiteness when grown under glass than out-of-doors. What I especially wish to point out, however, is that any attempt to be quite certain—even tolerably sure, in fact—of any variety of *Narcissus* from Haworth's characters or descriptions is mere guess-work—intelligent and painstaking work it may be, but still only guess-work at the best. In this respect Haworth is far behind even old Parkinson (1629), whose descriptions are often photographic in their accuracy, and whose woodcut figures, Albert Dürer as they may be, show us quite clearly what species he intended to represent and describe. Mr. Brockbank, in alluding to "Hardy Flowers" and to my own "*Narcissus*," forgets that both works were written at a time when comparatively little was known about Daffodils or *Narcissi*, except perhaps the commonest species and varieties. Both books appeared at a time when bedding plants rather than the blossoms of Lady Corisande's gardens were in fashion. Between Mr. Brockbank's own description of his tortuous Daffodil and that of the authority which he quotes (Haworth) there is a discrepancy which I had expected some student of Daffodils would have saved me the trouble of pointing out ere this date.

Mr. Brockbank says:—

N. tortuosus, . . . differs from all other Daffodils with which I am acquainted. It holds the same place in the whites which *N. obvallaris* holds in the golden section, coming earliest, and having the same shortened corona and sturdy habit.

Haworth's description:—

N. tortuosus (the Great Tortuous White Daffodil).—Divisions of the corolla twisted, sulphur-white, much shorter than the crown, which is crenated and of a citron colour, merging into white.

It will here be seen that Mr. Brockbank says the corona is shortened, while the authority he quotes (Haworth) explicitly states that the perianth segments or divisions are "much shorter than the crown." Now, who is correct? I am very glad to know that, apart from Mr. Peter Barr and myself, the Rev. C. Wolley Dod, Mr. Archer-Hind (to both of whom I am deeply indebted), and other amateurs are now engaged in collecting wild *Narcissi* from all known localities and cultivating them side by side, so that we may some day figure and describe them and so in due time become possessed of material for a thorough monograph of the genus which may include some fitting account of the Leeds, Backhouse, Nelsonian, and other collections of hybrid kinds all of which are now simply awaiting a historian. I quite agree with the Rev. Wolley Dod, who writes to the effect that almost all the older authorities on *Narcissus*, including Haworth, are obsolete, because at the best the characters are ambiguous and unaccompanied by figures, which even quaint old Parkinson knew the value of, seeing that he failed not to supply them in his "Garden of Pleasant Flowers," or "Paradisus Terrestris." I have carefully drawn and described every Daffodil I have seen for the past ten or fifteen years, and have nearly all figures of Daffodils ever published here beside me, yet I know that there must yet be many unseen wild varieties in Europe which well deserve portraiture if only we could secure them for a sitting.

F. W. B.

ST. BRIGID'S CHRISTMAS ROSE.

(HELLEBORUS NIGER ANGUSTIFOLIUS.)

MR. BROCKBANK may rest assured that I did not apply an English name to this plant without due thought; and as to the question of my right to do this, I can well afford to trust to Time as an impartial arbitrator in the matter. At present it is not without interest to note that what Mr. Brockbank calls "our English prejudices" (p. 332) stand in the way of this pretty and suggestive popular name being generally received. So be it. As to the question of its being in no sense an Irish plant, surely Mr. Brockbank knows that. It is not a native of either England or Scotland—in fact not a British plant. That it may not be purchased from Irish nurserymen I admit; that it was not grown at Glasnevin three months ago, may or may not be true; but I might as well say here that, after all the assertions made by Mr. Brockbank, he has afforded us no proof in any way of his plant being our variety. I doubt very much whether Mr. Brockbank has a single example of St. Brigid's variety—that is to say, of *Helleborus niger angustifolius*—in his garden. I know he believes our plant and his own to be the same, but he has afforded no proof that they are so, and possibly he may be mistaken. I can well believe Mr. Brockbank's indebtedness to Miss Hope for information on *Hellebores*, and do not forget that in THE GARDEN (p. 140) he lavished far more praise upon our present plant—that is on what he believes to be identical with our plant—than did either Miss Hope or "Veronica." The true St. Brigid's Christmas Rose needs no praise; indeed, it is quite lovely enough to deserve a yet prettier name if such can be found for it.

At page 332 Mr. Brockbank makes an assertion which is so transparent, that one can easily see further into it than into the proverbial stone wall. "Nobody grows the wild Christmas Rose (*H. niger*), except in botanic gardens." I offer no comment on this statement, but simply ask, is it true? I am, of course, sorry that Mr. Brockbank's "English prejudices" stand in the way, or rather that he imagines that they do so, but, as he wisely observes, "time will show." If it be true that "possession is nine points of the law," then is *H. niger angustifolius* in possession of a definite, pretty, and appropriate popular English name. I have only to add that I more than suspect Mr. Brockbank's plants to be those of *H. niger major*, but if he will send me leaves I shall be able to correct this suggestion in case my inference now made be a wrong one.

Mr. Tymon's remarks on popular nomenclature call for but little remark. His argument is a good one, but his premises are wrong. This is his starting point: "I certainly more than doubt the expediency of any attempt to supersede scientific names by so-called popular ones." No one, so far as I know, wishes to "supersede" scientific names, *i.e.*, Latin ones, by the application of popular ones. It is not a question as to whether Latin or English names are the best, but as to whether both Latin and English names together are not better than either used alone. English plant names must be used wherever English is spoken. To suppress them would suppress all trade in plant products. To prevent confusion, let us have Latin ones also, but that surely is not an argument for their suppression. No; I think expediency points to a great future for English names, but I hope that neither Mr. Tymon nor anyone else thinks that I for one moment think even of such a suicidal course of action as the "superseding" of Latin ones. English names are for the millions who cannot or will not learn either Latin or Greek. F. W. B.

Ornithogalum nutans.—One of the very best spring flowers for cutting, though one rarely sees it so used. It will grow anywhere, sometimes only too freely, increasing rapidly both by bulb and seed. It spreads too freely to be quite a safe plant in a choice flower border, but in some less important place one or two square yards of it will yield a valuable supply of bloom. The flowers, like

some others, greatly improve indoors, for whereas when growing the top of the spike is in bud and the lower part in seed, with a few flowers between, when in water the whole spike becomes flower, and the individual flowers, instead of being half open, rather too green, and inclined to droop, as they generally appear when growing, become wide-open, clear white stars, with a beautiful satin-like lustre. The foliage of this Star of Bethlehem is of no use for cutting. The flowers are beautiful with delicate sprays of Portugal Laurel—not from the strong-wooded terminal boughs, but the broader-leaved twigs of less stiff growth from shady or sheltered parts of the bush.—G. J.

NOTES ON FLORISTS' FLOWERS.

DAHLIAS.—The promoters of the National Dahlia Show are, I see, again determined to hold an exhibition of Dahlias under the auspices of the Crystal Palace Company. Now is the time to see that the plants, from which blooms are expected, are well inured to stand the weather before they are planted out-of-doors. The planting out cannot be done for at least four weeks yet, and those who expect to stand in the front rank should see that their plants are not allowed to become pot-bound, nor checked by exposure to cold or high winds. If now in 3-inch or 4-inch pots and well rooted, they must not be allowed to remain in these until planting-out time; on the contrary, they should be repotted into larger pots, which they will fill with roots in less than a month. The best place for them as soon as any danger of frost is over is a cold frame. They may be placed on a bottom of coal ashes or some similar material, and they must not be overcrowded, else they will not have the stout, short-jointed habit so much desired. On fine days the lights ought to be entirely removed, replacing them at night if there is the least danger to be apprehended from frost. The ground on which the plants are to be planted should be well worked at this season whenever the weather will permit. By frequently forking it over a larger proportion of surface is exposed to the atmosphere than would otherwise be the case, and this is the more necessary if on the ground Dahlias were grown in previous years. If the soil is not considered to be in first-rate condition, it is a good plan to put a few spadefuls of good compost round the roots at planting time.

THE AURICULA.—This is the month in which Auricula fanciers and exhibitors are engaged in watching the development of their choice named varieties and selected seedlings, and also in crossing in order to obtain the best forms from seed. March was exceptionally cold, and everyone must be thankful it is past. Sharp frosts may, however, yet be expected, but we cannot have another month of such weather as that which we have passed through. Early in March Auriculas were very forward for the season, and I was tempted to remove a large number of the most forward plants to a cold frame from the Auricula house. All through the severe frosts of March these plants were kept in the frame; they scarcely made any progress, the frame being out of the reach of sunshine. After being subjected to such an amount of freezing, one would have thought the trusses would have been sadly injured, but they are none the worse. A few otherwise good trusses will, however, be found with badly formed flower buds upon them. These buds ought to be removed with a pair of sharp-pointed scissors, and this will allow the well-formed pips to grow to a larger size, and be of better substance than they otherwise would be. As the plants are growing very freely they will require a larger supply of water at the roots than they did some time ago; indeed, none of them ought to suffer in the least from want of water. A watchful eye must be kept upon them for green fly, which is without doubt the most troublesome insect pest with which we have to deal. It quite spoils the beauty of the foliage if allowed to increase. If it has been destroyed by fumigating in the winter it will not be very troublesome now; but as it is not

safe to fumigate when the plants are in bloom, any fly that may be present must be brushed off with a soft brush. Auriculas do not require very much labour in order to prepare them for exhibition. In the first place, each truss must be supported with a neat stick. A tie must be made round the stem near the foot-stalk of the flowers to prevent it from snapping, which it will do if the flowers are not made secure. When the plants have to be taken a considerable distance to the exhibition it is perhaps best to turn them out of the pots, and to fasten a piece of cloth or paper round the ball of roots to keep it together. They may then be packed closely in a box or basket, and be repotted when they have been taken to the room in which they are to be exhibited. J. DOUGLAS.

KITCHEN GARDEN.

CARROTS AND THEIR CULTURE.

CARROTS when well grown are a profitable crop; but good clean roots upon ground long under cultivation are difficult to obtain. When sowing some sow a few seeds of some of the Brassicas at the same time, or plant a few plants from 5 feet to 6 feet apart after the Carrot seeds are sown. These are allowed to grow during the summer, and it is thought that they serve to keep the Carrots free from insects. Carrots do best on a light, mellow, sandy soil in which they produce clean, straight roots free from canker, but under careful cultivation they may be grown upon most soils if fairly rich. Ground heavily manured for a previous crop should be selected, but not that in which leaf-mould or old vegetable soil has been buried, except well limed, as they harbour wireworm, one of the worst enemies which can attack the Carrot crop. Where obtainable before sowing, give the ground a heavy dressing of wood ashes, mixed with soot, raking it deeply into the surface. Gas-lime spread upon the surface and raked in deeply will also be found a good dressing for ground infested either with wireworm or the Carrot maggot.

CULTIVATION.—The ground having been selected, if intended for the long-rooting varieties, it should be trenched from 2 feet to 2½ feet deep, laying it up in ridges, in which it will get well pulverised by the winter's frosts. During February, if favourable, level down the ridges with a digging fork, breaking the soil into as fine a mould as possible. Fork it over once more before sowing time. For short-growing sorts deep digging will do, breaking the soil up well as the operation proceeds. Early in April rake the surface to as fine a mould as possible, when the wood ashes may be spread on it and raked in. All will now be ready for making the seed beds. The seeds may either be sown broadcast upon beds 4 feet wide, leaving alleys 12 inches wide between them, or in rows 12 inches apart and 1½ inches deep. Sow thinly, and if in beds rake the seeds into the surface; a portion of the soil from the alley may then be thrown upon the bed and raked level. Cut the edges straight and level the soil in the alley, thus finishing the beds. When sown in rows stretch the line and draw drills 1½ inches deep. The seeds may be mixed with sand or dry earth, rubbing the two together, when they will be found more easily distributed. When sown beat them firmly into the drills with the back of an iron rake; cover them over and tread the ground firmly, when it may be raked level, and will require no more attention until the young seedlings appear above ground; they may then be dusted with soot and lime to prevent slugs from eating them, which will often be found the case, especially in damp, clayey soils. As soon as the young plants are large enough, thin them in the rows to 8 inches apart and keep them free from weeds. When the crop has attained its full growth, which will be about the end of October or beginning of November according to the season, lift the roots, choosing a dry day for the purpose, and remove the tops close to the crowns; store them in some dry place from which frost is excluded, or they may be stored in

clamps in the ground, covering them carefully to ward off frost. Several sowings may be made at different times, so as to succeed each other; make the first about the end of February or beginning of March, choosing for the purpose a dry, warm border facing the south. Sow the short growing varieties for this crop. The main crop may be put in early in April, and another sowing may be made about the middle of August to stand the winter and come into use early in spring.

FORCING.—A few early forced Carrots are always acceptable, and may be had at a trifling cost, provided a spare frame can be devoted to them and manure to form a hotbed, or a pit heated by means of hot-water pipes will do equally well. Sow in light sandy soil as near the glass as possible, and for this crop use the Short Horn variety. When the young plants appear they must be kept well watered, and when large enough thinned out to 4 inches apart. Maintain a steady moist temperature from 50° to 55°. The first sowing should be made the last week in January or first in February. Where manure is to be used, make up a bed of good lasting materials, which may consist of warm stable manure and fresh leaves well mixed and turned over several times before the bed is made up. The latter may be 5 feet high at the back and 4 feet at the front, which gives the frame slope sufficient to carry off rain water or any moisture which may collect upon the inside of the glass. After placing the frame upon the bed, put from 12 inches to 15 inches of sandy loam inside, and sow after the temperature declines to 55°, watering occasionally to keep the soil moist. Use fresh linings to keep up the desired temperature. The Short Horn sort will be found to be the most profitable, and having a fine flavour when cooked will be most prized.

VARIETIES.—Carter's Golden Ball is one of the best for frame work. It is nearly round in shape, and comes into use early. French Forcing Horn will also be found to force well and to produce roots of a medium size. For the early outdoor crop, Carter's Scarlet Horn is one of the best, and for general use James' Intermediate. The Long Red Surrey is a good variety for deep soils. Altringham Improved, a green-topped sort, is a heavy cropper and suitable where Carrots are grown largely. WM. CHRISTISON.

LATE PEAS.

SOME advocate sowing early round Peas for late crops, but I could never see any advantage in so doing. I have tried them on several occasions and in various situations by the side of wrinkled Marrows, but have always found the latter the most to be depended upon. I do not say that the latter may be sown as late as the former and with equally good results, seeing that Marrows take about sixteen weeks to come into bearing, while the rounds take only twelve, that is, if sown early in spring, and a little less when sown towards the latter end of spring; but were I asked to name the best late Peas, and only allowed to choose one sort, it would be that grand old Pea, the Ne Plus Ultra. During the last four years I have sown this and three other kinds late, three fresh ones every season, but I have always found Ne Plus Ultra to be the latest and best bearer, and last, but not least, the best flavoured. In short, this Pea would be perfect did it not grow so tall—its only fault. Talk about perpetual bearers! it would take an everlasting bearer to eclipse this kind. During these last four seasons we have made it a rule to sow this variety at three different times, the last being from the 25th to the end of May, and we have always been able to gather Peas from these up to the time when they are destroyed by frost or wind. Last year we commenced gathering from the last sowing the first day or so in September, and continued gathering till the end of October, and still they were as good flavoured as earlier in the season. Two points to be kept in view in growing these tall late Peas is to select a sheltered, but not shady, place for them, and to provide them with good, strong, and long stakes. Some imagine Pea stakes to be

long when they are 6 feet, but those we used last season were 10 feet, and the Peas got to the top of them. We were obliged to gather the pods with a pair of steps, but to this we do not object so long as we got the Peas. Has anyone found any of the dwarf late Peas to eclipse *Ne Plus Ultra*? If so, I should like to know its name. J. C. F.

THE BEST SAVOYS.

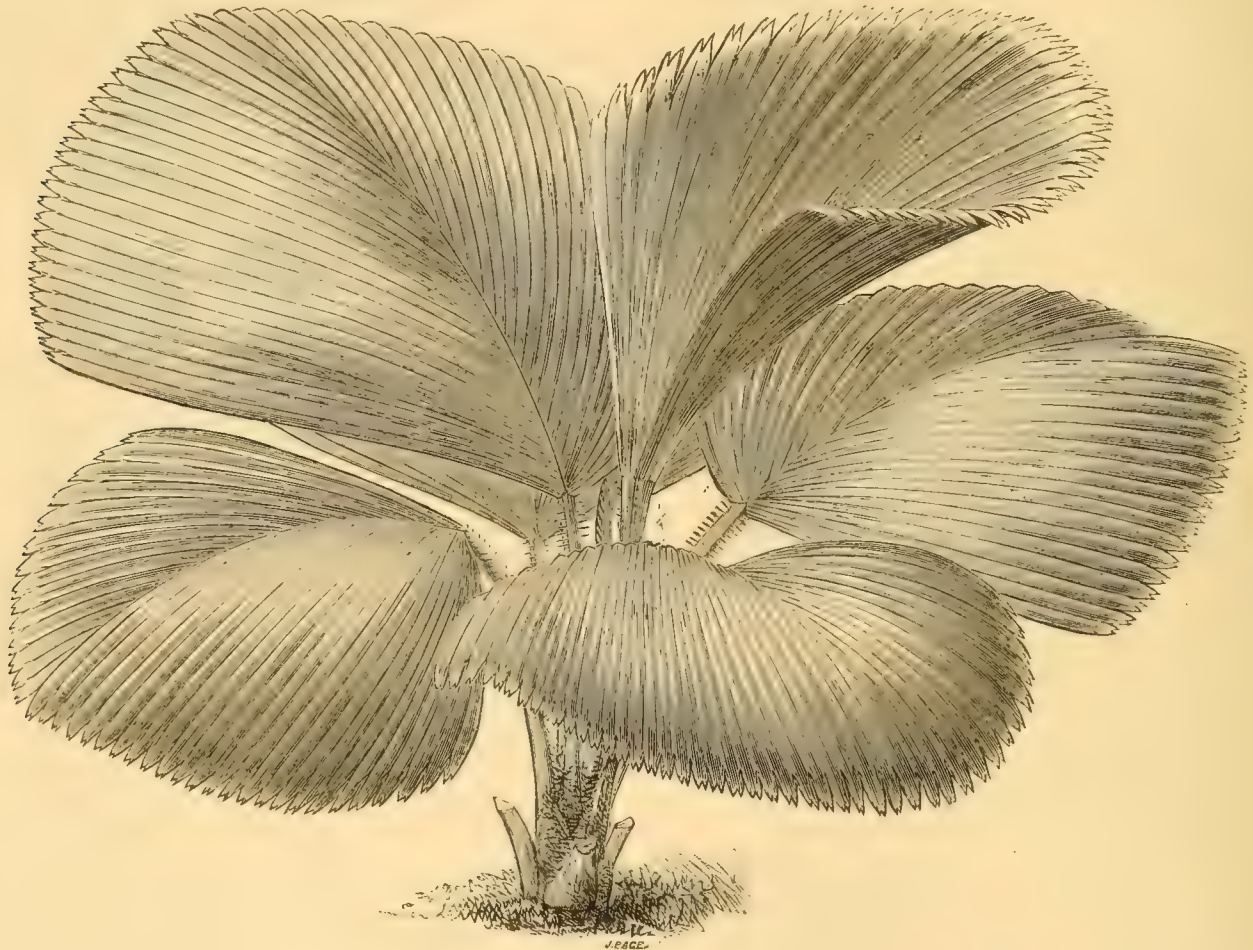
FEW of the Brassica family are more useful than the Savoy. Its easy culture, taken in conjunction with the weight of produce from a given space, is

to select an open, sunny spot for the seed bed where the soil is rich. After the surface has been raked fine, sow the seed thinly, and then cover it with some finely sifted soil. We cover all our seeds in this way, and the result is a greater percentage of plants than when the seed is raked in in the ordinary way. The after management of the bed will not differ in any way from that of other beds sown with seeds of a similar character, but every encouragement must be given to induce the seed to vegetate quickly. To attain this a moist soil is necessary, and in dry weather nothing is better than to give the surface a good watering as soon as the seed is sown. Then cover the bed with an

Koffee and the Dwarf Elm only require a space of 15 inches every way. The after management consists in keeping the ground well stirred between the plants, so as to keep the surface open and to destroy weeds. J. C. C.

EXHIBITION POTATOES.

THE writer of the article on "Exhibition Potatoes" (p. 286) in his somewhat unfair references to the popular Potato, *International*, has given Mr. Fenn, the raiser of that variety, some cause for complaint. Mr. Fenn had no desire to put that variety into commerce, and it was against his wish



Pritchardia grandis (Veitch).

a matter not to be despised by those who require a large supply of green vegetables for winter use. These remarks apply, perhaps, more particularly to the wants of large families, but for small households the Savoy offers an agreeable change, provided a judicious selection of varieties is made. Where the aim is to get a good-sized well-filled plant, there is nothing to beat the Drumhead. This is a large sort and one which requires a rich deep soil and plenty of room. It must, however, be remembered that it is the first to suffer from severe frost, and the larger the heads the more they get injured. It is therefore necessary to use it as far as is practicable during November and December before severe frosts usually set in. For small gardens King Koffee and the Early Elm are the best, and they do not require so rich soil as the Drumhead. They are also finer in texture and milder in flavour, but unfortunately they are rather more tender than the large growing kinds.

SOWING.—The middle of April is soon enough to sow for all ordinary purposes. The best way is

old mat, which may be either pegged down to the ground or a brick may be laid on each corner to keep the wind from blowing it about. This covering will give shade and keep the seed in a uniform state as regards moisture; consequently in seven or eight days it will begin to grow, and then the mat must be removed, or the young plants will suffer. In showery weather covering the seed bed may be dispensed with, and the plants allowed to grow on in their own way, *i.e.*, except they come up in thick patches, when it is a good plan to thin them out, and if need be the thinnings may be pricked out into another bed; if not, they may be thrown away. To grow Savoys so as to secure both tenderness and good flavour a

RICH DEEP soil is necessary. The most satisfactory way to secure these conditions is to plant on ground that was heavily manured and dug up deeply during winter, and as soon as the plants in the seed bed are large enough they should be planted. The Drumhead should be put out 2 feet apart each way, while small growers such as King

that that was done. It was said, and with truth, that grown on light field soil the quality was far better than under garden culture. That such is the case I have proved scores of times. Bedford Prolific is one of Mr. Fenn's seedlings also, and is one of the best white round garden varieties in cultivation. It is useless to say that exhibition Potatoes are unfit for table use. There are really few sorts now in cultivation—the Flounder, Champion, and Regent perhaps excepted—that may not be classed as exhibition kinds, but these just as much violate Potato canons of taste and form as an over-blown Rose would those of the rosarian. We have, for instance, in the red round Reading Russet one of the best of table Potatoes, and a not less beautiful variety in quality, colour, and form is the spotted Radstock Beauty. Add to these the popular Vicar of Laleham, purple; Adirondack, carmine; Grampian, mottled red; and Beauty of Kent, and a really capital lot of Potatoes is the result.

Of coloured kidneys we get American Purple, the handsomest dark coloured Potato, and the best of all the Americans; Prizetaker, superb in quality and pale red in the skin; Beauty of Hebron, pale pink, a capital kind, and very popular; Queen of the Valley, a wonderful cropper and very handsome, and one which has had a first-class certificate at Chiswick; Defiance, a home-raised kind, having a mottled purple skin; and perhaps the handsomest of all, Mr. Bresee, bright red.

The best white rounds at all points, whether for table or for show, are Sutton's First and Best; Bedford Prolific, Schoolmaster, Fiftyfold, flattish in form; White Emperor, and Premier. Of white kidneys we have Cosmopolitan, Woodstock Kidney, Edgote Seedling, Alderman, Snowflake, and Pride of the Market, an improved Magnum Bonum sent out by Mr. Clarke. This is a list of twenty-four kinds that will give satisfaction, for out of what portions of the crop are not needed for exhibition, and but few tubers are so required after all, there will be ample table food left. I shall not rest until we have eliminated from the best twenty-four show kinds we have all that are held inferior in quality. Raising, selecting, and growing seedling Potatoes is no easy matter, and even the result usually leaves much to be desired. A. D.

QUESTIONS

Azalea mollis.—How am I to treat plants of this Azalea after flowering?—O. G. [Encourage them to grow, and then harden the growth out of doors, gradually inuring them to the open air.]

Colouring hot-water pipes.—I should be glad to know of an effectual means of doing this. Lampblack and oil is the usual preparation for producing a black, but I want a French grey or white which will not wash off. I presume white-lead paint would not stand the heat.—IXION.

A yellow Rose, equalling in beauty Maréchal Niel, but without its rampant habit, is a desideratum to those who require pot Roses for forcing. Can anyone inform me of such a Rose? What experience have growers had with the new yellow Rose, Etoile de Lyon?—M. OR N.

Tropical birds.—Can any of your readers do me the favour of referring me to any place where tropical birds are successfully kept loose in a warm conservatory? I have been trying the experiment in a house devoted to such plants as Palms, Tree Ferns, Seaforthias, &c., and have had some success. Of course, only such birds can be kept as will not injure the foliage. No appreciable damage has been done to my plants so far; and, on the other hand, the elegant forms and brilliant plumage of such birds as the zebra parrot and the paradise Whydah bird have added a not inconsiderable charm to the house. Having experienced several difficulties (all of which, however, I believe to be quite surmountable), I should be glad to know of others who have been successful.—W. H. P.

Garden walls.—What is the best and most economical material for building a wall for enclosing a garden? It is proposed to build the wall 12 feet or 13 feet high on the one side running east and west for erecting lean-to houses against for early Peaches and Grapes, the other three side walls to be 7 feet high for outdoor Cherries, Pears, Plums, &c. Would walls of the height named be high enough? and which of them would best suit the above-mentioned fruits? Should I include Peaches and Nectarines in the list, none of which would be protected? There is abundance of stone on the estate; the only cost would be digging and working it. Would it be best to build the whole with stone, merely facing the high one for the glass with cement? or how would stone faced on the one side with brick stand the weather? Would the two be liable to part company? or should the high wall be entirely of brick, and the 7-foot ones of stone? All the walls would be 14-inch ones. The best and most economical system is required. A few hints from any correspondent acquainted with such matters would greatly oblige me. I should add that the garden would be on a hill in an exposed situation.—W. C. B.

* * Our readers will greatly oblige by replying, so far as their knowledge and observation permit, to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

SOCIETIES.

INTERNATIONAL HORTICULTURAL EXHIBITION AT GHENT.

APRIL 15 TO 22.

DURING the past week a vast gathering of horticulturists assembled in Ghent to witness the eleventh of the international exhibitions held quinquennially under the auspices of the Société Royale d'Agriculture et de Botanique of Ghent, and on this, as on former occasions, Belgian horticulture, so justly renowned throughout the world, and in which this famous city of nurseries has played so prominent a part, achieved a grand success. So fine an exhibition probably could not have been got together from such a limited area anywhere else in Europe. Though virtually of an international character, the show was chiefly Belgian, and Ghent itself, we imagine, contributed the greater part of it. To those who have seen flower shows in England only there is novelty in such a one as this; one sees a different class of plants, such probably as could not elsewhere be seen, for the Ghent cultivators surpass us in many things, though they are behindhand in others. The great feature of the show was the Azaleas, than which it would be impossible to produce finer. Palms, too, were matchless, and Ferns, Cycads, and other fine foliated plants which we do not seem to appreciate much here were all that could be desired. The display took place, as usual, in the Casino, a large permanent building standing in an ornamentally laid out garden, every part of which was taken up by the exhibits. The main portion of the Casino consists of a capacious hall furnished with galleries, but though so large it had to be supplemented by a temporary structure almost as large, and these two buildings, besides sundry other smaller ones, were filled to overflowing with exhibits. Throughout the arrangement of this enormous gathering of plants, picturesque effect was the main point kept in view, and this was carried out very successfully; both halls were converted into beautiful gardens, no trace of formality being observable. Those who carried the arrangement out deserve commendation. Evidently the Belgians know how to make a beautiful show, very different from that usually seen in this country, always excepting the admirable displays we are accustomed to see at the Regent's Park in summer. No traces of stages were visible; on the contrary, the whole of the exhibits were arranged in tasteful groups. Seen from the gallery, the great hall was beautiful in the extreme. In the central part were isolated groups of fine-foliated plants relieved by large masses of Azaleas, whose brilliant colours enlivened the whole building. Near these were large miscellaneous groups of particular families, such as Cycads, Aroids, Ferns, while here and there huge Palms and Ferns and specimens of other fine-leaved plants reared their stately heads above all the rest, obviating all approaches to flatness or monotony. The walls of the building, too, were hidden as much as possible by groups of tall plants in irregular masses, enlivened here and there by Azaleas and other brilliantly-flowered plants. The temporary hall was extremely bright, containing, as it did, the majority of the flowering plants. Here were placed Rhododendrons, hardy Azaleas, Roses, Cinerarias, Spiræas, and similar plants. As in the other hall, these were placed in irregular beds, and due regard was paid with respect to harmony of colour. Seen in perspective, this hall had a very fine effect, its long vistas of flowers being relieved here and there by stately foliated plants, the whole harmonising admirably. The exhibition was opened on Sunday by the Queen of the Belgians and Royal Family, State officials, and others, and remained open until the 22nd.

It will thus be seen that the exhibition was a most comprehensive one, and every care seemed to have been taken so to frame the schedule as to embrace plants of every class, to give everyone a chance of exhibiting. There were no fewer than 292 classes, though of course some were unrepresented. Provision was not only made in the

schedule for collections and families of plants but prizes were also offered for particular genera. The jury, numbering some 130 members, consisted of eminent botanists and horticulturists from Belgium, England, Holland, Brazil, Switzerland, Italy, and Russia. The judging took place on Saturday, after which the exhibits were arranged so as to give the best picturesque effect.

THE INDIAN AZALEAS formed, perhaps, of all others the main feature of the show, the admiration of everyone, and without them the exhibition would have been shorn of its brightness. Their gay colours alone lit up the sombre hues of the fine-leaved plants, and they were so arranged in every part as to show themselves to advantage. The centre of attraction of the whole show was the two magnificent groups of forty plants each, which competed for the prizes offered to amateurs. The finest collection was that from M. de Ghel- linck de Walle, of Ghent. This in every respect was perfection, and probably a better group of Azaleas has never been shown. This, together with the other group from the Comte de Kerchove's garden, was given the place of honour in the centre of the main building, and admirably they were suited to the position. All were huge specimens, grown in big tubs, and everyone was trained Mushroom shape as standards, varying from 3 feet to 5 feet high, a fashion which seems to be characteristic of Azaleas in Ghent, quite unlike our English plan of training in tall pyramids. The faultlessness of the premier group was marvellous, each plant being simply a homogenous mass of colour, which, however, would have been more pleasing had more foliage been visible. The fault in this collection, if fault it be, was that it was too glaring, and probably the effect would have been more pleasing if there had been a few tall Palms or Tree Ferns rising up out of the mass. The varieties shown seemed to be of the ordinary stamp, but we singled out a few as being uncommonly fine; these were Reine des Pays-Bas, Sigismund Rucker, Roi de Hollande, Apollon, Cedo Nulli, Duc de Nassau, Etendard de Flandres, Roi Leopold, Jean Vervaene, Marie Louise, Charles Euke, A. Borzig, Bernhard Andreas. Comte de Kerchove's collection was a very fine one, but scarcely so faultless as the other. In both we noticed some large plants of varieties that have been in commerce but a few years, and therefore must have been grafted on large stocks. The other amateur's collection was smaller altogether, and the same remark applies to the collections in the nurserymen's classes, though all were superbly grown, as only Ghent cultivators can grow them. As a proof of the importance attached to Azaleas here, there were no fewer than fifteen classes devoted to them, including those for new kinds. There were classes for forty, thirty, fifteen, twelve, and six plants, so that both large and small growers had a chance to exhibit. The finest collection from nurserymen was that from M. Vuylsteke, which was not much inferior to that shown by the amateurs. It was seen to perfection, as it was placed at the end of the temporary building as a foreground to some noble Palms, Ferns, and other fine-leaved plants, to which the gay colours of the Azaleas formed a beautiful contrast. There were large numbers of new varieties exhibited by M. Van Houtte and others, notes respecting which must, however, be deferred.

GHENT AZALEAS AND AZALEA MOLLIS were also among the most attractive features in the show. The groups of these were arranged in isolated positions in the supplementary hall, and their gay colours had a very telling effect, their delicious perfume pervading the entire house. Being the home of the Ghent Azaleas, one expected to see them represented well, and certainly they were, for a finer group than M. Van Houtte showed for the gold medal it would be difficult to imagine. The plants were about 5 feet high, and formed dense symmetrical bushes completely covered with flowers. The tubs in which they were growing were hidden by a row of Spiræa japonica, large specimen plants, as fine as could possibly be. This was a remarkably fine and much admired group. The gold medal group of twenty Azalea

mollis from M. Ch. Vuylsteke was uncommonly fine, and showed this beautiful shrub to perfection. Like the *Azaleas*, *Rhododendrons* were shown admirably, particularly the standard bushes, which were as fine as we are accustomed to see them from the Surrey nurseries, but the varieties were not remarkable, except a few new ones, to which we shall allude on another occasion.

KALMIA LATIFOLIA, in groups of twelve plants in pots, was extremely fine, and never before had we seen it in such perfection in the middle of April, for it is a difficult plant to force into flower early. The first prize collection, from M. Debaets, consisted of plants about 2 feet high and nearly as much across, and literally smothered with clusters of pink wax-like blossoms. The practice of forcing this *Kalmia* is not much in vogue with us, but it deserves to be tried. There were numerous classes provided for, such as *Hydrangeas*, *Deutzias*, *Lilacs*, *Spiræas*, and the like, but there was nothing very remarkable about them except the *Deutzias*, which were uncommonly fine, though not superior to what we are accustomed to see at the Regent's Park spring shows. Both of the collections of *Deutzias* shown were grown in Ghent, the plants being about a yard through each way, and masses of white bloom.

ORCHIDS.—Though no fewer than seventeen classes were set apart for orchidaceous plants, the whole collection exhibited was in no way remarkable, either for good culture or richness as regards varieties. It is evident we are in advance of Continental growers as regards Orchid culture. It would not be too much to say that of the numbers exhibited on this occasion there was not what we would call in England one remarkable specimen; neither was there any novelty, except an uncommonly fine variety of *Odontoglossum crispum* from M. Vuylsteke, of Ghent, and another from M. Vervae & Co., of Mont St. Amand. The first was remarkable for the large blotches of chestnut-brown on the sepals and petals on a pure white ground. It was one of the finest forms of *O. crispum* we have ever seen. M. Vervae's plant was of the *O. luteo-purpureum* section, but very distinct from what is usually seen in that way, the colours being so peculiar.

The grand collection was that in competition for the prize offered by the Queen of the Belgians (a gold medal). For this there was but one collection shown, and that came from Mme. Boddaert Van Cutsem, who is said to have the best private collection of Orchids in Belgium. It contained some 150 plants and about 120 varieties, which, of course, made a rather imposing display. It consisted, among other things, of fair examples of *Cattleya Mendelli*, *Lycaste Skinneri*, several *Cypripediums*, including a remarkable variety of *C. Lawrencianum* with broad and highly coloured dorsal sepals. One or two rather good forms of *Odontoglossum crispum* were shown, particularly one called *roseum*, in which there was a decided suffusion of purple. If about a score of first-rate specimens had been shown instead of this mixed collection, in which were many plants unfit to be brought to an exhibition, the Queen's prize collection would have elicited more admiration.

In the amateurs' class for twenty plants there was but one collection, that from M. Van Geert père. It included *Dendrobium albo-sanguineum*, a kind rarely seen in England in bloom, but a commonly flowered plant in Belgium; *Leptotes bicolor*, a good specimen of the pretty *Phalenopsis Luddemanniana*, *Lælia cinnabarina*, and *Odontoglossum maculatum*. The two gold medals for collections of twenty and fifteen plants were taken by M. Vervae & Co., Mont St. Amand, who seem to be alive to the growing demand for Orchids. The collection of twenty plants contained some good specimens of such desirable kinds as *Masdevallia Shuttleworthi*, *igneæ*, *Masangeana*, a fine *Dendrobium macrophyllum giganteum*, *Cypripedium lævigatum*, a good example; *Oncidium pubes*, with a fine branching spike; and *Phalenopsis Schilleriana*, with a spike that had carried flowers since December last. In the collection of fifteen from the same firm were

good plants of *Dendrobium thyrsiflorum*, *Odontoglossum cirrhosum*, and a few fine *Masdevallias*.

COOL ORCHIDS were shown in collections of a dozen by two exhibitors, but amongst them there was nothing remarkable. M. Van Geert had the only collection in the class for *Cypripediums*, *Selenipediums*, and *Uropediums*, but none were specially noteworthy. M. Van Houtte showed the only collection of a dozen Orchids, and this was only awarded a second prize. A similar award was made to a collection of six from M. Vervae & Co. *Masdevallias*, and even all the cool Orchids, appear to be little understood in Ghent, judging by what we saw there, but no doubt the climate is not so suitable for them as that in England. Among the *Masdevallias* we observed that M. Van Houtte had the new hybrid M. Chelsoni, a good plant, and another called *Parlatorei*, which is similar to it. The class for three rare Orchids was only represented by three *Odontoglossums* from M. Vuylsteke, which included the fine form of *O. crispum* previously alluded to. Only two plants represented the class for new Orchids, and the first prize was assigned to M. Vuylsteke for an *Odontoglossum* called *President Zaldua*, one of the *O. luteo-purpureum* type. The other was a seedling *Cypripedium* akin to *C. insigne*, but quite distinct from it or any other variety we know. *Anætochilus* and *Physurus* were shown remarkably well both by amateurs and nurserymen, especially the latter. The collection from M. Alexis Dallièr, which won the gold medal, was remarkable both for good culture and variety. It included fine specimens of *Anætochilus Lowi*, *setaceus cordatus*, *discolor*, and *Dawsonianus*.

NEW PLANTS.—These were, of course, an important feature of the exhibition, and they were shown in large numbers. Ample provision was made for them in the schedule, there being no fewer than eight classes set apart for them, besides the two classes in competition for the silver cups for new plants offered by Mr. W. Bull, of Chelsea. Throughout the whole of the classes for collections there was a decided preponderance of fine-foliaged plants; indeed there was hardly a new flowering plant to be seen. Singularly enough, there was no foreign competition in the new plant classes. The class for six plants newly introduced by the exhibitor was only represented by one collection, that from M. Van Houtte, Ghent, who was awarded a second prize. The best new plant (not flowering) introduced into Europe, but not before exhibited, was *Massangea tigrina*, a Bromeliad with handsomely marked foliage. It was shown by M. Massange de Louvrex, Liege. The second best plant in this class was *Amorphophallus imperialis*, a tall growing Aroid, like the well-known A. Rivieri, but larger. This was shown by M. Van Houtte. The third plant in the class, an unnamed species of *Vriesia* from Brazil, was shown by M. Massange de Louvrex.

The best new flowering plant raised from seed was an *Anthurium* similar to *A. Scherzerianum* shown by M. Vervae, and the second in the class was M. de Smet-Duvivier, who showed *Spathiphyllum hybridum*, an Aroid similar to *Anthurium*; the third prize was taken by M. Rosseel, with a fine seedling *Imantophyllum*.

Six plants newly introduced in Europe, but not in commerce, were shown only by M. Jacob Makoy & Co., Liege, who showed *Aphelandra Margaritæ*, *Bertolonia Closni*, *Croton Bennetti*, *Cryptanthus Glasii*, *Philodendron Sodiroi*, and *Tillandsia variegata*.

There were two classes for twenty new plants in commerce, one for amateurs the other for nurserymen. There was but one amateur's collection, and this was from an English gentleman, Mr. James Bray, residing in Ghent. It comprised *Pothos aurea*, *Schismatoglottis Lavalley*, *Aralia Reginae*, *Amorphophallus Lacouri*, *Aspidium Germinyi*, *Dracæna Lindenii*, *Caraguata cardinalis*, *Alcascia Johnstoni*, *A. Thibautiana*, *Dieffenbachia amœna*, *D. memoria Corti*, *Pothos ceratocaulis*, *Heliconia aureo-striata*, *Kentia Luciana*, *Bismarckia nobilis*, *Heliconia triumphans*, *Aglaonema Rebellini*, *Aglaomorpha picta*, and *Croton Baron Franch Sellièr*.

From nurserymen there were but two collections, and the first and second prizes were respectively taken by M. Van Houtte and M. Aug. Van Geert, both of Ghent. Among M. Van Houtte's plants were *Aralia Kerchovi*, *A. nobilis*, *Begonia gogonensis*, *Pritchardia grandis*, *Selaginella grandis*, *Cochlostoma Jacobianum albo-lineatum*, *Dracæna Massangeana*, *Wormea Burbidgei*, *Nepenthes Masteri*, *Leea amabilis*, *Alcascia Van Houttei*, and *Asparagus tenuissimus*. Others comprised *Amorphophallus imperialis*, from the Philippine Islands; *Washingtonia* (*Pritchardia*) *robusta*, a Californian Palm; *Oleobachia macrophylla*, from Central America; an unnamed species of *Anthurium* from the same quarter; a species of *Ataccia* and *Anthurium Smidhtcheni*, from New Granada, all with the exception of one introduced this year.

THE BEST PLANT not in flower was a splendidly-grown specimen of *Gymnogramma schizophylla*, shown by M. Maron, from France, which was by far the finest specimen we have seen of this beautiful new Fern. M. Van Houtte was second with *Cyrtomium falcatum* var. *ternifolium*, a handsome Fern; and the third best plant was *Dracæna Donneti*, a variety with variegated foliage.

Among hardy plants the best was a very fine seedling variety of *Azalea mollis* called *Bienvenue*, with pinkish salmon-coloured blossoms. This was from M. Vuylsteke. For the second prize M. Froebel and Co., Zurich, had a large-flowered form of *Primula rosea* called *grandiflora*. There was no entry in the class for a new seedling hardy plant not in flower.

For the silver cups offered by Mr. W. Bull there was a somewhat limited competition. The cup for twelve new plants from amateurs, introduced by Mr. Bull, was won by M. Meulenaere, of Ghent, who showed some well grown plants of *Heliconia aureo-variegata*, *Dracæna Lindenii*, *Pavonia Makoyana*, *Anthurium Harrisianum*, *Crinum pedunculatum pacificum*, *Euadenia eminus*, *Licuala grandis*, *Asparagus plumosus nanus*, *Kæmpferia Gilberti*, and *Billbergia paniculigera*. The nurserymen's class for cups of the value of 15 guineas and 10 guineas was represented by M. Van Houtte and M. Van Geert, who were first and second respectively. M. Van Houtte's was a fine collection, including *Licuala grandis*, *Dracæna Lindenii*, *Heliconia aureo-vittata*, *Asparagus plumosus*, *Alsophila Rebecca*, *Davallia fijiensis plumosa*, *Pothos aurea*, *Dracæna venosa*, *Anthurium splendidum*, *Anthurium Harrisianum*, *A. macrolobum*, and *Epipremnum mirabile*. M. Van Houtte had *Cyclanthus discolor*, *Heliconia metallica*, *H. aureo-striata*, *Alsophila Rebecca*, *Kæmpferia Gilberti*, *Dieffenbachia triumphans*, *Croton insignis*, *Pritchardia grandis*, *Anthurium splendidum*, *A. Harrisianum pulchrum*, *Dracæna Lindenii*, and *Davallia fijiensis plumosa*.

THE *BERTOLONIAS*, *SONERILAS*, and allied genera are great favourites with the Belgian nurserymen, and on this occasion they were shown to perfection by M. Van Houtte, who took both the prizes in the class for ten plants. The plants were in glass cases. Their richly coloured, marbled, and spotted foliage showed up brightly in the subdued light, and they were as much admired as any plants in the exhibition. A selection of the kinds included, of *Bertolonia*, *albo-punctatisima*, *marmorata*, *Hrubyana*, *Legrælleii*, *Van Houttei*, *Mirandæi*, and *Ohiendorfi*; of *Sonerilas* the finest were *Hendersoni*, *argentea*, *hybrida*, *Wm. Ed. André*, and *Bne. des Marches*. These plants are deserving of more extended culture in this country, but it is only by seeing such a collection that their beauty becomes apparent.

GROUPS OF PLANTS of a miscellaneous character were numerous, and on the whole were admirably arranged, and comprised some wonderfully fine specimens. The finest undoubtedly was that from M. Dallièr, which won the grand prize of 500 francs offered by the Fédération des Sociétés d'Horticulture of Belgium. This fine group numbered some forty plants, and occupied a prominent position in the main building. The most remarkable specimens in it were *Stevensonia grandifolia*, *Anthurium Veitchii*, *A. crystallinum*, *A. Laucha-*

num, *A. Warocqueanum*, *Alocasia atropurpurea*, *Zamia Van Geerti*, *Maranta Kegeljamiana* (4 feet through), and *Masdevallia Shuttleworthii* with eight blossoms. Another remarkable group was that from M. Aug. Van Geert, which took the gold medal valued 200 francs. It also contained forty plants, the majority of which were uncommonly fine, and especially *Microlepia hirta cristata*, 5 feet across; *Zamia Van Geerti*, *Anthurium Gustavi*, a new species not in commerce, one of the finest of all *Anthuriums*; *A. Veitchi*, *Pteris Ouvrardi*, *Dracæna Baptisti*, *Anthurium Dechardi*, and *Pritchardia aurea*. The prize of a gold medal given by the Queen of the Belgians for a group of fifty plants was won by M. Van Houtte with a grand collection, which consisted chiefly of lofty Palms and Tree Ferns, intermingled with standard *Rhododendrons*, including a fine specimen of *R. Veitchi*, *Imantophyllums*, and a few finely grown and flowered New Holland plants, the latter a somewhat uncommon class seemingly at Ghent shows.

FINE-FOLIAGED PLANTS were wonderfully fine; among them were noble Palms, Tree Ferns, and *Araucarias*, which are the pride of the Ghent nurserymen and amateurs. The main building was for the most part taken up by the competing groups in the classes for these, and a very fine effect they produced, for the huge-spreading heads of the Palms and Ferns towered above all the rest and broke the outline in a picturesque way. A specimen of *Cyathea medullaris*, the best Tree Fern in the show, could not have been less than 40 feet high, and many of the other Tree Ferns and Palms were equally remarkable. Cycads, which appear to be grown on a large scale in Belgium, were well represented both from amateurs and nurserymen. Among the former a grand collection from M. Ghellinck de Walle won the gold medal in its class, and an even finer collection of ten plants was shown for the gold medal taken by MM. De Smet Freres. Other collections of Cycads, though not so fine as these two, were creditable. The twenty *Marantas* which took the gold medal from M. Dallière contained some very fine, particularly M. Makoyana, *Wioti*, *Oppenheimiana*, and *Massangeana*, which were better than we had hitherto seen them.

CROTONS were good as regards high coloured foliage and fine varieties, but the specimens were mostly all small and far inferior from a cultural point of view to those we see at London shows. The gold medal collection of a dozen plants came from the celebrated nurseries of MM. Chantrier, at Mortefontaine, near Paris. It contained many grand new sorts of the type of Baron Franck Sellière, which is beginning to find so much favour in England. A scarcely inferior collection came from M. Dallière, but the other lots were inferior, pointing strongly to the fact that Ghent cultivators equal us in *Croton* culture. *Dracænas* were shown well by one or two exhibitors, notably by M. Pynaert Van Geert, who had a meritorious collection of the best English named varieties.

AROIDS, a class of plants in great favour with Belgians, were well represented from M. Louis Van Houtte's nursery. A collection of twenty-five kinds arranged in one group formed a grand feature, for there was such harmony of form in it such as can only be obtained where plants of one family are associated. The most noteworthy plants in the group were *Anthurium Veitchi* *Warocqueanum*, both finer than we have ever seen; *Alocasia zebrina* *Thibautiana*, and *Philodendron Melinoni paranense*. M. Van Houtte was also the only exhibitor of a collection of *Dieffenbachias*, but only a second prize was awarded.

BROMELIADS, though not very numerous, were thoroughly representative of this fine family of plants, which find so much favour on the Continent. The first prize collection among amateurs comprised some fine specimens, but, with the exception of *Endrolirion Saundersi* and *E. coralinum*, there were none in flower. The other group from the amateurs' class was a good one, and those from M. Dallière, and M. D. Haene, and M. Van Houtte were likewise fine, but on the whole this family was disappointing, for we fully ex-

pected to find such fine genera as *Billbergia* and *Echmea* in flower. Gesneraceous plants, too, were poor, only one collection being shown, and this was made up mostly of inferior *Gloxinias* and *Gesneras*.

NEW ZEALAND FLAX (*Phormium tenax*) was quite a distinctive feature of the exhibition; every specimen in the whole collections shown, which could be numbered by the score, were uniformly large and well grown. There seems to be a host of varieties in Belgian gardens of this plant, which differ chiefly in the colour of the foliage, but there is but little difference between a great many of them. A few of the best were the variegated form *atropurpureum*, *macrophyllum*, *Veitchi* and the variegated form of it, and *Colensoi*, also with striped foliage. The prize winning single specimens and pairs were huge tufts of foliage from 5 feet to 6 feet high. All were grown in tubs; the groups of eight plants showed well what a noble plant the *Phormium* is when well grown, as it is in Belgium.

THE PERSIAN CYCLAMEN is a plant that seems to be but little known or understood, judging by the collections of twenty-five plants shown. The first group, from M. de Haene, was a good one, but we doubt if the plants have been grown in Belgium, for they had the appearance of London-grown plants. It was a uniform collection, every plant being large and bearing a sheaf of blossoms, similar to the plants we are accustomed to see at the London spring shows. In contrast with this fine collection were the two others, both of which were below mediocrity both as regards flowers, foliage, and colour.

ROSES IN POTS were, on the whole, poor, there being only one creditable collection; the plants were all small and poorly flowered, and not one could be singled out as a good specimen of a pot Rose. It is evident that we have nothing to learn from our Belgian friends as regards the culture of the Rose and a good many other classes of plants. New Holland plants, for example, are miserably grown, and there was only one group in the class for twenty. This was from M. Van Houtte, and, though small, well flowered; it comprised some uncommon and interesting plants, such, for example, as *Choisya ternata* (which was represented finely), *Pultenaea flava*, *Mitrasia coccinea*, and a few *Acacias*. The Heaths were, like other hard-wooded plants, neither remarkable for size nor high culture; indeed, some of the plants shown in the class for Heaths would not have been admitted to a London show.

AMARYLLISES were an important feature and made a bright show, there being three or four collections of forty plants. Taken on the whole, none of the collection contained any remarkable varieties compared with those we have seen this year in London. There is too much of a sameness in colour among them, and mostly all have small funnel-shaped flowers striped as in the *vittata* type. In masses they are very showy, but individually they are not much. The gold medal collection from M. de Hooghe included about half-a-dozen of what we should term really good sorts, that is with large, finely formed, broad petalled flowers with distinct and brilliant colours. The plants in all the collections were well grown, and those in the first prize group were remarkable for their uniform dwarfness, a desirable point in an *Amaryllis*. There were some half-a-dozen new seedlings shown for the three medals offered.

The classes for *Pelargoniums*, *Auriculas*, *Polyanthuses*, *Primulas*, *Pansies*, and similar plants were miserably represented in the competing classes. The bulk of the plants were poorer than one would see at a cottager's show in England. It is evident that the *Pelargonium* in Belgium is not understood, or it would have been better represented, and as a corroboration of this the fine specimens of cut blooms of zonal *Pelargoniums* that Messrs. Cannell sent from Swanley were about the most admired of anything in the show, and people expressed their surprise on seeing such fine examples. *Carnations*, too, were very poor, also *Dielytras* and *Heliotropes*. On the other hand, there were one or two extremely good collections of *Cinerarias*: the finest of these, number-

ing some thirty plants, was arranged in a large circular group by itself, and very effective it was. Each of the plants was from 1½ feet to 2 feet through, furnished with large healthy foliage and huge heads of flowers, the quality of which, however, was not equal to that we have lately seen in London; indeed, the whole of the *Cinerarias* shown were not remarkable for high quality of the strain. *Mignonette* is grown in Belgium uncommonly well, and there were three or four fine collections of twenty plants, all large and carrying tall, massive spikes of bloom, and the exhibitors have, moreover, got one of the best strains not inferior to Miles' Spiral and others which are our best sorts here.

ORANGE TREES IN POTS were to us an uncommon feature, but the Orange seems to be a favourite object of culture here, and remarkably well it is grown. There were several collections of pot specimens shown, and in every case the bushes were profusely hung with fruits in all stages of ripening, which, with the buds and white flowers, had a fine effect, arranged in large masses as they were here. Both the large and small-fruited kinds are grown, but most of the collections shown were small fruited, and it seems to be the freest grower and the most prolific fruiter. For conservatory decoration Oranges are valuable, and it is a wonder that cultivators here do not take them in hand and grow them as well as the Belgians do.

HARDY TREES AND SHRUBS.—The most noteworthy among these were the standard Sweet Bays, *Laurustinuses*, and *Clethra arborea*, all of which are probably grown better at Ghent than anywhere. The Bays in particular were remarkable for their perfect symmetrical form and large size. The finest were fully 15 feet high, and scarcely one was under 10 feet, and some fifty specimens were shown in the classes for pairs and fifty. Such a display of pyramid and globular shaped trees was characteristic of a Belgian exhibition, and, though so formal, had an imposing effect in the open air, arranged, as they were, in groups and lines. The *Laurustinuses* in flower, being masses of white, were also a grand feature; likewise the pairs of *Clethra arborea*, which is scarcely less ornamental than the Bays when grown as they are in Ghent. There were several collections of coniferous trees, but they were of the ordinary stamp, and much inferior to what we see at shows here. There were also classes for *Ivies*, *Aucubas*, *Hollies*, and *Yuccas*, but none were remarkable except the variegated *Yuccas*, which were finer than we had ever seen them, the finest pairs ranging from 3 feet to 5 feet high, and simply perfection in every point. The kinds were chiefly *Y. aloifolia variegata* and *Y. quadricolor*. Japanese *Acers* seem to be coming in vogue in the Ghent gardens, for there were several really good collections shown of the *A. polymorphum* type, and groups of them dotted here and there had a pretty effect.

THE VAN HOUTTE PRIZES, consisting of objects of art given by the English Van Houtte Memorial Prize Committee, were competed for on this occasion, and, singularly enough, both prizes were won by the late M. Louis Van Houtte's son. The prizes were for six stove and greenhouse plants and eight *Imantophyllums*. In the first were a few good specimens, particularly small, but neatly trained and admirably flowered plants of *Hedera* *Tulipifera* and *Erica picturata*. The others were *Medinilla magnifica*, small, but well flowered, *Brachysema lanceolatum*, *Anthurium Scherzerianum*, and *Eriostemon floribundum*.

THE IMANTOPHYLLUMS, which are special favourites with Ghent nurserymen, were remarkably fine, particularly the eight with which M. Van Houtte secured the memorial prize. These were all finely flowered specimens, and represented the best varieties, some being new seedling sorts raised by M. Van Houtte. Among the finest were those named M. Todt, Mad. Van Houtte, Mad. Peters, Mad. Donner, the finest flowered sort of all; Louise Kremer, and Charles Van Eckhaute. Besides these, M. Van Houtte showed some dozens of other seedling kinds, which together formed a

brilliant group, unlike anything we are wont to see at London shows.

ENGLISH EXHIBITORS were but few in number, but the exhibits of these few attracted a deal of attention. Mr. B. S. Williams had a magnificent display of Cyclamens, consisting of about 200 large specimens profusely flowered and representing the finest strain yet obtainable. Such an unusual sight was well grown Cyclamens, that they excited the admiration of everyone, and the Queen of the Belgians at the opening ceremony seemed to be particularly fascinated by them. They were arranged in one large group, and of course were very brilliant, as the colours varied from the purest white to the deepest crimson. For this fine exhibit Mr. Williams was awarded a gold medal of the value of 200 francs.

A gold medal was also awarded to Messrs. J. Veitch & Sons, Chelsea, for a small, but choice group of Rhododendron seedlings of the javanicum type. Among them were some uncommonly fine sorts even superior to those already shown in London.

A group of the double flowered Cineraria Mrs. Thomas Lloyd and some cut trusses of single zonal Pelargoniums exhibited by Messrs. Cannell & Sons, Swanley, won the admiration of everyone, being such an unusual class of plants at a Ghent show. A gold medal was awarded to Mr. Cannell for his group.

The only English exhibitor in the competing classes was Mr. Brown, florist, of Richmond, Surrey, who took a gold medal for three floral epergnes, a silver medal for three ball room bouquets, and a silver medal for wreaths. There was a fair competition, and no doubt Mr. Brown would have secured all the gold medals in the classes he competed in had not an accident happened to his exhibits during the journey which severely damaged them. The other English competitors were Messrs. Foster & Pearson, Beeston, Notts, who took two gold medals for hot houses and a silver medal for frames.

Our notes concerning the horticultural appliances and various other exhibits must be deferred till next week.

NOTES OF THE WEEK.

NEW HYBRID FORMS OF ANTHURIUM SCHERZERIANUM.—Among the most interesting new plants exhibited at the recent great Quinquennial International Horticultural Exhibition held at Ghent from April 15 to April 22 were four most curious and beautiful forms of the above-named brilliant Aroid (whose ordinary English name among unbotanical or florally unlearned persons is the Flamingo plant), all raised by the distinguished French amateur horticulturist, Mons. A. de la Devansaye (at Château du Fresne, near Angers, in Anjou), the president of the Angers Horticultural Society. The names of these four interesting novelties are respectively A. Andegavense, finely figured in a well-executed double plate, No. 2454-5, in 23rd volume of Van Houtte's "Flore des Serres;" A. Devansayanum, figured in the Paris *Revue Horticole* last July; A. Rothschildianum, figured in an earlier number of the same volume of Van Houtte's "Flore des Serres;" and lastly, A. album. The first named of these four varieties was much the strongest of the lot, the seed from which it sprang having been sown by M. Devansaye in 1877, bloomed for the first time in 1880, and first exhibited at Tours in May, 1881, when it was deservedly awarded a gold medal. It holds, I should say, an exactly intermediate position as to depth of ground colour and density and distinctness of maculation between Nos. 2 and 3, as above enumerated, and had some six or eight of its brilliant spathes distinctly spotted with white in various degrees of expansion, showing how fine the other varieties may be expected to become when they attain their full size and development. The second named seemed to me to be the most brilliantly and distinctly marked of the lot, the macules almost resembling small drops of blood on a white ground, and considerably farther apart from one another

than in the other two varieties, while the ground is of a clearer and purer white. It was the offspring of a cross effected between A. magnificum and A. Galeottianum, and the plant shown, being still only in its second year, and bearing only two leaves and one flower, may be expected greatly to improve in size of spathe as it increases in age and strength. The third named was curiously enough obtained by cross-fertilisation almost simultaneously by two other raisers, besides M. de la Devansaye, Mr. Bertrand, and M. Bergmann, Baron Rothschild's gardener at Château de Ferrières, and though a very distinct and curious variety, is, perhaps, inferior in beauty and distinctness of marking to either of the previously named sorts. The fourth named has been, I think, somewhat incorrectly named by its raiser, as it is by no means a pure white, being rather a pale straw colour with the faintest possible shading of red through some parts of the spathe. M. de la Devansaye, however, informs me that he considers it a very valuable plant for use as one of the parents of his future hybridisations, which he is still carrying on with much zeal and activity, having at this moment over 3000 seedlings, the result of divers crossings, among which he hopes to find some fine and distinct new varieties. He has already obtained one exceedingly curious sort with perfectly round spots about the size of a split Pea, of a different shade of red to what the ground colour is, which he considers quite an acquisition. Another of his hybrids named A. dentatum, resulting from a cross between A. leuconeurum and A. fissum, is shortly to be figured in the Paris *Revue Horticole*. The raiser also informs me that by sowing his seeds as soon as ripe broadcast over a hot-water tank, and barely covered with soil, he gets them to germinate usually in about eight days, and they generally bloom the middle of the third year after they are sown.—W. E. GUMBLETON.

ST. PETERSBURG HORTICULTURAL EXHIBITION.—An official communication sent to us, from the Science and Art Department, announces that, in consequence of the Czar's coronation, the proposed exhibition and congress at St. Petersburg are postponed until the 5th of May, 1884.

NYPHÆA ZANZIBARENSIS.—I have just seen flowering specimens of this plant, and as I surmised in my remarks respecting it (p. 335), it proves to be only a form of the common African species N. stellata. It is doubtful even whether it differs at all from the plant known as N. scutifolia. Possibly, however, the plants which I have seen may not be so fine in form as those to which the above name was given, although on comparing them with the description and analytical drawings of Professor Caspary, the author of the name, there appears to be no difference. Plants of N. zanzibarensis are in the Kew collection, so that we shall doubtless soon have an opportunity of seeing whether this kind is worthy of the praise bestowed upon it or not.—B.

CARNIVOROUS PLANTS AT KEW.—In that portion of the T range devoted to the cultivation of so-called carnivorous plants there is a healthy and interesting collection of them. The Sarracenias are in capital health, and from the numbers of strong young pitchers shown on most of them there is promise of a fine display this year. *Droserophyllum lusitanicum* is thriving remarkably well in pans, and we learn that the treatment to which the plants have been subjected for the last two years is diametrically opposite to that usually recommended for this interesting Sundew. Here it is watered as liberally as the Sarracenias. It has been kept very moist all winter, and, moreover, is potted in a mixture of loam and leaf-mould. That this treatment suits it is evident by the fine healthy leaves borne by the Kew specimens and the strong spikes of bloom which most of the plants are pushing forth. *Pinguicula caudata* is represented by a panful of three plants bearing eight flowers, all fully expanded; one plant alone bears four expanded flowers and two stout buds. Grown as at Kew, this *Pinguicula* makes a fine display. *Darlingtonia*, *Drosera*, and other *Pinguiculas* are also well represented in this collection.

Recent plant portrait.—In second number of the *Revue Horticole* for April is a portrait of *ONOSERIS DRAKEANA*, a pretty composite from New Grenada with medium-sized rosy purple flowers borne singly on slight stalks well raised above the foliage, and found by M. E. André on the rocks of Dorotès and the steep banks of the Rio Mayo in a barren region about 3000 feet to 4000 feet above the sea level. In this country it will thrive well in the greenhouse.—W. E. G.

Hardy foliage for hardy flowers.—While believing thoroughly in the principle that a plant's own foliage is the best for associating along with its own blossoms, yet it is sometimes expedient to use leaves of beautiful form or greater variety. I find too often amongst my friends a tendency to use Fern fronds and other hot-house foliage when arranging their vases of outdoor flowers for indoor ornament. Their right to do this is not disputed, but for the sake of those who have no greenhouses even it is pleasant to know that there are many hardy plants which produce beautiful leaves in plenty in the open air of a sheltered garden. One of the best of these is *Heuchera Richardsoni*, which produces silky leaves of a rich, reddish, bronzy colour on slender stalks 5 inches or 6 inches in length. The common Tansy plant and some of the *Achilleas* again yield finely-cut leaves not in any way inferior in feathery beauty to those of exotic Ferns. The purple shoots and bronzy leaves of *Peonies* or the broad *Saxifragas*, the pinnate foliage of oriental *Poppies*, or the great silvery grey leaves of the *Artichoke* or of *Cardoons* are quite *Acanthus*-like in their nobility of form, and so well fitted for large urns or vases indoors. There are many, many other things, "good things," indeed no poverty at all, in the hardy leaf glory of our outdoor gardens, while some of us think that hardy foliage is best fitted for association with hardy flowers.—F. W. B.

OBITUARY.

MAJOR-GENERAL SCOTT, C.B., F.R.S., late of the Royal Engineers, died on Monday last at his residence, Silverdale, Sydenham, aged sixty-one. He retired from the army in 1871, and became Director of Buildings at South Kensington in the room of the late Captain Fouke. He was elected a member of the Council of the Royal Horticultural Society in 1865 in place of the late Sir Joseph Paxton, and became secretary in 1866, resigning in 1873. He was also secretary to the Royal Commissioners of the 1851 Exhibition.

Seedling Primroses (*P. N. F.*).—A lovely collection, chiefly maroon colour with a conspicuous orange eye, the centres of the petals in some cases being tipped with white. One white, with an orange eye, is also a welcome sort, especially in a cut state.

Dendrobium Falconeri.—We have received from Mr. Hugh J. Scott, Ashford House, Ballynaveagh, Belfast, lovely blooms of this charming *Dendrobe*. The plant from which they were gathered (a moderate sized one) was imported last year, and is stated to be now carrying sixty-eight fully expanded flowers, a heavy crop for so young a plant.

Names of plants.—*G. W. P.*—*Fritillaria imperialis*, or Crown Imperial.—*J. W.*—1, *Abutilon vexillarium*; 2, *Cydonia japonica* (flesh coloured variety).—*W. W. E. R.*—We do not recognise the leaf sent. Kindly send a better specimen.—*J. R. S.*—The flower sent has neither anthers nor perfect column, both of which are necessary to enable one to name an unknown plant such as yours appears to be. Kindly send another flower and leaf, and tell us whether it is terrestrial or epiphytal.—*E. L. B.*—*Billardiera scandens*.—*P. W. E.*—*Gagea lutea*.—*W. V.*—1 and 2, double purple and white Violets; 3, *Corydalis bulbosa*; 4, *Narcissus nanus*; 5, *Ornithogalum caucasicum*; 6, *Dielytra formosa*.—*S. W. C.*—*Ornithogalum nutans*.—*Nemo*.—*Dendrobium densiflorum*.—*J. H.*—*Tradescantia viridis* and its variegated variety. They often flower in a rather warm, dry greenhouse.—*Anon.*—1, *Leucojum vernum*; 2, *Crocus Imperati*.

Erratum.—P. 346, middle column, "Puccinia Buxi." For "on the Olive," read "in moist air."

No. 597. SATURDAY, APRIL 28, 1883. Vol. XXIII.

"This is an Art**Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.****SUGGESTIONS FOR THE IMPROVEMENT
OF FLORAL DECORATIONS AT
FLOWER SHOWS.**

As a society's object in offering prizes is to encourage the best use of flowers in decoration, it should point out to intending exhibitors, and especially those in the floral trade, that, whereas a knowledge of flowers and a demand for them is rapidly growing with the public, and that matters of good taste are also now more considered and understood than they have hitherto been, it will be well for them to keep pace with the growth of taste in this direction.

Large numbers of what would be their best customers are lost to the florists because people of good taste know that what they want, and are willing to pay a good price for, viz., a simply arranged decoration, is what they cannot get from the florists. The trade have a mistaken idea that their stiffly wired arrangements of many flowers, having evidently cost much labour, are more willingly paid for, but the better class of customer, who requires a certain thing put on his table in the best form and order at a certain time, would rather pay for the good organisation of what he wants than for laborious wiring, whose only effect is the destruction of the natural grace of the flowers. The trade might also be reminded that trumpet vases and March glasses are entirely out of fashion in the best houses, besides being in any case undesirable forms for dinner-table decoration, and that simple bowl-shaped vases are much better and now more generally used. Exhibitors should be told that the rareness or value of the flowers themselves is a point very slightly considered in awarding prizes. Societies should discourage as much as possible wiring of flowers. Hand-bouquets should be made in a less stiff manner. The use of good hardy flowers and foliage should be encouraged.

As a general rule fewer flowers and those of fewer kinds should be used in one decoration. Classes should be formed for dinner-table decoration consisting of one kind of flower and one kind of foliage, varieties of these kinds being admissible.

Classes also should exist for dinner-table decoration in harmonious colouring, in which the flowers used shall be of one colour and varying shades of that colour, with foliage in harmony, such as scarlet and crimson flowers with red-bronze leaves, pink and rose colour, with warm foliage; yellow and orange, with golden green and golden bronze foliage. The warm colours, viz., scarlet, crimson, pink, orange, and yellow, have the best effect at night. A class is desirable for dinner-table decorations of hardy flowers and foliage only, and a class for hardy flowers and foliage for table in drawing-room. Abolish altogether the class for arch for sideboard which leads exhibitors to worse than wasted effort in the composition of elaborate monstrosities, the like of which are never seen where the slightest taste prevails.

There are so many good materials that look well by day and night, too, that special classes for

flowers that open only at night seem a doubtful class. As a curiosity now and then they might be desirable, or for very special decorations. But for the house generally, flowers that open only at night would be curiosities. All good decoration is to some extent lasting in character, as it ought to be to repay the time and expense and care bestowed upon it. A batch of those lovely Daffodils now in flower cut early in their blossoming, and placed in water, will give a beautiful effect for ten days, and actually improve in size for nearly a week. A good plant of *Aralia Sieboldi* placed in a vase in a hall will adorn the place for half a year, or more if desired. Almost the same might be said of a score of other plants. Who, then, could tolerate in the day the aspect of dishes of things that only open at night, like some Cactuses or Water Lilies? Plants that only open at night have their place, and a very interesting one, but the very short time they last, and the fact that they are so poor in effect in the day, must ever give them a very small place. J.

NOTES.

LAPAGERIAS.—I wonder no one has noticed the remarkable resemblance of these plants to the *Amaryllis* tribe—*Alstroemerias*, for instance. If one reads a description of *Lapagerias* in any botanical book it is especially mentioned that the flowers are like *Bomareas*. Everything seems, to my mind, to favour the idea that they are pretty closely allied to the *Amaryllidaceæ*. Look at the root, so like a *Bomarea*, only perhaps rather more fleshy; look at the leaf, so like a *Bomarea* leaf; look at the shape of the flower—even to its markings; at the colour; at the country it comes from, which is the home of *Bomareas*. The *Lapageria* is a sort of semi-woody *Bomarea*, which becomes wholly woody in its form of *Philesia* or *Philageria*. The *Lapageria* keeps the habit of throwing up its strongest growth from underground, and yet can make fresh growths from its old wood. This idea is not my own, as it was suggested to me by the late foreman at Messrs. Osborn's, at Fulham, but now *Bomareas* are becoming more common I dedicate the idea to Messrs. Carder & Shuttleworth, who will doubtless soon present us with hybrids of *Bomareas* and *Lapagerias* instead of hybrids between *Lapageria* and *Philesia*.

OF SINGLE FLOWERS some ten years or more ago I wrote to Mr. Keynes, of Salisbury, asking whether he could supply me with single seedling *Dahlias* raised among the double seedlings, suggesting at the same time there would certainly be a large sale for all single flowers, and that single *Dahlias* might be (I had never seen one) specially beautiful. I forget the answer, which was "no" in one form or another, but I imagine that a good deal of money might have been made if Mr. Keynes had foreseen the future. Even now we have not half enough of those splendid, particularly *Dahlias*, half white and half maroon, of which every raiser of doubles must throw away many single seedlings. It is the same with *Hollyhocks*. These are to my mind far too double; semi-double red, or cerise, or mauve varieties would probably be far more beautiful than those full double ones which look like coloured penwipers. Some eight or ten years ago I asked Mr. Chater, of Cambridge, to save me single seedlings, but again met with a refusal; I think he said he never raised any single seedling *Hollyhocks*. I can assure growers of hardy plants

that the single mauve and cream-coloured *Althæas* (*Hollyhocks*) are splendidly beautiful, and ought to be asked for of all nurserymen professing to sell double *Hollyhocks*, as in this way alone do they ever get to understand what the public really want. They are not before the times, but far, far behind. I see Mr. Thompson is offering the single red *Opium Poppy* (called by him var. *Danebrog*) with a white blotch. I have got out at railway stations, stopped cabs, and committed every enormity for years to get seed of this beautiful plant, which ought to have been common long ago—as common as it is in France, only these horrid double things have thrust it out of our English gardens. How long will it be before someone offers seed of the lovely pale lemon *Sunflower* one sees in France, which is almost the colour of *Oenothera Lamarckiana*? And when will French Rose growers send us seedling single or semi-single *Tea* or other *Roses*? I fancy a *Niphetos* or *Maréchal Niel* with about ten or twelve petals, or *La France*, for instance, would be something unbelievably lovely. Mr. George Paul is offering a fine crimson single seedling, but the great Rose growers ought to have quantities of good varieties, and have done this long ago. I have for a long time been trying to get good seedling single *Roses*, and Mr. Laxton, of Bedford, has been kind enough to assist me. I believe *Rosa Brunonis*, which is almost unknown in nurserymen's catalogues, is about as valuable commercially, and would have as large a circle of admirers, as the finest double varieties; if it were some new kind of *Cistus*, or *Corchorus*, or *Eucryphia*, it would find a sale at 10s. a plant. I am not at all for having no double *Roses* or other plants, but we are beginning to see the beauty of single flowers of fine decorative form, and we find at the same time the great difficulty of buying what we want. Where, I should like to know, can one obtain a collection of single *Tree Peonies*, such as we see on Japanese fans and screens, some of which must be among the most glorious flowers of the earth? or where can one obtain in Europe the single red *Cherry*, which seems to be as common in Japan as our white wild *Cherry*? The double I can get for money, but not the single. Flowers remarkable for colour, but not for form, are probably improved by doubling, but who wants a double *Lily*?

Bingham, Notts.

FRANK MILES.

Music at the Horticultural.—We would venture to recommend the managers of the Society to add half-a-dozen Scotch bagpipes to the musical resources of the conservatory and to have them tuned on the premises, for the Society, by placing a loud band in the midst of the flowers, show little confidence in their power to charm. Any conversation in the consequent din is an unpleasant effort; the building being very unsuitable for music, the sound, as a lady remarked to us, is a "braying" one, which by no means goes well with the many pretty plants and their associations, and any talk to friends or owners they suggest. It would be easy to accommodate the band somewhere else. The people the Society desire to attract have good music in their own homes; and were it not so, London is already so well supplied with music in public places, that we might be spared it here, except on the lawn or in some adjacent building. It is not only the sound which is objectionable, but the mass of people who sit round the band impede movement along the flower stands to a very inconvenient degree.

AMERICAN NOTES.

Will posts set top end down outlast those set top end up?—It is believed by many that posts set in the ground in a position the reverse of which they stood while growing in the tree will last longer than when set top end up. In the spring of 1879 I selected seasoned sticks, 3 feet long. These were split in two, and then cut in two crosswise, making four pieces of each. One set was placed in well drained sand, the other in clay soil. In every case two pieces were set side by side, with earth between, one as it stood in the tree, the other reversed. I tried thirteen kinds of timber. Some of these were young wood with the bark on. All contained some heart wood. Those set in sand were examined in the autumn of 1881. In the case of the Beech, Sugar Maple, Ironwood, black Ash, and black Cherry, the piece reversed or placed top end down was somewhat most decayed. In the case of red Maple, American Elm, Butternut, and red Elm, the piece set bottom end down was a trifle the most decayed. In the case of Basswood, white Ash, white Oak, and blue Ash, there was no perceptible difference. In the autumn of 1882 the posts set in clay soil were examined. In the case of the red Maple, Sugar Maple, American Elm, Basswood, Butternut, red Elm, the piece set top end down was most decayed. In the case of Beech, white Ash, black Ash, black Cherry, the piece set bottom end down was most decayed. In the case of Ironwood, white Oak, blue Ash, there was no perceptible difference. I infer that where one piece decayed more than the other it was caused by some trifling difference in the sticks. The freshly sawed ends in each case were placed uppermost, and came an inch or two above the ground. In some cases one half of a stick (one piece certainly the reverse of the other) lasted considerably better than its other half. As will be seen, it was sometimes the top end down which lasted best, sometimes the bottom end down, and in some cases there was no palpable difference in durability.—W. J. BEAL, in *Scientific American*.

Protection and growth of forests.—The American Association for the Advancement of Science, in its memorial to the several State governors on preserving and increasing the forestry supplies, makes, in substance, the following recommendations: 1. To protect by law trees planted along the highways, and to reduce taxes for encouraging such planting. 2. To exempt for a time from tax the increased value of land from planting trees in bare regions. 3. To appropriate money to existing societies, to be applied as premiums for successful tree planting. 4. To offer prizes for the best reports and essays on practical forest raising, to be published and disseminated. 5. To encourage educational institutions in introducing a course of instruction on tree raising—such as by correctly labelled specimen plantations and the distribution of seeds. 6. To impose penalties for careless or wilful setting forests on fire, the waste from which cause has in some years greatly exceeded the amount of timber used.

Californian Lilies.—One of the bulbs one meets with the greatest difficulty in growing, says Dr. Kellogg, is the Lady Washington Lily. The last time I was out I took a thermometer to find the temperature where it thrived best in a wild state, also to consult the conditions under which it grew. There is one fact connected with the subject that if followed up might throw great light upon the culture of Californian bulbs. It is one which I have intended to investigate myself, and the only reason why is the distance and mountain-climbing necessary to investigate the subject. It was a case of the Washington Lily growing in the basin of a rock. The remarkable feature of this was: the bulb was as large as the top of one's head, and lying upon the ground were stalks 12 feet in length, carrying from fifty to a hundred flowers. Now, if anyone could investigate the condition under which this growth was made, it seems to me that it would throw great light on the subject. This Lily will not grow in

sand, nor a great many other bulbs in California. I have seen a great variety of bulbs grow in these rocks where, in rainy seasons they got a great deal of moisture. Liliun Humboldt will grow in California. These seem to require the morning sun. Down below Santa Barbara one may go up a ravine, and if the ravine runs east and west, the Lily will always be on the northern slope, and perhaps on the other side not one will be found. Where the sun strikes when past the meridian you will not find a solitary one growing—that is where is no timber; but if the ravine is shaded, trees growing over it, protecting it from the afternoon sun, it will grow on the one side as well as on the other. As regards soil, a strong loam for Humboldt would be better than leaf mould.—*Pacific Rural Press*.

Apples for export.—An interesting account of the method of selling Apples in England was given recently before the Massachusetts Horticultural Society by Mr. Charles F. Curtis. He stated that this is done wholly by auction. There are five auctioneers in the business in Liverpool, and all the Apples received are sold by one of them. The sale is held in a large amphitheatre, in the centre of which is a large table, on which a barrel of each mark is poured out as a sample. Each auctioneer sells for three-quarters of an hour at a time, and the sales continue, if necessary, till ten o'clock at night. Apples are sold in lots of twenty barrels each. The understanding is that the Apples shall be perfectly tight in the barrel, when such bring 25s. per barrel; "shakers," or those not tightly packed, will bring 4s. less. The next grade is "wet and wasted," which bring only half the price of the best. The Baldwin is the only variety sold to any amount; it is the only one which can be obtained in sufficient quantity to sell by the thousand barrels. Retail lots and odds and ends are not wanted. Sales are held three days in a week. The trade dates from about ten years ago. When it became apparent that New England could raise Apples enough for its own consumption, the New York growers began to ship. In packing, a basket of high-coloured and medium-sized specimens are placed in the bottom of the barrel as close as possible, with the stems all down, and the barrel is shaken as often as a basketful is put in. It is filled half an inch above the chimes, the head is pressed in by means of a screw, and the barrel is then turned over and marked on the faced head, so that when opened it shows an even and uniform surface. Apples thus faced will bring from twenty-five to fifty cents more than those not faced. There is very little demand for sweet Apples. Apples are sometimes shipped successfully in warm weather, when later shipments in cooler weather will decay. Mr. Curtis, in answer to an inquiry, said he did not think that cold storage would keep Apples a month later than ordinary, and a great disadvantage is that they must be used as soon as taken out. Now very few Russets are stored, owing to the improvement in early Southern Apples, which formerly were shaken off and raked up, but now are gathered and packed properly.—*American Garden*.

Fallacies about lawn mowers.—There are no lawn mowers in existence that will satisfactorily cut Grass 5 inches long—that is, 5 inches above the level of the knife-plate—nor are there any 14-inch lawn mowers in existence, or 12-inch ones either, that a boy of twelve years can easily use. It is hard work for a man to use either, and slavery for a boy of sixteen years. The weights which either a man or a horse can drag or push one day with another without hurt have often been estimated. I cannot say what they are at this minute, but I know a 12-inch or 14-inch lawn mower represents about the maximum for a man. As to the reputed "long-grass" cutting mowers, the inventor and the maker of one of these machines, which I shall call the "Incomprehensible," called here one day with an eye to improvements on mowers, and the inventor said his "Incomprehensible" would easily cut Grass 6 inches long, and had cut it. I asked him to point out an example of the long Grass it would cut anywhere in

the pleasure grounds, which he did. He was willing to stake either half a dozen or a dozen bottles of champagne that he could make his mower cut it, and I at once closed with him, promising, as the factory was not far off, to send for one of his new machines for the special purpose, he in turn promising to come and push it. I fulfilled my share of the bargain the next day; but when the day appointed for the inventor's promised visit came, I received a letter from the manufacturer saying, "Our Mr. So-and-so had been suddenly called away, and could not come." I wrote in reply that I was open to carry out the bargain at any other time, but although the inventor has often been in our neighbourhood, he has given me a "wide berth" ever since. He will know who writes this when he reads it; and I take this opportunity of stating that I still expect him either to fulfil his promise or send the champagne.—AN OLD LAWN MOWER.

ORCHIDS.

PEAT FOR ORCHIDS.

ONE is surprised to read of peat for Orchid purposes becoming so scarce in England, that we are likely to be reduced to the use of Cocoa-nut husks as a substitute. I doubt if one gardener in fifty uses Kent peat for any purpose or finds a need for it, as it is expensive to buy all one wants of that material, though I admit it is good, and it is well that it is so, I have invested in Kent peat of two sorts to the extent of a few small bags in the course of many years, just by way of experiment, but I do not intend to have any more of it, as I find that the peat on the estate here is almost of the same character, and of which possibly we have a thousand acres. It consists principally of the roots of the common Bracken which has been growing on the Chase since and probably before the time of Robin Hood. These roots tear up in mats of fibre, and all over the "Dukeries" the same material grows even more extensively than it does with us. I have also seen it in many parts of England. In some parts of Yorkshire there is a kind of peat which, though black and a real peat, does not produce Heath, but mountain Grasses, and this is what we use a good deal of for many purposes. Before using this for Orchids the large sods are thoroughly well beaten till all the small earthy particles are shaken out, after which the sod is just of the texture of a door mat, the roots of the Grasses being like pin-wire almost, and in the mass so elastic that ram it as one may it never becomes sodden or sour. This fibre put in a crate, or on a block, makes an excellent bed for Orchid roots. Enquiry would, I have no doubt, reveal an endless supply of it, for I have seen much of it in some parts of England and Scotland, and I have seen as finely grown Orchids in such a compost as I have seen in any other. I apprehend that it is the texture of the material for Orchid potting which is the point of most importance, and in that case probably almost any kind of turf shaken free of its earthy particles would suit, even loamy turf of good fibre; but peat turf, such as I describe, lasts by far the longest. Sods of it which we have had laid up in an open shed for twelve months are so tough at the present time that it requires a man's strength to pull a good sod asunder, and a section of one cut by the knife reveals a mat-like texture 1 inch or 2 inches in thickness. This with green Sphagnum and charcoal—all home gathered or made—supplies us with all we need for Orchids.

J. S. W.

Orchids at Sudbury House, Hammer-smith.—There are now in flower here *Cymbidium Devonianum*, quite a host of *Cattleya citrina*, and a very fine *Odontoglossum Roezli*, the lip of which is 2 inches in width, and the purple colour very deep indeed, extending nearly half up the petals. On the *Dendrobiums* there are literally thousands of flowers, the most conspicuous being *D. chrysotoxum*, *densiflorum*, *Devonianum*, and *thrysi-florum*. On *Odontoglossum Alexandræ* there are some dozens of spikes and some good flowers, as

well as on *O. triumphans*, *mulus*, and *Ruckerianum*, *O. Donnianum*, in the way of *O. muculatum*, is a charming Orchid, and very dark. The *Trichopilias* are likewise in grand condition, the whole being in flower, and some of the bulbs producing two spikes, one of each of which there are four flowers. *Vanda suavis* and *cœrulescens* are also finely in bloom.—W. V.

Dendrobium Devonianum.—I have a plant of this Dendrobe in flower which has nine spikes 3 feet long covered for 2 feet down to the tips with flowers, some of the spikes bearing sixty; the whole number of flowers is 343. It is a sight worth seeing, seeming to make the whole house swim in a sort of lilac coloured haze.—E. H., *Aig-burth*.

Orchids at Clovenfords.—I recently saw some fine Vandas in flower at Clovenfords; upwards of twenty were out at one time, some with three spikes, and a great many with two on each plant. Of *suavis* there were five different varieties, all alike beautiful, and a great many examples of *tricolor*. The variety called Dr. Paterson's was very fine, nearly as good as the *Dalkeith* variety. Amongst other Orchids I noticed a grand specimen of *Cattleya labiata Gaskelliana* bearing fine, very large flowers; *C. Trianae alba* had been fine, but was just over. *Lælia superbiens* had twenty-three bulbs and seven young growths—a fine plant of this noble *Lælia*; *Cattleya intermedia*, with a forest of bulbs and ten flower-spikes, was magnificent; in fact, the general condition of the Orchids at Clovenfords is in every way excellent.—ROBERT GROSSART, *Oswald Road, Edinburgh*.

Orchids from Bridge of Allan.—Dr. Paterson sends us from his choice Orchid collection at Fernfield the following remarkable specimens, viz., *Odontoglossum Halli leucoglossum*, a fine spike, 2½ feet long, carrying ten flowers, each about 4½ inches in diameter. The large pure white labellum of this variety renders it extremely handsome; a flower-spike of the typical form sent along with it strikingly exhibited the superiority of the white-lipped variety. Dr. Paterson adds, "Don't you think the flowers mimic a band of Christy Minstrels just about to dance?" The comparison is an apt one. Another remarkable specimen is a spike of the curious and weird-looking *Uropedium Lindeni*, which Dr. Paterson likens to an octopus. The three long sepaline tails measure fully 18 inches long, and are of a purplish colour. It is very nearly allied to *Cypripedium*, but the segment that should have formed the pouch has lengthened itself into a tail like the other two. The spike sent bore four such flowers, and was cut from a plant bearing three spikes, a proof that the plant's requirements are understood at Fernfield. Dr. Paterson also sends a flower of the rare *Trichopilia lepidia*. The flower is similar to that of *T. suavis* in form, but larger, and the sepals and petals are of a dull vinous purple, while the colour of the labellum is a rich shade of crimson.

SHORT NOTES.—ORCHIDS.

Dendrobium Wardianum.—Mr. A. Wright brought us from Chiswick the other day a very fine bloom of one of the very best varieties of this Dendrobe. It measured 4½ inches in diameter, and its colours were unusually bright and beautiful.

Curle's variety of Cattleya Mendelli.—When at Melrose the other day I was much struck with this fine *Cattleya*. Its sepals and petals are white, and the lip measured 2 inches in diameter without being flattened out of its natural shape. It is well fringed, and its beautiful purplish tip is over an inch in depth.—ROBERT GROSSART.

Orchids in Perthshire.—Mr. Macdonald, Woodlands House, Perth, sends us flowers of *Trichopilia crispa marginata*, rather a handsome variety, and of *Cattleya Mossie*, the latter certainly beyond the average both as regards size and beauty; and on a spike of *Odontoglossum Pescatorei* the flowers measure 3½ inches across, and the bulbs 6½ inches in circumference and 4½ inches in length—the latter a good chocolate colour and quite glossy. Such Orchid blooms as these are by no means common.

EARTHING SEEDLING PLANTS.

THIS is a useful operation in connection with the raising of seedling plants at all times, but never more so than in spring and early summer, when in most gardens seedling plants are raised more or less in large numbers. It consists in shaking over the young plants some fine earth when the leaves are dry. The nature of the material used must be selected according to the requirements of the subjects to be dealt with. In the case of choice flower seeds raised under glass, a finer material will be necessary than for those raised out of doors. For such purposes I select a mixture of leaf-soil and good, mellow loam in equal parts. This I run through a fine-meshed sieve, and add to it about one-quarter of silver sand. I use this mixture for earthing such tender plants as *Petunias*, *Verbenas*, *Asters*, *Stocks*, and many other similar plants, and I find it to strengthen them wonderfully. I dust each lot of plants over about three times before they are removed from the seed pan. The first application is given as soon as the second pair of leaves have been made, and, at intervals of a week, another dusting is given. The character of the plant's growth must decide how much must be given at each operation. For instance, the *Lobelia* grows naturally so close to the soil that earthing is unnecessary, but such subjects as *Asters*, *Stocks*, *Verbenas*, and *Petunias* grow with a longer stem, and these are the plants and others of similar growth that are most benefited by being earthed while young and tender; in fact, the young plants are strengthened by the practice beyond belief, as will be quickly proved by experience and observation. It is not difficult to understand in what way it benefits the plants, because if the material is laid on sufficiently thick it will encourage the formation of surface roots. New roots mean additional strength in the plants, and what is more the stems of the young seedlings receive support from the application, and are thereby benefited by it in several ways; this remark applies to all subjects to which this earthing process is applied. In the case of kitchen garden crops I use any of the old material from the potting bench, first running it through a sieve. This compost I use freely over most beds of seedling plants, especially such as *Cauliflowers*, *Broccoli*, *Brussels Sprouts*, and indeed any of the *Brassica* family. In dry weather, when the plants want water, it is given them in the evening, and as soon as the leaves get dry next morning this mixture is shaken over them to the depth of a quarter of an inch; this keeps the soil about the roots longer moist than it would be without such a covering, and if this practice is continued once a week for three or four weeks the plants will make rapid progress. One barrow-load of soil at each earthing will suffice for all the seed beds in a medium-sized garden. J. C. C.

THOMAS WILLIAMS, OF ORMSKIRK.

ON looking over some bound volumes of THE GARDEN I am reminded often of one who was taken from us in the last days of 1881, and who was so frequent a contributor that many will be interested in knowing a little more about him. Thomas Williams was no common man. As a gardener he was remarkable, but even I, who knew him intimately, had no idea that he was a poet. About a fortnight since a handsomely bound volume reached me by post, without any accompanying letter of explanation, and on opening it I found on the title page, "Poems by the late Thomas Williams, of Bath Lodge, Ormskirk." The preface states that the work is published in consequence of a wish expressed before his death.

I well remember the first visit I paid to Bath Lodge. My family were staying at Southport, and I dropped a note to Mr. Williams to ask if I might visit his garden. A cordial invitation came by return of post, and on a fine autumn morning I went over and found him in his shirt sleeves at work in his garden. It was a quaint spot, the house being of a builder's Gothic in style, and whitewashed. There was a thick wood on one side, and a stream of beautiful water, which came

from a copious spring in a farmyard near at hand (and from which the place derived its name of Bath Lodge), ran through the grounds. The garden was all laid out in narrow beds, and these were crowded with hardy plants in great variety, for there must have been more than a thousand sorts in this collection. Mr. Williams knew more of plants than any man I ever met, his knowledge being not only that of the practical gardener, but of the botanist also, and his acquaintance with hardy plants was wide and thorough. I spent a long day with him, joined in his simple dinner, spent a most pleasant time, and came away very much wiser than I went. He afterwards visited Brockhurst during the time of one of our great flower shows, and my children well remember his visit, and the marvellous velvet waistcoat he wore on that occasion. He was otherwise clad in gray, but his waistcoat was like the showiest parterre in his own garden. He made himself most agreeable to the circle here, his conversation being interesting and incessant, but nobody thought they were in the presence of a poet. His manner was quiet and most unassuming. He was a teetotaller also, I believe, and when I was at Bath Lodge I was amused at his beverage, which was cold coffee. He said he found he could work best on that of anything.

Here is one of his poems which describes Bath Lodge, and furnishes a fair sample of his muse:—

THE BENCH BY THE WALL.

My cottage it stands at the end of the lane,
And though very humble, I never complain;
If the sun shines at all, it is sure to shine there,
And I'm always content whether rainy or fair.
From those who may hate me I've nothing to fear;
Wherever they may be they never come here;
And my friends I make welcome whenever they call,
And we chat and we laugh on the bench by the wall.

When the buds in the spring-time are ready to burst,
In my old-fashioned garden they open out first;
And the flowers that the rich man knows nothing about
Ere the winter has left us are all peeping out.
At all times and seasons some sweet things are found,
And blossoms to smile upon all the year round;
And some like green carpets star-spangled do crawl
Round the steps of the door and the bench by the wall.

I would not change my dwelling for palace or hall,
For my cot is my castle, although very small;
All the windows look out on a garden so gay,
And are wreathed round with Roses that seldom decay.
When I chance in the summer to open them wide,
The Jasmynes and Roses come dangling inside
With beautiful freedom; but still after all
I would rather sit out on the bench by the wall.

It will be seen that the poetry is not of the highest character, but that it savours of the homely. Many of the pieces are of a religious character, and several are descriptive, especially those about Ludlow, where Mr. Williams was born. These were written for a local guide book. He was a self-educated man. In his youth he worked in a woollen factory, but when seventeen years of age he was taken to be under gardener by the late Mr. Price, of Plas Cadnant, in Anglesey. Thence he went to Liverpool, and at last he became head gardener to Lord Balcarres, at Haigh, near Wigan. Lastly, he entered the service of Edward Stanley, Esq., as farm bailiff, having the management of his estates near Ormskirk. He was a worthy man in every way, and it is pleasant to have this last fruit of his busy life. WM. BROCKBANK.

QUESTIONS.

When to cut Stephanotis blooms.—Will some correspondent kindly inform me whether the flowers of *Stephanotis* keep better after cutting if instead of cutting them immediately they are open they are left to be cut the next day?—S. S.

Vine tendrils.—Can some Grape grower tell me why Vines run to tendrils in many instances instead of bunches? The Vines are twenty-eight years old, and, I believe, have hitherto borne heavy crops. In house No. 1 the roots were lifted and a new border made twelve months ago last autumn; house No. 2, which was treated in the same way, bore a good crop last year, finished it well, and promises to do the same this year; but No. 1 and No. 3 (the roots in the latter not lifted) were in much the same state last year when I took charge of them, viz., producing tendrils instead of bunches. The Vines have a fair amount of roots, but they lie deep in the border; they are planted inside, and the roots run outside.—VITIS.

PLANTS IN FLOWER.

FLOWERS FROM A LONDON GARDEN.—Colonel Stuart Wortley sends us some specimens of Tulips, Anemones, and Narcissi, which he grows in London fairly well. There is no difficulty whatever in growing flowers in London, only people pick the best possible way to prevent success by surrounding themselves with walls, hedges, hen houses, and other obstructions, which prevent the sun from warming the earth and cheering the plants.

FINE VARIETY OF CATTLEYA AMETHYSTO-GLOSSA.—Of this lovely Orchid, Mr. Peacock's gardener sends us from Sudbury House, Hammer-smith, the finest variety that has yet come under our notice. The flowers (three in a cluster) are not remarkable for size, but the colour, particularly the spots on the sepals and petals, and the purple of the lower lobe of the labellum, is intensely rich. None of the forms of this *Cattleya* are poor, but seldom have we seen such a fine variety of it as this is.

WOOD ANEMONES.—We have received from Mr. Webster, Llandegai, Bangor, some lovely Wood Anemones, purple, red, white, and blue, which grown well in a garden would be charming. Mr. Webster finds that there are at least four distinct forms of these Anemones, viz., blue, pink, unspotted white, and one with the exterior pink and the interior white, colours quite constant and distinct on the Anemones at Penrhyn. The blue form, he says, is lovely this season, and the pink amongst the masses of white where it grows is very conspicuous.

ROSES.—From Colonel Hagart's conservatory at Eastbury Manor, near Guildford, we have received magnificent blooms of Reine Marie Henriette and Gloire de Dijon Roses. The plants from which they were cut are about four years old, and are on their own roots; at present they are said to be bearing hundreds of buds, and full blooms have been gathered from them since the 1st of March amounting to about 250 of the red kind, and over 300 of the Gloire de Dijon, and even now Mr. Fullegar, the gardener, tells us that he could cut fifty full-blown Roses nearly as fine as those sent.

FROM ST. BRIGID, on the Hill of Howth, we have a charming batch of very large double yellow Primroses, surrounded by leaves of Alum Root (Heuchera), which seem to show them off very prettily. These double yellow Primroses when well grown, as in this case, have a high value. The blooms measure 1½ inches across. This seems the double form of the yellow Primrose, and decidedly better than the double white, which is commoner in Southern England. The flowers are of an exquisite softness of colour in this respect, far surpassing that of the strong and bold single kinds which come with them from the same garden.

LILIUM THOMPSONIANUM.—The finest specimen that we have seen of this Himalayan bulbous plant was that shown at South Kensington on Tuesday last by Mr. Wilson. It was in a 6-inch pot, and one bulb bore no fewer than seven spikes, one of which was about 15 inches high and carried forty flowers and buds, several of which were expanded. Considering how difficult it is to grow this Lily successfully, Mr. Wilson's specimen is remarkable, and it would be interesting to know what mode of treatment he has followed. The rosy pink flowers of this species are different from those of any other. We observe that the latest name for the plant is *Notholirion roseum*.

RHODODENDRON COUNTESS OF HADDINGTON.—For some time past a fine bush of this lovely hybrid *Rhododendron* has been a great attraction in the Royal Botanic Society's conservatory in the Regent's Park. The plant, about 8 feet high and nearly as much in diameter, is in perfect health, and is densely laden with large blossoms, which when first expanded are a soft pink, but at length become pure white. This plant represents one of the finest varieties we have seen of this hybrid, the flowers being much larger and the colour deeper than usual. Such a beautiful

Rhododendron as this only needs to be seen to be appreciated. It is not uncommon, but not often seen so finely grown.

THE DOUBLE SPARMANNIA which we saw the other day in flower in Messrs. Desbois and Co.'s nursery at Ghent we thought an extremely pretty plant. The flowers, produced in large umbels, as in the well-known single-flowered original, form neat miniature white rosettes, the clusters of stamens being transformed into narrow white petals. The bases of these transformed stamens are slightly stained with a carmine hue, but this does not mar the pure whiteness of the rosettes as seen on the plant. If this double variety could be flowered as freely as the type, it would indeed be a valuable garden plant, and particularly useful for cutting. It is, we observe, in most of the London nurseries.

OPEN-AIR FLOWERS sent to us from Edinburgh by Messrs. Dickson & Co., of the Pilgrimage Nurseries, include the true *Erica carnea*, which has been in full flower since February. It is much superior to *E. herbacea* in colour, size of flower, and profusion of bloom; also *E. sordida*, which succeeds *carnea*; *E. mediterranea* and its white variety, never considered so hardy as some others, but Messrs. Dickson say that they cannot be very tender, as they have withstood all the severe winters in their nursery for many years. *Menziesia empetrifolia*, a neat little Heath-like shrub, is also sent, together with *Saxifraga Wallacei*, which is just bursting into flower. With these also come a double yellow *Auricula*, seedling *Primroses*, and *Polyanthuses*; *Triteleia uniflora*, one of the prettiest and most perpetual flowering of hardy bulbs; and *Narcissus Horsfieldi*, one of the finest of all Daffodils.

PETREA VULBILIS.—The large plant of this shrub in the conservatory at the Regent's Park Botanic Garden has for the last week or two been one of the loveliest sights imaginable, and afforded as much, or perhaps more, gratification to the visitors last Wednesday than the show held on that day in the gardens. The plant is trained close under one of the low roofs of the house, and the large area which it covers is literally a mass of bloom. The racemes of flowers, mauve and violet, are from 6 inches to 9 inches long, and hang in graceful profusion. The corolla of the flower is purple, and resembles a Violet set in a large star-like calyx. In course of time the corolla drops off, leaving the stamens on the raceme, which keeps its colour for a considerable time. The plant has occupied its present position for some years. It is growing in a large tub placed on the stage. The essential conditions of success seem to be abundance of heat and at all times a moisture-laden atmosphere.

NOTES FROM CORNWALL.—I send you a boxful of flowers all of which were gathered out of doors this morning (25th. inst.) I fear we shall not have our usual fine show of Banksian Roses this year, the earliest buds being completely ruined by the severe weather which we had in March. The *Camellia* sent was cut from a bush planted at the western side of a high wall, but it is so hemmed in by a large Holm Oak that it never gets a glimpse of sun; there are several flowers on the bush equally good. The *Habrothamnus* is growing on a south wall at the west end of a greenhouse. The weather here is still very cold at night, and to-day we have had a fall of hail and sleet. — JOHN C. TALLACK, *Prideaux Place, Padstow*. [Notwithstanding the inclemency of the weather, Mr. Tallack sends us beautiful trusses of Banksian Roses, flowering sprays of *Habrothamnus fascicularis*, *Camellias* and *Auriculas* all gathered, as he says, from the open garden.]

CANTUA DEPENDENS.—I herewith send you cut blooms of this shrub and a few notes as to its culture. I find that it succeeds best in an ordinary greenhouse temperature planted on the north side and trained to the roof as a creeper 15 inches from the glass. Its great enemy is red spider, and if trained otherwise the soil is liable to get stagnant owing to the large amount of syringing which it requires to keep down this pest. The blooms, too, are thus shown off to the

best advantage. It thrives well in a mixture of fibrous loam, peat, and sand. Several strong shoots should be trained to the trellis, and the side shoots from these should bear flowers. After flowering, these should be pruned in to two or three buds, slightly shading the plant till it has completed its growth, after which it should be exposed to full sunshine to well ripen the wood. Under this treatment it flowers from January till the first week in May.—A. CHAPMAN, *Weston-Birt, Gloucester*. [With this came some glorious flowering sprays of this fine Chilean shrub—as fine as we have ever seen them. Though so long introduced and so beautiful, it is not half enough known. It is far more worthy of culture than hosts of plants which engage the attention of cultivators. The flowers are tubular, 4 inches in length, brilliant magenta in colour, and hang in graceful clusters from every twig.]

THE NARCISSI shown by Messrs. Barr & Son at both South Kensington and Regent's Park during the week were finer than ever, and well represented the wealth of varieties there is among Daffodils. On this occasion every section was included in the collection, and among the Ajax varieties were such beautiful kinds of Empress, Emperor, Horsfieldi maximus, bicolor J. B. M. Camm, which may be said to be the very finest of the greater sorts. Then of the Leeds and incomparabilis group there was a host of varieties quite bewildering to those whose knowledge of Narcissi is limited. The poeticus type was never finer; in short, no such collection has ever before been exhibited, there being no fewer than 120 kinds, and most of these were represented by several bunches of flowers. The collection made a fine array of colour, but we imagine that a far finer effect would be produced if the various sections were placed in distinct groups and the bottles hid at much as possible. Much of the beauty of these Narcissi was lost by the mixed haphazard arrangement and the obtrusiveness of the ugly bottles. With the assistance of a few graceful Ferns and other greenery, a splendid display could be made by the exercise of a little taste and care.

Garden walls.—In reply to "W. C. B." (p. 365), allow me to say that I much doubt if the saving effected by using stone in place of bricks for garden walls would be such as to make the use of stone advisable, even where the latter can be had for the cost of quarrying and preparing. As a matter of course something depends on the character of the stone and its adaptability for walling purposes, and also on the value of lime in the neighbourhood, as less will be required in brick than stone walls. I have seen a stone wall faced with brick, but care is required in building to tie the work well together. Stone might be faced with cement, but that would entail considerable cost, and would require to be studded and wired when fruit trees are to be grown against it. Stone or cement faced walls have a cold, uncomfortable appearance in a garden, and beyond their use for a simple fence and for training bush fruits against I would not employ them. A 7-foot wall is much too low to give fruit trees a fair chance of extending in a way to develop their true character and bearing capabilities; 10 feet is quite low enough. As to the advisability of planting Peaches, much depends on the locality. This fruit will answer on a west wall in places where the climate is suitable. As a matter of course Peaches will be more likely to bear on a west than on an east aspect, consequent on the bloom being less likely to suffer from frosty winds from that quarter than the east. The same holds good with Plums, which I should also plant on the west side, putting Pears and Cherries on the east. If the locality is such as not to give fair promise of Peaches succeeding, I should cover the west wall with such kinds of Pears, Plums, and Cherries as were most desired, leaving the eastern side to others of less consequence. T. B.

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INDOOR GARDEN.

DIELYTRA SPECTABILIS IN POTS.

THIS may be said to be one of the most useful hardy plants we have, and one especially suited for pot culture, though even in the coldest parts of Yorkshire it flowers freely outdoors. It is, however, of its merits as a pot plant I am going to speak. The best season to have it in flower is from February to the end of April. It is a plant that dislikes over-forcing, under which it assumes a weakly, drawn appearance. To have it in good form it should be strong and healthy, and should produce long trusses of its peculiar shaped and handsome flowers in abundance. Plants of it for forcing should be lifted from the open ground in mild weather, as if frosty both its crowns and large thick roots will be broken. When gently forced and allowed plenty of time in which to make growth the stems become strong and sturdy, and are not liable to get damaged when the plants are removed from place to place. They should, however, be staked, an operation which should not be deferred too long, or the stems are apt to become twisted and broken. For room embellishment or dinner-table decoration *Dielytras* are very effective, or they may be arranged in masses in the conservatory. The most effective way of displaying their graceful flowering wreaths is to have the plants sufficiently elevated for the eye to view them from below. At Eastertide we have had 700 or 800 plants all in full flower at one time. Those who have a stock of it should prize it and grow a quantity of it in pots. If any injury arises, it is done after the flowering season is over. Instead of the growths made indoors being gradually hardened off, the plants are either planted out regardless of the weather, or, what is still worse, laid upon their sides and kept in an unnaturally dry state.

As regards soil, a mixture of good loam with a little sand, leaf-mould, and peat answers admirably, the last three forming about one-third of the bulk of the loam. When planted in borders the soil should be light and friable.

D. WILSON.

ANTHURIUM SPLENDIDUM.

AMONGST the numbers of new Aroids remarkable for their fine foliage that have been recently introduced to our gardens from the tropics of South America none are so ornamental as the one which Mr. Bull, of Chelsea, is now distributing for the first time under the appropriate name of *An-*

most beautiful feature of the plant is its colour—a kind of bronzy green, shaded with greens of lighter and deeper shades. Those who admire plants with beautiful foliage will welcome this one, especially as it shows its true character even in the very youngest state. It was one of the new plants shown at Ghent last week in competition for the silver cups offered by Mr. Bull, and was much admired. As to its culture, we should say, judging by what we have seen, that it flourishes in a warm, moist atmosphere, and that it is all the better if grown in a glass case in which the atmosphere could be kept close and equable.

CULTURE OF GLORIOSAS.

AMONG summer and autumn flowering plants few are appreciated more than these; the profusion of highly-coloured flowers which they produce with unfailing regularity repays all the labour bestowed on them. Any one possessing a stove may grow them provided they are not heavily shaded. We always grow ours in the Pine stoves, where they are fully exposed during the whole period of their growth. Now is a suitable time for potting them; the pots may vary in size from 6-inch to 12-inch. They should be well drained, and the compost should be used in a rough state. It should be composed of loam and peat or loam and wholesome leaf-mould, in equal portions, with one-eighth coarse sand. We have added among other things at times some old cow manure, but found no difference in the growth of the plants from its use. The tubers may be either laid on their sides or placed with the end furthest away from the old tuber uppermost, and in either of these cases they must be covered more than 2 in.

*Anthurium splendidum.*

thurium splendidum, a small state of which is represented by the annexed illustration. In the form, size, and colour of the foliage it is distinct from any other in cultivation; it is therefore a valuable addition to stove plants. The stem is short and thick, and even in a small state produces several leaves. These are heart-shaped, and grow to about twice the size of those here represented. The upper surface between the veins is peculiarly puckered, as if blistered, and the under surface is traversed by prominent veins. The

deep. If the compost is fairly moist at the time of potting, they will not require any water until they have made a few inches of growth. Care must be taken that slugs do not get at them and destroy the young growths, for if their points are injured at any time they will be of little use for that season. Where the stove is heavily shaded, space might be left at one end where they could be placed near the glass, or strings might be stretched along the bottom at right angles with the rafters. No shading need be used over where they are

trained; by having them on strings they can be easily removed if necessary and placed on a trellis so as to be ready for decorating the conservatory in August. I have only grown *G. superba* and *Planti* or *virescens*. The latter seeds freely.

PROPAGATION may be effected by means of seeds, but oftener by division of the tubers. When seeds are employed, they may be sown as soon as they are ripe, and if properly matured they germinate freely. It is best to allow them to remain in their seed pots for the first year; half a dozen seeds in a 4-inch pot will be enough. The following year they should be potted in the same compost as that used for older plants, three tubers being placed in a 6-inch pot. Towards the end of September the foliage will assume a yellowish hue, thus indicating that their time of resting is approaching. They will not then require so much water, but they must nevertheless be supplied with it when dry. Anything like forced rest must be avoided. When the leaves and stems are withered, water should be entirely withheld and the pots placed on their sides in a temperature of not less than 50°. It is noteworthy that *Gloriosas* are not liable to be attacked by disease or by insect pests, i.e., if ordinary attention be paid to them. If permitted to get dry a few times in the midst of growth, red spider will probably make its appearance, but it can be got rid of by a diligent use of the syringe and a sufficient supply of liquid manure to encourage robust growth.

W. P. R.

HYACINTHS—THEIR CULTURE AND SELECTION.

No garden can be considered furnished with spring flowers that contains no Hyacinths. Almost everybody grows them, but all do not succeed in growing them even fairly well. Good spikes cannot be produced unless the best bulbs are purchased. What we in this country have to do is simply to develop the spike formed in the bulb the previous season in the bulb gardens in Holland. We cannot place more flowers on the spike than the number already there before it came into our possession. It will thus be seen how important it is to purchase bulbs that have been well grown and thoroughly matured. In selecting bulbs it is not well to lay too much stress upon their being well formed; indeed, a rather extensive experience confirms me in the belief that the ugly, misshapen bulbs are the most likely to produce good spikes. Some bulbs seem as if they were partly split open by some internal force. This is doubtless the result of spike formation inside, and it is a sure sign that the spike will be a good one.

THE POTTING MATERIAL ought to be very rich and porous. I use a compost of two parts turfy loam, one of rotten cow manure, one of leaf-mould, and one of sharp sand—sea sand is best. There is a right and a wrong way in potting the tubs. The wrong way is to fill the pot with the potting material, and then to press the bulb into it. This causes the soil underneath the bulb to be so firm, that during the process of root formation the bulbs are forced out of the soil. The right way is to open a space in the soil rather larger than the bulb, put in a little sand, then close the compost round the bulb, pressing it in rather firmly. The top of the bulb should just project out of the soil; place a pinch of sand over it. When the bulbs are all potted they should be placed out of doors on a dry bottom of coal ashes. Cover the pots over with Cocoa-nut fibre refuse, or leaf mould answers well for the purpose. The best place to plunge the pots is an open position where they are fully exposed to atmospheric influences. They are sometimes put under the stages of plant houses, but that is not a good place for them. The drip from plants above is likely to make some of them too wet, while others get too dry. Such treatment is almost sure to cause an unequal growth and many weak and badly developed spikes. Another frequent cause of failure, especially with the earliest flowering plants, is to take them into the forcing house before roots have been

formed or not sufficiently formed to support well the rapidly growing spikes and leaves.

FORCING.—The Hyacinth is very easily forced, and can stand a moderately high temperature, but the bulbs must be early potted and placed out of doors in plunging material until roots are formed, and it is best not to hurry the plants too much into growth at first. Start them with a low night temperature, and gradually increase it as the plants show signs of growth. A very good way of promoting root development is to plunge the pots in a very gentle bottom heat; with the aid of this they can be pushed on in a higher temperature than would otherwise be possible. The best spikes are usually obtained later in the season. Roots are formed very rapidly out of doors about the last week in September, and the spikes are usually to be seen about an inch above the crowns by the second or third week in January, when they may be moved indoors. If it is intended to publicly exhibit them at the spring exhibitions which are usually held in March, about the end of that month, extra care must, of course, be taken with them. They should receive greenhouse treatment for a month or six weeks after they are taken into the house, and if it is necessary to push some of the late flowering varieties on a little faster it is easy to do so by taking them into a warmer house for a few days. For instance, one of the best Hyacinths—King of the Blues—flowers later than the others, and requires to be placed in a warmer house to get it in at the same time as the earlier flowering varieties. Neat wire supports are the best to keep the spikes in an erect position. The wire should be bent where it enters the mould to avoid injuring the bulbs. In some cases the bells are placed too closely on the spikes and they cannot develop themselves, forming a crowded mass merely of half-opened flowers. It surely agrees with common sense as well as with good gardening that the surplus bells should be removed with a pair of scissors to allow the spikes as well as the flowers to develop themselves perfectly. Thinning the flowers, as well as arranging them on the spikes, is allowed to an exhibitor, and is a part, a necessary part, of the cultivation of the Hyacinth. The question of tying two spikes together very closely, so that they are made to appear as one, ought not to be permitted by an exhibitor. It is sometimes done, and I remember judging at an exhibition where this was done, the exhibitors vieing with each other as to who would do the neatest work. Another dodge I found last year at an exhibition where I was judging. It was late in the season, and the Hyacinths had been kept back by shading until the leaves had become much more elongated than was desirable. As it is usual to plunge the pots in which the Hyacinths were grown in a larger pot, and to cover the surface over with green Moss, advantage was taken of this to double the leaves in the way careful mothers tuck their children's frocks to shorten the skirts for a time, the tuck in the Hyacinth leaves being covered by the Moss. The deception being discovered in time, the exhibitor was disqualified in several classes. One is frequently confronted with the question, what becomes of all the

NEW HYACINTHS that are introduced and publicly exhibited year after year? I have attended every exhibition of Hyacinths that has been held in London for the past fifteen or twenty years, and can say with confidence that more really good new Hyacinths have been exhibited in that time than are to be found in the best trade catalogues of the present day, and yet not one in twenty of those new Hyacinths are to be found in the trade lists. The Messrs. Veitch, of King's Road, Chelsea, have exhibited far more new Hyacinths in that time than all the other trade growers together. Since the year 1871 they have received no fewer than sixty first-class certificates for new Hyacinths, viz., in 1871 one for Princess Louise, a single white variety, with large, well-formed bells; in 1873 one for Mazzini, single blue; Baroness Van Tuyll, and Marie. The year 1874 brought a grand display of new Hyacinths: Anna, pinky white, a splendid variety; Plimsoll, single white;

Sir G. Wolsley, single blue; and Cavaignac, single blue. From the Royal Botanic Society this firm received awards for Anna; Sir G. Wolsley; Von Schiller, single blue; and Minister Thorbeck, single white. In 1875 Etna received a certificate from the Royal Horticultural Society. In 1876 Sultan, a distinct single violet, was certificated; The Shah, single blue; and Golden Lion. In 1877 Orange Queen, Marquis of Lorne, Globosa, and Queen of Lilacs were certificated; in 1878 King of Blacks, Grand Maître (single blue), and Queen of Blues. The year 1879 was a good year for them. The Royal Horticultural Society certificated Salmon King, King of Reds, and Leviathan; the Royal Botanic Society Duke of Connaught, single blue; Duchess of Connaught, a fine pale blue or lilac; Duke of Norfolk, single blue; King of Reds; Leviathan, single white; Royal Blue; Lord Derby, single red; McMahon, single yellow; Prince Imperial, and Salmon King. In 1880 the Royal Horticultural Society gave a double first to the single blue Cavaignac, while Queen of Yellows and Electra, single blue, received first-class certificates. In that year the Royal Botanic Society certificated Cavaignac, Queen of Yellows, Distinction, single red, and Capt. Boyton, single red. In 1881, Primrose Perfection and Magnificence were certificated. In 1882, Enchantress, single blue; Delicata, pale pink; Leo, double pink; Challenger, deep red; Delicata, Charles Dickens, Surprise, and Duke of Albany were certificated. In 1883 first-class awards were made to Pink Perfection and Souvenir de J. H. Veen, while the Royal Botanic Society honoured these two and also Empress of India with certificates. Besides the above the same firm has during that time exhibited at least 200 of what may be termed really good varieties.

A SELECTION of the very best varieties that are to be found in the trade catalogues would comprise the following, all of which are adapted for exhibition, and of course if a variety is good for exhibition it is also good for the drawing-room, greenhouse, or conservatory: Single red—Cavaignac, Fabiola, Garibaldi, Gigantea, Lady Palmerston, Lina, Lord Macaulay, Linnæus, Princess Helena, Solfaterre, Sultan's Favourite, Von Schiller, Vurbaak. The only double red varieties I care to grow are Duke of Wellington and Koh-i-noor. The best single blue varieties are, Argus, Baron Van Tuyll, Blondin, Charles Dickens, Czar Peter, De Candolle, Grand Lilas, Grand Maître, General Havelock, King of the Blues, Lord Derby, Lord Palmerston, Marie, Mimosa, Prince of Wales, and Sir John Lawrence. Of double blue sorts, I care only for the deep indigo blue Laurens Koster and the pale blue Van Speyk. Mauve and magenta are Charles Dickens, Sir Henry Havelock, and Haydn. Single white varieties should comprise Alba maxima, Baroness Van Tuyll, La Grandesse, l'Innocence, Mont Blanc, Queen of the Netherlands; Snowball has the best formed bell, but it is not a good spike; Grandeur à Merveille is white with a rose tinge. Single yellows—of these I grow only Bird of Paradise and Ida.

J. DOUGLAS.

Fine-foliated Begonias from seed.—

All these Begonias are increased without difficulty by division or by cuttings made of the leaves, so that it is by no means necessary to raise them from seed; yet, by the latter method, although nothing may be obtained superior, or even equal, to some of the older kinds, it is very interesting to watch the young plants gradually developing their adult characters, for the change that takes place in them is very great. My seedlings are obtained from home-sown seed—that is, having three or four distinct varieties in bloom at the same time I intercrossed them one with the other, and when the seed was ripe it was sown in a shallow pan without being covered in any way, except a pane of glass laid over it, till germination took place. So treated and placed in the stove, the seedlings came up quickly and in great profusion, and as soon as large enough to handle they were pricked off. After that they grew rapidly, and were soon established in little pots, when a glance over them at that time gave great promise of

FRUIT GARDEN.

TOO SMALL VINE BORDERS.

VINE borders, in my opinion, as at present formed are much too limited as regards surface space; they are too narrow and often too deep. It is a waste of time and material to excavate to a depth of 3 feet, and to provide an expensive system of drainage. In practice that is unnecessary. What is wanted is more surface space. The most fruitful Vines are those that have unlimited root-run. We ought, therefore, to prepare Vine borders in such a way that when planted they will last a lifetime, and in many cases it is possible to do so. To accomplish this we must, however, step out of the beaten track. We need not look far for evidence to show that restricted Vine borders do not promote productive and long-lived Vines. In eight cases out of ten, when the Vines have reached the age of twenty years they are worn out or rather prematurely exhausted from want of more root-room. If we look at the rambling character of the roots, we have the key to the conditions required to sustain Vines in a vigorous and fruitful state, and, given these conditions for the roots and proportionate space for the branches, there is no reason why, except in the most unfavourable situations, a house of Vines, when once planted, judiciously cropped, and otherwise well treated, should not keep fruitful for forty or fifty years, instead as now, in restricted borders only from fifteen to twenty years. I do not say that Vines do not produce good crops of Grapes in these narrow borders. My argument is, that when a good fruitful state is arrived at it should go on for a much longer time than it now does, but that is not possible with a limited root-run. Where old Vines remain in vigorous health and fruitfulness it is generally acknowledged by those who manage them that the roots have long since escaped from the limits at first assigned to them. Therefore, can more conclusive evidence be offered in favour of more root room? I have yet another objection to make to

LIMITED BORDERS, especially those where the situation is low and the staple soil of the place of a cold, ungenial character. In this, as in all other positions the roots refuse to be confined; they find their way into the unsuitable soil below, and consequently in a few years the Vines get into an unhealthy condition. This could be prevented by giving more surface space; for although it is not possible always to prevent a few large roots finding their way into undesirable quarters, it is the natural character of the plant to seek principally for its food near the surface, where it can find warmth and moisture. If the space is limited, ill-health shortly follows. If that be not so, how are we to account for the fact that in eight cases out of ten there is not a viney to be found in the country in a satisfactory condition that has been planted more than twenty years? This may be denied, but the denial must be supported by proof. I maintain that for general purposes we do not want rich and deep borders limited to a certain size that will furnish a bountiful supply of food for the roots for a few years and then become suddenly exhausted. The Vine is impatient of restriction both as regards root and top, and when placed under suitable conditions it is able to remain fruitful for a great length of time. I therefore hold to the opinion that in providing borders of limited extent we do not place the Vine under conditions favourable to its attaining a fruitful condition in old age, and I base my argument on the principle that if you give the roots sufficient surface space, even if the subsoil be of an unkindly character, there will be sufficient roots maintained in a healthy condition to keep the Vines in health and fruitfulness for a number of years (that is supposing that some of the roots should find their way into bad soil, which they are not likely to do to any extent if they have room to extend in better quarters).

WHAT KIND OF BORDERS, then, are necessary for promoting long-lived and fruitful Vines? I have already in a great measure answered this question, but I should like further to say that I want to see restricted root space done away with altogether.

Instead of having narrow borders and a prominent walk in front of them, the roots should have a long run before them in one of the quarters of the kitchen garden, or some other favourable position in which they are not in any way confined, within 60 feet or 70 feet of the house. This space need not be wholly unoccupied, but the half of it nearest the house should remain uncropped. With so much surface space, deep borders would be unnecessary. It would not indeed be needful to make borders more than 2 feet deep, and only from 10 feet to 12 feet wide. If beyond this point the soil to a depth of 15 inches or 18 inches is fairly good, the Vines would take no harm; on the contrary, they would revel in it if its composition is in any way different from that of the border, *i.e.*, if the roots can only keep near the surface. It is clear to me that we hardly recognise the benefit that a warm border affords the roots of Vines. I feel satisfied that if it were possible to give the roots sufficient water we could not do better than cover our outside Vine borders with flagstones; the warmth generated by these stones would bring the roots near the surface and prevent them from going deeper into ungenial soil. I have quite recently had ocular proof that such would be the case. In making some alterations in a large house in which one-third of the interior is occupied by a border for Vines and the remaining space covered with square tiles, I found on taking up the floor formed with the tiles that under them there was a perfect network of roots from one end of the house to the other. They had made their way either through or under a $4\frac{1}{2}$ -inch brick wall, and were evidently enjoying the warmth and moisture obtained through the tiles. It must be understood that to create internal atmospheric moisture for the Vines the floor of the house is kept constantly damp during the summer when they require moisture, and it is very certain, owing to the poorness of the soil under the floor, that there was nothing there to induce the Vines to root so freely except the warmth generated by the tiles and the moisture resulting from the constant damping of the floor. This covering of the surface would, however, only do good in the case of restricted borders. I mention my own experience in respect to this matter to show that, with plenty of surface space, the roots will come there in search of warmth and be benefited thereby.

J. C. C.

SMALL-FLOWERED PEACHES BEST FOR FORCING.

THOUGH, as a rule, we rarely fail to get a good set of fruit on all the trees of our indoor Peaches, yet we have occasionally had partial failures, and particularly in our earliest house; year after year in a larger or lesser degree has this occurred, and we have been much puzzled to discover a reason, seeing that all the usual remedies against such mishaps have been scrupulously carried out—such as never allowing the border to get too dry, preventing the overcrowding of shoots, which hinders perfect maturity, and taking care not to apply too much fire-heat on first starting to force. This last is a condition which must be credited with the cause of more failures in Peach forcing than all other causes put together. In our case all these dangers, and more, have been guarded against, and still on some trees the fruit sets very thinly. This year, however, we think we have really made out the right position of the danger signal, and mean to avoid failures in future. I daresay some readers will marvel when it is said that large flowered Peaches constitute the "bogie," at least, in the earliest house, but such is the fact; every tree of the small flowered section sets freely, the large flowered ones only fail, and on close examination the reason why of this is plain enough—the small flowered have always a superabundance of pollen; the large flowered lack this, so that henceforth none but small flowered varieties will be grown in the earliest house. In a late house both large and small flowered kinds set equally well, the advanced season, sunshine, and a drier atmosphere conducting to the free setting of varieties most destitute of

something new. In some the leaves were of a dazzling silvery whiteness; in others I had the same ground colour, with bright green punctures; in some they were regularly striped and banded, or clouded and freckled in various ways; but after a time, as they assumed their adult forms, the promise of novelty disappeared, and the foliage partook of the character of ordinary kinds. Such being the case, it may be said there is no advantage in propagating them in this way; but, apart from any other considerations, the seedlings, when in 4-inch or 5-inch pots, make pretty little specimens, and are at that size very useful for decorative purposes, such as where grouping is employed, for using in conjunction with Ferns and similar subjects, to finish off the edges of the groups, or to carpet the ground underneath taller plants.—ALPHA.

Cantua dependens.—I have had a plant of this on a rafter in a curvilinear greenhouse for these last twenty years, and every spring it has formed a waving arch of floral beauty, the point of every shoot carrying pendulous bunches of rose-coloured flowers in great abundance. The plant grows in a border of common loam along with Roses and climbers, the roots of course being under the side stage, and the hot-water pipes are frequently deluged with water from the pathway. The *Cantua* is very liable to red spider; therefore the syringe should be freely used. It is a plant of vigorous growth and will soon reach the top of a 20-foot rafter, but I prefer *Cantua bicolor* to *C. dependens*, the flowers of bicolor being a rich, reddish yellow or bronze, and consequently very attractive. It also grows and blossoms freely when planted out. The flowers are dispersed along the young shoots, and not in such large terminal bunches as in the case of *C. dependens*. I find both to be very useful for drawing-room decoration.—K. H.

A floriferous Stephanotis.—A few days ago in looking through Sir Fred. H. Bathurst's gardens at Clarendon Park, near Salisbury, I noticed, not for the first time, in a three-quarter span-roofed stove a truly grand plant of *Stephanotis floribunda* growing in a box 2 feet long, 20 inches deep, and 18 inches wide, standing on the end of a stage; the shoots were trained longitudinally under the apex of the roof, and about 4 feet or 5 feet wide on each side the entire length of the stove (about 25 feet). And had the welfare of the luxuriant and well-flowered plants of *Gardenias* planted in the bed underneath not been cared for, there were sufficient *Stephanotis* shoots to cover the whole roof. That the treatment which this plant receives from Sir Frederick's gardener, Mr. Warden, is in every respect congenial to its special requirements, is amply shown by the profusion of dark green leaves with which the shoots are clothed, and by the grand trusses of flower with which they are furnished—even to the points of the young shoots—these and the *Gardenia* blooms quite scenting the air not only in the house, but also that immediately surrounding the house when the atmosphere is undisturbed by wind. Your readers will understand that a plant having such limited root space as that under notice requires and receives liberal treatment in the way of top-dressings and copious and frequent supplies of weak manure and soot water, to the effect of which and its judicious application may in a great measure be attributed the fine condition in which the plant now is and its general disposition to bloom profusely. *En passant*, I may be allowed to remark that cut flowers and plants are in great demand at Clarendon for table and house decoration, and that Lady Bathurst, who has a good knowledge of plants and flowers, takes great interest in floral decorations and gardening generally.—H. W. W.

Anthracite coal.—I have much pleasure in informing "J. H." that the best anthracite for heating purposes is to be had from Llanelli and Burry Port. It is the only pure anthracite, and can be had from J. & C. Harrison, 66, Mark Lane, London, and Llanelli. I have used the above coal for several years and have found none equal to it.—J. J. T.

pollen. The following we have tested as reliable forcing varieties, being alike good bearers, sure setters, and producers of fruit of fine quality; they are named in the order in which they ripen, and are all small flowered, viz., Early Louise, Dagmar, Magdala, Crimson Galande, Bellegarde, and Royal George. W. W. H.

VINE PROPAGATION.

As there has lately been some quibbling over certain modes of Vine propagation, more particularly as to whom we are indebted for originating the turf plan of propagation, it has occurred to me that perhaps I, too, might become famous as an inventor if I could but overcome my natural modesty, and bid for greatness by the record of my own doings in this direction; so here goes, sink or swim. Well, in March of last year I determined on pulling up some old Vines and replacing them with young ones, but then I had no plants nor the wherewithal to buy any, and "to beg I was ashamed." Very fortunately though I had saved the prunings of old Vines, which at the time of pruning had been tied together, and their ends put in soil behind a north wall; these were at once cut up into eyes, put in pots, and plunged in frames after the usual mode of propagation. The border—an inside one—was at once made, and consisted of two-thirds—top spit—of freshly-dug loam, the other third being $\frac{1}{2}$ -inch bones, charcoal, mortar rubble, and horse droppings, the whole being thoroughly mixed together, and well pounded into position; in less than a week after being made up a bottom heat thermometer placed in the border registered 85°. Such a favourable condition for starting the Vine eyes could not be lost, and so I transferred the eyes from their snug quarters in the pots and frames to still more snug quarters—the new border, and over each one placed a small bell-glass. These were left over till the eyes had rooted, which they did in three weeks, and grew away with all the vigour of fully-established Vines. There, now, is the latest idea in Vine propagation. I have secured no patent; all are at liberty to practise it, and may they meet with the same reward that I am likely to do this year, namely, an abundant crop of Grapes. W. W. H.

Fruit prospects in Somerset.—So far as I am able to judge from the appearance of fruit trees in the middle of April, there is nothing very alarming to report. The Apricot crop will, undoubtedly, be a thin one, as all the early flowers were killed by the severe March weather, and this even under a wide glass coping and Frigidom curtains in front. Still, I think the later blossoms which opened will give us a few fruits. Early flowering and tender Pears were a good deal injured by the frosts in March, especially such sorts as Marie Louise, Brockworth Park, and Beurré Clairgeau, but a few sorts are now opening stronger, and, therefore, more promising than I expected. I do not think the Plum crop is in any way hurt as yet. Green Gages are now flowering abundantly, and this is almost the only kind of Plum in blossom yet, a sufficient proof of the lateness of the season. Gooseberries are very promising so far, but both Black and Red Currants are breaking very unevenly. Strawberries, a fortnight ago, looked as if a fire had passed over them, every leaf being withered into tinder, but now they are showing signs of fresh animation. Apple trees have in no way suffered, but rather benefited by a cold wintry March, as it has kept them back; so far as one is able to judge, there is a full average promise of bloom on most of the trees. J. C. C.

The late cold weather.—In a late number of the *Journal des Débats*, one of the leading French newspapers, there are some striking remarks by M. Henri de Parville on the late burst of cold weather which it may be of interest to remember. "Winter came this year," it says, "in March. From the 7th to the 15th the cold was very great, even in the south of France, in Italy, and in Algeria. The lowest temperature was on March 11; on

that night the thermometer fell at the Parc de Saint Maur to 7° Cent., or 19° Fahr. During December, January, and February the temperature was 2° above the average, though less warm than in 1876-77, when it was 4° above the average. It is not the first time that this unusual cold has occurred in March, for it is the fifth time since the beginning of the century that the severest cold has come in that month. The lowest recorded temperature in March was in 1796, when in Paris the mercury fell on March 7 to 8° Cent., or 17° Fahr. In 1807 on March 12 3° were registered. In 1825 the lowest temperature of the year was again on March 17 (St. Patrick's Day)—5° Cent., or 23° Fahr. In 1863 on March 1 the cold was unusual, 2° Cent., or 25° Fahr. being recorded." These figures show how curiously anomalies of temperature repeat themselves, and add to the probability that the more carefully records of climate are kept the more it will become apparent that no great alteration in the climate of Europe has taken place, but that considerable variation has been at all times the case.—BRINSLEY MARLAY.

TREES AND SHRUBS.

THE BLACK MOUNTAIN FIR.

(*PICEA CEPHALONICA*.)

THIS beautiful and distinct Fir is well adapted for planting as single specimens on lawns. It is also very effective when planted along with other conifers of different shades of colour and habits of growth. It is a native of the mountainous districts of Cephalonia, where it attains an average height of about 60 feet. Unfortunately, in early life in this country it is liable to be cut down by late spring frosts, yet by a proper selection of soils and sites I have been successful in growing some fine specimens of it. For many years after its introduction into this country it was chiefly propagated by grafting it on the common Silver Fir, and as both trees start into growth at the same time in spring, the scion and stock unite freely, and in this way many fine trees have been produced. For a great number of years I have, however, raised it entirely from seed, of which the trees, after attaining a medium size, produce abundance. It should be collected in autumn, extracted from the cones, and sown the following spring. In selecting a seed bed, preference should be given to a light rich soil, shaded by trees or shrubs from the morning sun, so as to screen the young plants from its rays after late spring frosts. The ground should be thoroughly pulverised and formed into beds about 4 feet wide. The seeds should be sown broadcast and evenly on the surface, and a light roller should be run over the bed, so as to settle them down in a uniform manner, finishing by covering all evenly over with fine soil. When the young plants begin to appear above ground a few evergreen branches should be stuck in here and there to screen them from frost. When they have attained a height of some 5 inches or 6 inches they should be planted out in nursery lines in the same manner as that recommended for *P. nobilis*, the only difference being that they will require, as has just been stated, a little protection in spring.

THE SOIL most suitable for this conifer is good clayey loam, rich in organic matter, thoroughly drained, and resting upon a cool clayey subsoil. It is also quite at home when planted on well decomposed peat bog, mixed with a little ordinary soil. When planted as a single specimen on a lawn, the site, if possible, should be exposed to the north; this will assist in retarding its growth in spring and lessen the risk of its being cut down by frost. It is exceptionally well adapted for planting in cold, bare, open places among deciduous trees, where it is desirable to establish contrast and variety. In planting it in such positions the ground should be thoroughly trenched and all tree roots and dead stumps should be extracted. If this can be done a year before the trees are planted, so much the better, as the ground will be much improved by being broken

up and left in a rough state exposed to the weather for that period.

IN PLANTING spread the roots well out and keep the plants rather above than below the level of the surface. They should then be fenced, in order to protect them from hares and rabbits. For this purpose I have generally used wire netting, which is best and cheapest in the end. It may be 30 inches high, 2-inch mesh, wire gauge 17, and erected in a circular form round the plant at a distance of fully 1 yard from the stem, and fastened to small, upright parts. Should any Ash, Elm, Sycamore, or Birch trees be growing in the immediate vicinity of the Conifers, a deep, narrow trench should be cut at the outside of the wire netting to prevent the roots of these from robbing the young plants of the Picea. These trenches ought to be kept open for several years—say until such time as the plants fill the cages; the latter may then be removed and the trenches filled up, as the young trees ought by that time to be thoroughly established. This tree naturally assumes a dense spreading habit of growth, in consequence of which it is not liable to get drawn up too much when planted in such positions. After it has attained a height of 5 feet or 6 feet I have seldom seen it injured by frost, and when planted among other trees they afford all the protection necessary for its uninterrupted development. When it has attained a height of some 40 feet or 50 feet it has a great tendency to produce several strong side branches near the top, the terminal points of which curve round and produce an upright leader, which gives the tree a peculiar appearance. I have sometimes tried to repress this growth by breaking off the terminal bud, and sometimes by cutting back the branch in order to throw the sap and strength of the plant as much as possible into the leader; in this, however, I have only been successful to a limited extent, the trees still being inclined to have their own way. J. B. WEBSTER.

FLOW OF SAP IN A BIRCH.*

BENEATH a white Birch tree growing in my garden I noticed, the other evening, a very wet place on the gravel path the water of which was obviously being fed by the cut extremity of a branch of the Birch about an inch in diameter and some 10 feet from the ground. I afterwards found that exactly fifteen days ago circumstances rendered necessary the removal of the portion of the branch which hung over the path, 4 feet or 5 feet being still left on the tree. The water or sap was dropping fast from the branch, at the rate of sixteen large drops per minute, each drop twice or thrice the size of a "minim," and neither catkins nor leaves had yet expanded. A bottle was at once so suspended beneath the wound as to catch the whole of the exuding sap. It caught nearly 5 fluid ounces between eight and nine o'clock. During the succeeding eleven hours of the night, 44 fluid ounces were collected, an average of 4 ounces per hour. From 8.15 to 9.15 the following morning very nearly 7 ounces were obtained. From 9.15 to 10.15, with bright sunshine, 8 ounces; from 10.15 until 8.15 in the evening, the hourly record showed that the amount during that time has slowly diminished from 8 ounces to a little below 7 ounces per hour. Apparently the flow is faster in sunshine than in shade, and by day than by night. It would seem, therefore, that this slender tree, with a stem which at the ground is only 7 inches in diameter, having a height of 39 feet, and before it has any expanded leaves from whose united surfaces large amounts of water might evaporate, is able to draw from the ground about 4 litres, or seven-eighths of a gallon of fluid every twenty-four hours. This soil had only an ordinary degree of dampness. It was not wet, still less was there any actually fluid water to be seen. Indeed, usually all the adjacent soil is of a dry kind, for we are on the plateau of a hill 265 feet above the sea, and the level of the local water

* Abridged from a paper read by Prof. Atfield, F.R.S., at an evening meeting of the Pharmaceutical Society, April 4, 1883.

reservoir into which our wells dip is about 80 feet below the surface. Whether or not this little experiment throws a single ray of light on the much debated question of the cause of the rise of sap in plants, I must leave to botanists to decide. I cannot hope that it does, for Julius Sachs, than whom no one appears to have more carefully considered the subject, says, at page 677 of the recently published English translation of his textbook of botany, that "although the movements of water in plants have been copiously investigated and discussed for nearly 200 years, it is nevertheless still impossible to give a satisfactory and deductive account of the mode of operation of these movements in detail." As a chemist and physicist myself, knowing something about capillary attraction, exosmose, endosmose, atmospheric pressure and gravitation generally, and the movements caused by chemical attraction, I am afraid I must concur in the opinion that we do not yet know the real ultimate cause or causes of the rise of sap in plants.

NOTES.

THE TENBY DAFFODIL.—Of all the many forms of Daffodils now in cultivation this is one of the best. Our illustration gives a good idea of the size and form of the flower, but of course no idea of the rich intensity of its yellow hue. It is very hardy, of dwarf, robust habit of growth, and it blooms very early along with *N. nanus* and *N. maximus*. It is supposed by nearly all authorities, both ancient and modern, to be a native of Spain, but it is abundantly naturalised near Tenby, in Wales, and, as I am recently informed, it has existed in Ireland in one spot near Gorey, in Co. Wexford, for at least the past sixty years. We may not be able to clear up the exact

Tenby Daffodil (*Narcissus obvallaris*).

time of its introduction from its native country, nor whether it came to this country direct or otherwise, but it still remains to us a fact that so good and showy a Daffodil is plentiful and easily cultivated in all soils and localities. I consider it equal to any other Daffodil as regards beauty, and well worth growing in quantity along with *N. maximus*, *N. Horsfieldi*, *N. Emperor*, *N. princeps*, *N. moschatatus*, and *N. cernuus*—all Daffodils of irreproachable value in most gardens.

A SUNNY APRIL DAY AMONG THE DAFFODILS.
—Waving masses and beds, borders, and great

quarter-acre plots of Daffodils dancing in the sunshine and showing delicious glints of colour from cup and perianth as they tremble and wave and nod their graceful blossoms and buds in a sea of glaucous leaves. What fresh life and healthy vigour and graceful beauty! What Protean variety, moreover, is there not among these new seedling Narcissi! Form and colour for the florist, artist, and gardener alike; variety for all tastes, until now-a-days the old common Daffodil of the meadows has well-nigh solved the problem of pleasing all alike in some sort, and hence its growing popularity as a thoroughly hardy and graceful flower. Oh, Proserpine! thou didst not well. The Proserpines of our day love and treasure their flowers too well to lose them.

YESTERDAY I was out in Barr's bulb grounds at Lower Tooting just when Narcissi were at their freshest and best, and enjoyed their beauty thoroughly. Every day new varieties open their eyes to the sun. Of the newer and rarer kinds *N. Backhousei* is noteworthy, a sturdy little *N. bicolor* having a sulphur perianth and a golden trunk. One of the most distinct of all the *N. incomparabilis* group is *N. Barri albidus*, one of the Leeds seedling kinds. It is quite dwarf, not a foot in height, bearing its nodding sulphur blossoms among its erect glaucous leaves in a pretty modest way. *N. Barri sulphureus* is dwarf like the last, but with much darker blue-green leaves, and the flowers are sulphur with a warm orange cup. Amongst the Ajax or Daffodil section Sam Tisdale is one of great beauty, with a yellow perianth and great expanded trumpet of a rich yellow hue. Among the pale or sulphur Daffodils William Goldring is a long, slender, and graceful flower in which the pert stiffness of the wild Daffodil is lost and a lissom gracefulness acquired instead; as a cut flower it is very pretty. Among the large Peerless race Frank Miles is unique for size and beauty. During the next two or three weeks this collection will afford a great treat to all lovers of Daffodils.

ANEMONE CERULEA.—Among seasonable hardy flowers the Parsley-leaved Anemone is just now very pretty in its way, bearing bluish purple cups on stout, erect stalks, which rise from a little meadow of finely-cut dark green leaves. This plant in a way resembles *A. coronaria*, but is yet in appearance quite distinct. With it, for company, one may do worse than associate *A. coronaria* var. *The Bride*, a soft satin-like white flower with a greenish centre—indeed, not unlike the rare *A. alpina* in blossom, although with pale green *A. coronaria*-like leaves. Both these varieties are so much gain to all who love and cultivate the early blooming Windflowers. They are of Continental origin, and both grow well on well-enriched, deep, loamy soils. I complained to an old gardener the other day that Anemones did not attain their highest vigour on our light sandy soil. "Ah," said he, "all Buttercups like a bit o' clay to take a hold of with their roots," and so I find it; nearly all the Ranunculaceae flowers, "Buttercups," as my old friend said, like a bit of good strong loam to grow and luxuriate in.

FICARIA GRANDIFLORA has for weeks been very effective, throwing up in quick succession its shining golden stars, each as large as a crown-piece. Its heart shaped leaves are pretty in form and of glossy texture, and seemingly even more tender than are the flowers, since, while the latter are fresh and fair, the leaves have suffered from frost-bite and scathing east winds. Planted in bold masses or in little colonies on a sheltered border, it is most effective, blooming along with, or even in advance of, the earliest Daffodils, while this showy Buttercup is none the less handsome if contrasted with the larger Snowdrops, *Chionodoxa*, *Iris reticulata*, or with Hellebores and Hepaticas of various colours, all of which belong to that class of early-blooming plants which love all the spring sunshine they can get in our climate, provided shelter be also afforded them.

NARCISSUS CERNUUS, a very pretty white Daffodil, sometimes called *N. albicans*, comes to

*Narcissus cernuus*.

me from Tyrone, and I saw it yesterday with Mr. Barr, who says he does not tell strangers what he considers its true name to be. Suffice it to say, he at present knows it as the Irish *N. cernuus*. It is a pretty thing, as our illustration shows it to be, with a high-shouldered perianth a trifle shorter than the trunk or corona. Rather dwarf in habit, its flowers nod gracefully on a slender fluted stalk 6 inches to 9 inches in height. For cut flowers it is a gem of the first quality. Just at present, I am told, all the white Daffodils are in a chaotic state of confusion as to names, but Mr. Barr now thinks he is in a fair way of rectifying former errors and discrepancies which are to be found in books and among figures. I am inclined to think that formerly authorities were satisfied with such evidence as cut specimens or even dried plants afforded. Now one must grow and study the living plants side by side for years ere any really satisfactory, or even trustworthy, conclusions can be drawn as to their affinity.

CROWN IMPERIALS.—All plants of noble port, in fact, giant Snake's-heads or Fritillaries, bearing great leafy tufts on stems 2 feet or 3 feet in height. From below the terminal tuft of deep green leaflets dangles a circle of great Lily-like flowers, yellow or orange-red, as the case may be. Under extra good culture a double whorl of flowers may be now and then produced, but I have never yet found the crown-upon-crown variety which is said always to produce a two-storied inflorescence. Well grown in rich strong soil, no plants are more noble in growth from the earliest pushing of the strong shoots though the earth in February or March to their blooming time in showery, or what should be showery, April. We have here three kinds—the red and the yellow with green leaves, and the bright red form with golden margined foliage; also a giant variety 4 feet in height. Someone once promised to send me a silver variegated variety with pale yellow blossoms, but something happened and the plant never arrived. The peculiarly foxy odour of all these plants is a little against their being planted quite

near to the house, but they show best and are best fitted for sheltered nooks and corners among shrubs or in plantations in deep rich soil.

VERONICA.

PLANT NOMENCLATURE.

THE object of my previous remarks on the above subject has been gained by Mr. Burbidge's reply (p. 362). He says: "It is not a question as to whether Latin or English names are the best, but as to whether both Latin and English names together are not better than either used alone." Precisely so; but if he will take the trouble to read my letter again he will see that my protest was directed against the growing habit of using but one, and that the English name of plants. This, I ventured to say, was "superseding" the scientific name. If he can show that my use of the word is wrong, or if he can point out a better, I shall then accept his correction. I never spoke, as he seems to think, of "suppressing" the scientific names. I did not imagine that Mr. Burbidge would for a moment entertain such a thought; nor did I in any way identify Mr. Burbidge with the practice of which I, and others also, complain; but when I find in a paper, to which so many look for information, mention made of Plantain Lilies, Rush Lilies, and such like names without reference to their botanical name, then I do say that the latter are superseded, and inconvenience, to say no more, is caused. There is one passage in Mr. Burbidge's remarks which I confess I do not understand. He says: "English plant names must be used wherever English is spoken. To suppress them would suppress all trade in plant products." Does he go back from his concession as regards the joint use of scientific and popular names, and wish to represent or protest against the disuse of the former as an attempt to suppress the latter? Otherwise the first part of the passage quoted has no relevancy. And now, supposing that popular names were suppressed, with which I am not concerned, would "all trade in plant products be suppressed" also? Take the *Hellebores* as a case in point. Except Christmas Rose as a synonym for *H. niger*, I could give a nurseryman the popular name for any variety I might want; nor do I think that I should find that trade between us was suppressed in consequence. I buy large numbers of plants from various places; I have never used any but the scientific names, and I have never experienced the slightest difficulty in making known what it was which I wanted. Could I say the same if I had used solely popular names? Or, if I had done so, could I find fault with a nurseryman if I found that he had sent me a different variety or species from what I wanted?

The conclusion of the whole matter is briefly this: I contend for the use of scientific names in all cases, except when the popular name is too widely known to be unmistakable. Not to do so is to supersede the scientific name. I have no desire to suppress popular names when they are really popular. But, to quote Mr. Burbidge's words, which bring us into complete agreement, "to prevent confusion let us have Latin names also." Thus, if the *Helleborus angustifolius* which Mr. Burbidge speaks of be really distinct from all others of that kind, then it not only may, but ought to be given a distinctive varietal name; and Mr. Burbidge, as the discoverer, has clearly the right to choose the name. If the plant be not distinct (and this is really the point of controversy between him and Mr. Brockbank), then he has no claim whatever to give it a new name, much less to supersede its scientific name of *H. angustifolius* in favour of St. Brigid's Christmas Rose.

(Cloghan, Co. Dublin. FREDERICK TYMONS.

A Cactus story.—The chapparal cock, which I have noticed as often being seen in Texas, is in Mexico most abundant. He is similar to a woodcock in appearance; but strange tales are told of him, and ones that I really did not believe until I heard them repeated in Mexico. That this bird lives exclusively on snakes is undoubted; but his physical powers do not enable him to assume the

aggressive towards very large reptiles. The smaller ones he picks up as sea birds do a shell fish, and, dropping them from a great height, kills and eats them. With larger snakes he has to flap his wings in their faces, dazzle them, and pick out their eyes as occasion offers. Many very large and powerful snakes, however, found in Mexico are too dangerous even for this mode of procedure on the part of the chapparal cock to be successful, and therefore he resorts to another artifice. Watching them until they slumber, he picks pieces of the huge Cactus leaves that grow everywhere there from 4 feet to 10 feet above the ground, and with these builds a wall round the slumbering serpent. Snakes of any sort will never come into contact with a Cactus; the thorns, once they get under the scales, can never be extracted; so the unlucky snake for days in rage goes round and round inside his thorny fence, and at length either dies of starvation, or, losing his reason, in frenzy bites his own tail, in which case he dies with all the symptoms of poisoning that would attend a similar misfortune to a human being. This may seem incredible to many, but it is stated in the country itself to be a well-known and not a rare occurrence.—*Field*.

FLOWER GARDEN.

SOWING AND RAISING ANNUALS.

THE time of year has again come round when most annuals should be sown, and as the several kinds require very different treatment, it may be well to make a few remarks on the more important, and to notice such as are most deserving of cultivation in order that those who would like to grow this class of plants may know which to select. First and foremost come

THE ASTERS, of which there are many varieties, the best and showiest being Truffaut's *Pæony-flowered*, the blooms of which are superb. The way to raise these and other annual Asters is to sow the seeds in boxes or pans of light, finely sifted soil, consisting principally of leaf-mould, and to get them to germinate readily they should have a sheet of glass laid over the top, and the boxes or pans placed in gentle heat, when the plants will soon show themselves, and as soon as they are large enough to handle, it will be necessary to prick them off in the same kind of soil in a frame or under hand-lights from whence they can be lifted with good balls and planted out in the open. The time to do this is during a dull day, immediately after a shower, as then they do not flag, but take fresh root-hold and start off at once. To grow Asters well they must have good ground that has been deeply dug and heavily manured, so that they may get well down and find plenty of rich food to feed on. Next to Asters,

ZINNIAS are perhaps most deserving of notice, and the double kinds specially desirable, as their flowers are not only very full and well formed, but they are exceedingly brilliant, and when grown in masses, as they should be, quite dazzling, producing a striking effect. Where they do best is in sheltered positions fully exposed to the sun, where if planted in deep rich soil they will remain in full beauty till cut off and destroyed by the frost. The way to raise them is to sow in heat, and treat them in the same manner as the Asters, but as the Zinnias are much more tender, the sowings should not be effected till the end of April, nor the plants put out till the third or fourth week in May, as when raised earlier, or exposed before the season mentioned, they are almost sure to get a check, from which they are slow in recovering, and rarely do so well afterwards.

STOCKS are likewise remarkably showy, and are quite indispensable, as not only are they very brilliant and varied in colour, but they load the air with sweet odours. The best way to manage with Stocks is to sow patches or rows where they are to stand, so as to avoid transplanting, as it is a difficult matter to lift them without the plants feeling the removal, and being injured thereby on account of their having so few fibrous roots. As Stocks show bloom early it is easy to distinguish

the single from the double, and to pull the former out, thus leaving the beds full of the latter, which when together in masses make a fine show.

THE SALPIGLOSSIS is next to be commended, but as it is tender, it is useless attempting its cultivation except in favourable situations in warm soils, where, if plants of it can be so accommodated, they send up a profusion of lovely Lily-like flowers, as varied in shade and markings as they are beautiful to look on. The best way of getting the Salpiglossis in beds or borders is to sow thinly in small pots and plant out the first or second week in June, or to scatter seed in fine earth where the plants are to stand.

TROPÆOLUMS, both the climbing and dwarf sections, help much to make a display, the first named being valuable for running up the stems of trees and clothing the bare branches or for covering fences or other unsightly objects, which they soon do, and robe them with beauty. All that is necessary is to pop the seeds in, although time is saved by getting the plants up in pots, and then planting them out in a little prepared soil to give them a start. The Tom Thumb kinds, of which there are several, make fine beds, as they are very compact, and bloom with the greatest of freedom.

PHLOX DRUMMONDI GRANDIFLORA is a choice annual, quite deserving a place in any garden where it may be used either in lines or beds, as the habit is compact and the flowers remarkably showy and fine. To grow it well light rich soil is necessary, in which it may be sown at once, or raised in pots or pans, and planted out later on in the season.

SWEET PEAS must not be forgotten, as, besides being so ornamental in the backs of borders or other positions, they are charming for cutting, a purpose for which they are specially adapted, as they work up nicely in bouquets and look well loose in vases. A neat and good way of growing them is to sow in patches and give them a few tall twiggy sticks to climb on, or make use of coarse meshed rabbit wire to run round in a circle a foot or so across, to which they will cling and hold themselves up.

GODETIAS, such as Whitneyi, The Bride, Lady Albemarle, and one or two others, are gorgeous, as they have flowers almost as large and showy as single Tulips, but more refined, as the petals are of a rich satiny hue. Being quite hardy, seed may be sown out anywhere and the plants thinned freely, so as to afford plenty of room for them to spread and grow. Like most annuals, Godetias require good soil, and the more open and deeper it is the better will they stand dry weather.

CONVOLVULUS MAURITANICUS, *C. minor*, and *C. major* are all handsome, the latter being very pretty for twining up standard Roses, and the other two for depending from rockwork or other elevated positions, where the striking deep blue of *C. minor* shows itself off to great advantage and is very effective.

NEMOPHILA INSIGNIS is also a charming annual, and one that is quite unrivalled for the richness and great wealth of its blossoms, which are put forth in such abundance as to form a sheet on the ground.

CENTAUREA CYANUS, the well-known Cornflower, is an admirable plant to grow; it should be sown in quantity for cutting, as it yields a large supply of light, elegant blooms till late in the autumn.

CHRYSANthemums Burridgeanum and Dunnetti are also very useful for the same purpose, and likewise for borders, in which they make a fine show. S. D.

Double yellow Marguerite.—Mr. Cannell is not quite correct in describing his double yellow Chrysanthemum alluded to in THE GARDEN (p. 326) as a variety of segetum. It is really one of the annual varieties, and may easily be raised from seed. It is, indeed, identical with Carter's Double Golden, a fine selection from the old annual double yellow. Its height is about 2 feet. No strain, I believe, reproduces all the flowers perfect; but, as Mr. Cannell has shown, it

can be propagated by cuttings. There is also a pure white double variety, and even though the wild *Chrysanthemum segetum* is handsome, no one seems to offer seed of it. Farmers find it a troublesome weed, while in some localities it is known under the expressive name of "Botheral." If grown in gardens, and the flowers freely cut off, the seed would hardly, I think, give much trouble.—A. D.

NOTE ON BELVOIR SPRING GARDENING.

THE following list contains the names of the greater number of the plants of which we make use at this place in spring either in beds, borders, or rockwork, viz:—

Alpine Auriculas	Narcissus minor & minimus
Anemone fulgens (largely)	poeticus (and large collection of others)
apennina	Omphalodes verna
Robinsoniana	v. alba
memorosa fl.-pl. (largely)	Orobis vernus
Arabis alba (an ear y and compact variety obtained from seed)	lathyroides
Aubrieta eraca	Phlox subulata
grandiflora (great variety from seed)	frondosa
deltoidea variegata	Nelsoni
seedling (light pink)	The Bride (and others)
Antennaria tomentosa	Polygala Chamæbuxus
Alyssum saxatile	Polyanthus Golden Gem and large number of fine yellow varieties from seed
involucrum	Primula (double white, yellow, and crimson)
Arum italicum	Magenta King and seedling varieties
Cardamine trifolia	cortusoides amena or Sieboldi
rotundifolia (very early)	Pulmonaria azurea
Cheiranthus Cheiri (very early dwarf yellow variety; grown largely)	officinalis
Caltha palustris	Ruscus scilloides
Corydalis cava	Ranunculus montanus and amplexicaulis
nobilis	Sanguinaria canadensis
Cowslip (Primula macrocalyx; very early species)	Saxifraga Burseriana
Crocus Imperati	oppositifolia
vernus and others	hypnoides and a collection of the mossy species
Daisy (double red, white, crimson, and auburn-folia; largely)	ligulata (largely)
Doronicum austriacum	crassifolia
Erica carnea	cordifolia
Erythronium Dens-canis	Sedum acre aureum
Epimedium pinnatum elegans	glaucum
macranthum	Lydium
grandiflorum	Scilla sibirica
Eranthis hyemalis	bifolia
Fritillaria	Silene pendula compacta
Fumaria solida purpurea	Snowdrop
Gentiana verna	Stachys lanata
acaulis	Scarlet and yellow Van Thol
Galanthus Imperati	Tulips
nivalis	Thymus lanuginosus
Grape Hyacinth (Muscari)	golden and silver
Helleborus niger	Tussilago fragrans
n. maximus	Viola, Russian
atro-ruber	Queen Victoria
orientalis	Marie Louise
Hyacinth (large number single bedding varieties)	Veratrum nigrum.

Heuchera lucida (for foliage)
Hepatica triloba angulosa
Iris bicolor reticulata
Limnathes Douglasii
Lunaria biennis (improved high-coloured variety; raised at Belvoir)
Myosotis dissitiflora (largely) sylvatica
Narcissus Pseudo-Narcissus obvallaris
Empress and Emperor

Spring plants require good cultivation. There is a period in the life of a plant when it produces the best results in blossom; old, worn-out plants bloom late; ill-grown young plants produce inferior flowers. The great art is to have plants of the right age, full of vigour, and large enough to produce a good effect; then it is requisite to have clusters or masses where a single plant would be ineffective. It takes many years to secure a stock of plants, and a reserve garden is indispensable.

W. INGRAM.

Anemone apennina.—I have a white *Anemone apennina* and two shades of blue of this good plant. Every here and there comes a patch with red tinted stalk and leaves, and the flowers a deeper blue, approaching the colour of *blanda*, reminding one of the same trick of colouring in *Scilla bifolia taurica*, of which the paler blue form has green leaves and stalks, while the darker has them tinged with red.—G. J.

NARCISSUS TORTUOSUS.

I DO not wish to trouble your readers on this subject further than to direct them back again to the original note by which I introduced this purest and prettiest of all the white Daffodils to their notice (see THE GARDEN, March 24, p. 277). They will there find that Mr. Burbidge perverts what I stated to suit his present argument. He makes me (p. 362) say "having the same shortened corona and sturdy habit." Whereas I said (p. 277) "having the same shortened corolla and sturdy habit as obvallaris." This, of course, makes all the difference, and exactly agrees with Haworth's description, which he cites, viz., "Divisions of the corolla twisted, sulphur white, much shorter than the crown." Mr. Burbidge says he received from me a faded flower, and from this sole specimen he deduces that I am altogether wrong, and he proves it by misquoting (or worse) my notes. *N. tortuosus* has been in bloom here by hundreds, and has been seen by many botanists growing alongside Mr. Barr's *moschatus* and *cernuus*, and there can be no possible doubt of the difference in the three varieties, or that the *tortuosus* I have distributed exactly agrees with Haworth's description and Curtis's figure, as already fully stated in THE GARDEN.—W. BROCKBANK, *Brookhurst, Didsbury.*

—Allow me to state that after my notes on *N. tortuosus* (the Irish *N. cernuus* of Mr. Barr) were published, I discovered that I had made a slight mistake in my quotation from Mr. Brockbank's note (p. 277), by writing "corona" instead of "corolla," which latter was the portion of the flower to which Mr. Brockbank referred. I regret that this little mistake occurred, but at the same time I believe the plant referred to to be a form of *N. cernuus* rather than the true *tortuosus* of Haworth, which, according to his description, should have twisted perianth segments. As I have before said, but little credence can be given to descriptions unaccompanied by figures. All Daffodils vary so much in different soils and climates, that peculiarities characteristic in one locality are totally obliterated in another, and therefore useless for purposes of distinction. This season, for example, the orange tints on the corona of the *N. incomparabilis* variety is, I am told, far less vivid than usual. Late planting, different soils, and local influences of position, altitude, and climate cause varietal differences oftener than we are inclined to allow.—F. W. B.

Anemone nemorosa alba.—I was shown to-day a remarkable display of this *Anemone* in a garden here. It formed the edging 10 inches wide for a bed of Ghent Azaleas several yards across, between which various *Liliums* had been permanently planted. The flower is single, pendent, white, and slightly streaked with blue-purple on the back, and at least three times the size of the common white wood *Anemone*. It was most effective and discernible a long way off. Evidently peat soil suits these hardy *Anemones*, and in passing I may remark that if many of your readers planted their *Lilies* permanently as here in such a soil they might expect to find the stems now as thick as spade handles above the ground. Imported auratum bulbs are still beneath the surface with me. The *Anemones*, Azaleas, and *Lilies* make these beds effective for nine months out of the year consecutively.—W. J. M., *Clonmel.*

Triteleias.—The varieties of these are but few, the earliest being *T. uniflora*, which has been in bloom in the open borders here for the past month, large clumps of it making quite a show. We have also found it very useful for pots for the embellishment of the greenhouse, as when taken up in the autumn and kept in frames it flowers early, and is valuable for associating with *Primulas*, *Cyclamens*, and other low-growing things of that class. In taking up the bulbs for potting the largest and strongest should be selected, and when they have done blooming they may either be turned out in the border to grow on again for another year or kept in pots, but if the latter, it is necessary to continue watering them when they

require it, so as to maintain the leaves fresh till the time arrives for them to ripen and die away naturally. The soil in which *Triteleia uniflora* does best outdoors is a light sandy one, and in this the bulbs increase at a rapid rate, and the plants flower with the greatest of freedom. *T. laxa*, the finest of all the genus, is a real gem, as it sends up large many-flowered heads of bloom after the manner of the well-known *Agapanthus*, which in form and character they much resemble, but in colour they are of a rich Tyrian purple, so that altogether they are very choice, and come in admirably for cutting to furnish vases, or for working up in bouquets. At present *T. laxa* is somewhat scarce, as unfortunately it is not so free as the above-named, and is slow of increase except from seed, and plants raised in that way are some years before they are strong enough to flower.—S. D.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 341.)

CIBOTIUM.—This small genus is composed of some half a dozen robust growing, very distinct, and highly ornamental species. The majority of them are Tree Ferns, making handsome stems, very stout in proportion to their height. The *C. Barometz* is, however, an exception to that rule, and has given rise to marvellous tales related by early Asiatic travellers, who gave it the name of Vegetable Lamb, from the fact of its having a decumbent rhizome clothed with wool like a lamb and being of spreading habit. *Cibotiums* are all of easy culture, and add greatly to the general appearance of the winter garden whenever they can be planted in it, as their magnificent fronds are all gracefully arching and light in comparison with their size. They are very accommodating as regards their food, although they prefer a mixture of two parts peat, one of loam, and one of coarse sand. When potted, those with decumbent rhizomes must be elevated a little above the rim of the pot, as they will suffer if potted too deep. They must be very well supplied with water at all times of the year, their stems being kept perfectly and uniformly moist during their growing season. In the rock fernery they should be planted on a projecting piece of rock, on which a good quantity of the above-described soil can be placed, and where they will show to great advantage. They are, moreover, a class of Ferns requiring very little or no shading at all during the summer, especially if the house in which they are kept is at all airy and lofty.

C. BAROMETZ.—This species, found in China and all over the sub-tropical parts of Asia, has somewhat triangular shaped fronds from 6 feet to 8 feet long and bipinnate, with pinnæ deeply pinnatifid, closely set, and terminating in a sharp point. The stalks and rachis are more or less clothed throughout with long light brown hairs. The fronds are of a beautiful dark shiny green above, whereas their underside is of a beautiful glaucous colour. Greenhouse.

C. DREGEL.—A very handsome South African species, with beautiful drooping fronds, whose base is clothed with bright brown scales. Besides being elegantly pendulous, the fronds, which are bipinnate, are also very finely cut and of a beautiful light green colour. A striking peculiarity of this plant is noticeable in its growth, as on each frond there are a pair of small pinnæ developed close to the crown, leaving a bare space of the stalk between these small pinnæ (which have all the appearance of a separate growth) and the rest of the frond. Greenhouse.

C. MENZIESI.—A very handsome Fern, of erect growth, from the Sandwich Islands, and very rarely met with in collections. The fronds, produced from an upright stem, are bipinnate, with pinnæ long and acuminate, and pinnules broad and obtusely lobed; the stalks, which are strong and nearly erect, are clothed all over with short, woolly-looking, dun coloured hairs. The whole of

the frond is of a beautiful dark green colour, strongly shining when perfectly matured. Stove.

C. PRINCEPS.—This truly magnificent Mexican species makes very rapidly a stout stem of good dimensions, producing numerous and beautifully arched fronds from 10 ft. to 12 ft. long, of a bright light green colour on their upper surface, while their underside is of a beautiful glaucous hue; they are tripinnate, with pinnae obtuse and pinnules slightly lobed and more rounded on the edges than in any other *Cibotium*. The stalks and the rachis, as well as the crown of the plant, are all densely covered with large light brown or white, chaffy, short hairs, feeling quite brittle when touched. Stove.

C. REGALE.—Also a Mexican species, with long, light, arching fronds, which often attain the length of 12 feet. Although more slender in all its parts, it is a more rapid grower, and forms a stem quicker than the preceding species, from which it is easily distinguished by its fronds being bipinnate and by its pinnules being long, narrow, and tapering to a point. The hairs which cover both the stalk and the crowns are also considerably longer and of quite a silky fawn colour. Stove.

C. SCHIEDEL.—Like the two preceding species, this also comes from Mexico, where it is no doubt found growing at a greater elevation, as it particularly dislikes the heat in which the other kinds thrive so well. It is a beautiful and most elegant Fern, with magnificent, robust, and yet pendulous fronds, gracefully spreading, and often measuring from 10 feet to 15 feet long, bipinnate, with lobed pinnules. It is a very free-growing kind, forming an upright stem which is said to attain in its native country a height of 15 feet, but plants with such stems must be many years old, as the formation of the trunk is a slow process in this case, and plants in cultivation with stems more than 15 inches or 18 inches are very rarely met with in any collection. This species is highly decorative, and all the more attractive, as the fronds are pale green above and very glaucous beneath; the stalks and rachis, like the crown itself, are all densely clothed with long silky hairs of a chestnut colour. The sori also add greatly to the beauty of the plant, as besides being very conspicuous they are enclosed in little caskets and situated all along the margins, contrasting strongly with the glaucous hue of the underneath part of the fronds. Greenhouse.

C. SPECTABILE.—Although this, also a Mexican species, may be said to resemble in general appearance the *C. regale*, it is readily distinguished by its much more upright habit, its narrower fronds, and by the much paler colour of the silky hairs which cover the crown and the base of the fronds, which are also of a lighter green colour than those of that species. It also stands a cooler temperature, and although growing more rapidly in the stove, it will be found to succeed very well in a greenhouse.

CYATHEA.—Some of the most beautiful of all Tree Ferns are to be found in this genus, which is very widely distributed over the surface of the globe. As regards the beauty of their foliage, they are equal in every respect to any *Cibotium*, *Alsophila*, or *Dicksonia*, while they offer a much greater variety in the sizes of their stems; those of the temperate kinds are mostly stout and nearly or quite destitute of spines, whereas most of those from tropical regions are slender in proportion to their height, and in many cases densely armed with stout spines. All the species contained in this genus are evergreen, and all of them require an abundance of water at the roots as well as their trunks being kept constantly moist. By these means and by them only can these beautiful plants be induced to make fine heads of fronds which will last all the longer on the plant if they have gradually been inured to the sun during the summer. The soil they require is the same as that given for the *Cibotium*, viz., two parts of fibrous peat, one of loam, and one of silver sand as coarse as possible. They are all of very easy culture, and, provided the moisture about the

stems is well attended to, there is very little fear of failure in their cultivation.

C. ACULEATA.—This West Indian species makes a handsome, tall, and somewhat slender stem, surmounted by a very fine tuft of bi or tripinnatifid fronds growing from 6 feet to 8 feet long; they are of a dark green colour, and their stalks are completely covered with short spines. This plant also possesses the peculiarity of developing a pair of small pinnae near the base, giving it a very strange appearance. Stove.

C. CANALICULATA.—A very handsome Fern from the Mauritius, making stems of a very dark colour, and growing to 10 feet or 12 feet high. The fronds are bipinnate and very leathery, from 4 feet to about 5 feet in length, and of a dark shining colour above and paler below; their stalks are densely covered with long black chaffy scales. Stove.

C. DEALBATA.—A very beautiful kind, and deservedly the most popular species of the whole genus, having handsome fronds from 10 feet to 12 feet long, produced in great abundance from a stout stem; they are pinnatifid, of a fine shining dark green on their upper surface, and of a beautiful silvery white underneath, from which it derives its name of Silver Tree Fern. When planted in a conservatory in a rather elevated position it makes a very grand object, and shows itself to perfection when seen by artificial light. Greenhouse.

C. HORRIDA.—This very curious and beautiful Tree Fern from the West Indies is rarely seen in cultivation, probably on account of the difficulties met with as regards its importation, which is rendered more difficult by the slender constitution of its stem. It is a most interesting species; the stalks are thickly covered with light brown pubescence, through which large brown-black thorns protrude. These thorns, which are also to be found on the underside of the rachis and as far as the very terminal points of the pinnae, often measure a quarter of an inch in length. The fronds are of a very dark green. Stove.

C. MEDULLARIS.—A magnificent species from New Zealand, which cannot be mistaken, as no other Tree Fern bears the slightest resemblance to it. It is the most gigantic of all its genus, and produces in its native country a stem upwards of 40 feet in height, bearing magnificent spreading fronds from 12 feet to 15 feet long and proportionately broad, borne on robust stalks, first of a prune colour, but which become with age of a jet black hue and beautifully polished; before the young fronds are fully unfolded they are densely covered with long, black, chaffy scales. It is of most rapid growth, and if planted in a conservatory where plenty of room can be allowed for its perfect development it makes a good-sized stem in a very short time, and is by far the most imposing of all Tree Ferns which will succeed well in a greenhouse.

C. SINUATA.—This rare little Tree Fern from Ceylon is very elegant in all its parts, as it forms a stem of very slender dimensions, the thickness of which very often does not exceed that of an ordinary walking-stick. The fronds, which are produced in great quantities, are simple, entire, and pointed; they are from 12 inches to 15 inches long, and about 1 inch in breadth, with prettily undulated margins. They are of a light shining green, and of a thin texture, with beautiful venation. Stove.

C. SMITHI.—A very handsome species from New Zealand, with stems 10 feet to 15 feet high, bearing a great quantity of beautiful feathery bi or tripinnate fronds 5 feet to 7 feet long. They are finely cut, indeed more than any other *Cyathea*, with pinnae 8 inches to 12 inches long, and of a bright green colour. The crown, as well as the stalks on their whole length, are covered with long, chestnut-coloured chaffy scales. It is highly decorative on account of its graceful and light fronds, but does not bear the action of the sun so well as other species of the same genus.

PELLSEA.

GARDEN FLORA.

PLATE CCCLXXXVI.

PHILESIA BUXIFOLIA.*

THIS beautiful plant, of which the accompanying plate is a good representation, has attracted some attention of late, both on account of its ornamental character and its hardiness—at least in the warmer parts of this country and Ireland. Although a near ally of *Lapageria*, and possessing attractions almost if not quite equal to those of that plant, whether judged from the point of beauty or from the ease with which it may be cultivated, yet while the one has become in every sense a popular garden plant, the other, until within the last two years, has been comparatively unknown, notwithstanding that its introduction dates back some thirty years or more. Messrs. Veitch, to whom we are indebted for the introduction of the *Lapageria* and hosts of other fine plants, also introduced the *Philesia*. It proved to be hardy in their nursery at Exeter in 1853, flowering out of doors, and it was from these out-of-door grown plants that the specimens exhibited in London in the year just named were obtained. Messrs. Veitch have made good use of this plant and the *Lapageria* by crossing them, the result being a hybrid named *Philageria Veitchi*. This plant, interesting from its being the progeny of two distinct genera, whose characters it combines in an intermediate manner, is not yet sufficiently known to enable one to speak as to its usefulness in a gardening point of view, but if the general rule that hybrids flower more freely than true species holds good in this case, we may look forward to the *Philageria* proving itself a valuable addition to our cultivated plants.

Reverting to the *Philesia*, it may be interesting to note that the finest specimens of which we have any record were grown in Cork in tubs, one on each side of a doorway. These specimens were 4 feet in diameter and produced hundreds of flowers every year. A glance at the annexed plate will give some idea of the beauty of such specimens. It flowers freely out of doors at Glasnevin, and also in the south of England. Even in Edinburgh, where the winters are often severe, Mr. I. Anderson-Henry has had a plant of it that has grown and flowered for some years on his rockery without any protection. North of the Thames in England there appears to be no instance of its growing out of doors, possibly because it has never been tried.

CULTURE.—Like the *Lapageria*, the *Philesia* requires plenty of water always and protection from bright sunshine. Peat soil with a good sprinkling of sand is a mixture it prefers. For pot culture or for planting out in a conservatory or cool pit this plant will prove most serviceable. At Kew in the winter garden there is a fairly good specimen of it growing on a small rockery under the shade of Tree Ferns and in the company of the allied *Callixene* and *Luzuriaga*, where it has been for some years and seems quite at home. In pots it is found to be a good practice to grow it in a cool, shady house or pit till autumn, when it should be placed out of doors in a shady situation. Thus the wood gets well ripened and a good crop of flowers is ensured. A mixture of peat, charcoal, and sand suits it well when grown in pots, giving plenty of pot room, and disturbing it at the root as little as possible; in short, the treatment under

* Our sketch was made in Messrs. Veitch & Sons' nursery, Chelsea, last autumn.



which *Lapagerias* thrive is the right treatment for the *Philesia*. It may be propagated by division, or, if a quantity be wanted, it may be layered, as is done in the case of the *Lapageria*. *Lapageria*, *Philesia*, and *Philageria* have been successfully propagated as follows: A young ripened shoot is selected and pegged down on a pot filled, or nearly so, with sandy peat, twisting the shoot round and round until it is wholly within the rim of the pot. About half an inch of soil is put over this, and the pot is then placed in a warm house under a hand-light or a bell-glass. The eyes commence to push in about two months or so, and when large enough are severed from the parent shoot, each being furnished with a little tuft of roots. The *Philesia* may, however, be increased by means of cuttings in the ordinary way, as it strikes more freely than either of the others. Hand-glass protection during severe frosts might be resorted to with advantage in the case of plants growing out of doors. B.

SEASONABLE WORK.

FLOWER GARDEN.

DRACÆNAS.—Most of the varieties of *Dracæna* are so tender as to be only suited for indoor decoration, but there are a few so hardy as to render them all but indispensable for open-air use in the summer flower garden. The kinds to which we allude are *D. australis*, which has broad, bright green foliage; *lineata*, a sort with narrow green foliage; *gracilis*, a kind with very narrow striped green and brown foliage; and *Veitchii*, a species much like *australis*, but stiffer in the foliage, and, therefore, better able to withstand the force of the wind. For sub-tropical bedding arrangements these *Dracænas* are invaluable, and a very few plants serve for a large bed, as, owing to the recurved and drooping habit of some and the spiral and perfectly round form of others, in order to show them off to the best advantage, it is necessary to give them plenty of space, nine or twelve good plants being ample to furnish a bed 12 feet in diameter. Thus planted, and the ground beneath them carpeted either with *Sedum acre elegans* or *Golden Thyme*, no more beautiful sub-tropical effect could be desired. They also make capital lawn plants, and in warm, sheltered positions stand our average winters. Several large plants of them stood out here for years, but they all succumbed to the severe weather experienced in 1880 and 1881. They may be propagated at any season from seeds or cuttings. Ours are obtained by cutting up the old stems and corm-like roots into pieces of about 1 inch long; these are placed in pans of sandy soil just in the way in which Vines are propagated, and plunged in a brisk bottom-heat, in which they quickly form roots and break into growth.

SUMMER BEDDING ARRANGEMENTS.—These at the present time demand all but a monopoly of attention as regards propagation, arrangement, and planting. Winter effect having to be considered as well as summer, in order to avoid much autumnal removal, every hardy plant anything like suitable is pressed into the service; this to some extent excludes as unsuitable many plants which we should otherwise like to use, and in some degree robs the summer garden of its gaiety, but this loss is more than repaid by the extended season during which it is effective. Space will not admit of giving in detail all the arrangements now being made from the standpoint just alluded to, but the following treatment of a large circular bed may be taken as a fair example of the many ways in which hardy and tender bedders may be planted in combination: It is edged with *Herniaria glabra*, green, and the groundwork, or divisional lines, which cut up the bed into smaller circular or oblong beds, consist of *Veronica incana*, greyish white, the smaller angles being filled with *Ajuga reptans purpurea*, and the central and smaller beds as follows: In the centre

is a large plant of *Phormium tenax variegatum*, which is quite hardy here; this is surrounded by *Viola Blue Bell* and *Ageratum Cupid* in mixture. The oblong beds have for the centre small plants of *Cupressus erecta viridis*, and a surrounding line next the *Veronica* of *Coleus*, the centre being filled in with tricolor *Pelargonium Sophia Dumaresque*. The small circles have as centres small plants of *Retinospora pisifera aurea*; one half of them is filled with *Lobelias* of the *pumila* section, and the other half with *Alternantheras*. It will thus be seen that the whole of the framework of the bed, including the centre, is entirely composed of hardy plants, and therefore its conversion to a winter bed is an easy matter. Some of our beds have more, and others a less number of hardy plants than that here given, so that the bed just described may be accepted as about the average. When determining these arrangements and selecting plants for them, our preponderating thoughts are length of season during which the plants continue effective, the reducing of labour by propagation of tender kinds, and the saving of house room for other and more profitable purposes. Most of the plants which we use have from time to time been alluded to; among those now being planted are *Sedum glaucum*, *corsicum*, and *acre elegans*, *Saxifraga rosularis* and *oppositifolia major*, *Cerastium arvense* and *tomentosum*, *Echeverias*, *Sempervivums*, *Lamium maculatum aureum*, *Gold and Silver Thymes*, *Gnaphalium lanatum*, *Helichrysum plicatum*, *Veronica incana* and *rupestris*, small shrubs, *Yuccas*, *Chamæpeuces* (Fish-bone Thistles), *Violas*, and *Calceolarias*.

PROPAGATING.

AROIDS.—Most Aroids are easily propagated; the climbing kinds, such as *Philodendrons*, *Monstera*s, &c., pushing forth aerial roots in great profusion, need but a suitable spot in which to establish themselves, and, in the case of others, division may be practised successfully. With *Caladiums* another method is followed, by which numbers may be obtained from but few plants. When they start in spring, as soon as the first leaf is developed, shake them out of their pots and remove the soil. This done, if the corm is large, several shoots will be growing therefrom, and just at the base of each shoot several young roots will be pushing forth. In that case, take a sharp knife and remove each shoot with its adhering fibres. In this way every one will form a young plant, which must be potted in a small pot and kept close till the roots start, when they may be inured to the air, and grown on as rapidly as possible during the summer in order to get established by winter. After the young growths have been removed pot the corms as before, when another crop of shoots will soon be produced, which may be treated as just mentioned. In this way great numbers are produced every season. With two or three kinds of *Amorphophallus* we were somewhat puzzled, for, with the exception of an offset now and then, we could not increase them, and the smooth, regular shaped root-stock rendered it doubtful if they could be increased in the same way as *Caladiums*. We found, however, on trial that they could. Care was taken to have the centre shoot well rooted before removing it, when numbers of young shoots were in most cases produced from different parts of the old root.

INDOOR PLANTS.

ALLAMANDAS.—When these have made very long straggling growth without showing flowers they may have their points nipped out; the shoots should then be trained regularly over the trellis, bringing the points low down. This will cause a quantity of the black eyes to break that in due time will show bloom. See that the plants are now liberally supplied weekly with manure water,

BOUGAINVILLEA GLABRA.—Keep the strongest shoots, which are those that must be depended on for flowering, in an erect position, as if allowed to droop they break back, which interferes with the blooming. Of all the hard-wooded stove

plants that we have ever grown, this under pot culture, if allowed to get anything approaching dry at the root, has its blooming the most interfered with. If it gets a check in this way before the bloom is formed, the shoots usually do not extend further, but set a few flowers at the points in place of the long wreaths that are forthcoming when all goes well with the plant. Both this and *Allamandas* will stand manure water in a stronger state than most things, and to have them in the vigorous condition essential to profuse flowering, they must have it, as has been stated, weekly after the roots and top growth have begun to move freely.

PLANTS IN SMALL POTS.—For the purposes of ordinary cultivation it is a great mistake to use larger pots than can be made to suffice either for flowering plants or for those that are grown for their effective foliage. In the case of the former, where too much root-room is allowed, it induces over-extension of the shoots and foliage, and often a straggling condition collectively without proportionate increase in the quantity of flowers. Where larger pots are used for fine-leaved subjects than needful, their appearance is neither so attractive, nor are they so enduring, as gross, over-luxuriant foliage soon loses its bright, healthy look. In addition to these objections, where plants are so treated as to induce extraordinary development, there is necessarily less room for variety; consequently in the potting operations that take place with the stock generally through the spring months it is well to give no more root-space than is requisite, trusting to the aid of surface manuring or liquid stimulants to keep the plants in a robust, healthy state. This particularly applies to such plants as are wholly or partially shaken out, and which have their soil renewed annually. Where plants are wanted for exhibition purposes, and size is an object, to some extent, this course may be departed from, especially when grown in thoroughly light-giving structures and kept close to the roof, conditions which directly check over-extension of the top growth. In the case of soft-wooded plants of quick growth a continuous supply of manure water at short intervals is indispensable at this season, and it must never be given too strong. For quick-growing plants like shrubby or herbaceous *Calceolarias*, *Cinerarias*, *Fuchsias*, *Pelargoniums*, *Hydrangeas*, *Petunias*, and tender annuals we have found no better plan when once the pots get thoroughly full of roots and the flowers formed than to use it continuously every time the soil requires moistening until the blooming is over. Hard-wooded greenhouse plants, such as *Azaleas*, *Aphelexis*, *Boronias*, *Acacias*, *Chorozemas*, *Correas*, *Daphnes*, *Myrtles*, *Eriostemons*, *Pimeleas*, *Polygalas*, *Pleromas*, *Neriums*, *Hoveas*, and *Genistas*, at this season of the year when taxed with the development of their flowers or with shoot growth are greatly benefited either by manure water or the use of some solid fertiliser applied to the surface of the soil, which will not only assist the current season's bloom, but its effects will be still more apparent on the ensuing growth.

SEEDLING PRIMULAS AND CINERARIAS.—Those who have really good strains of these useful plants, and who are desirous of saving seed which they can rely on, should select in the case of *Cinerarias* plants that possess the best form and colour of flower. Each plant possessing these properties should be isolated from the inferior stock whilst in bloom, as in this way only can seed that will produce flowers of the requisite stamp be secured. As regards *Primulas*, the later sowings made last year which have not been so much weakened by blooming as the earliest will be in the best state to seed freely; these should be set on a shelf or stage under the influence of strong light and sufficiently supplied with water, nipping out the successional flowers formed after enough for seed purposes have been secured.

ROSES.—Tea Roses in pots that have been forced and flowering for some time will, if strong, yet keep on making wood that will yield flowers, but to have them of large size and sufficient in quantity the plants must be regularly and liberally fed with rich surface dressings. Where

any falling off occurs in this matter, the after-growth will come too weak to flower; or if a portion of it does bloom, the produce will be thin and poor. It rarely happens that pot Tea Roses in the hands of private growers yield nearly the quantity of flowers of which they are capable through want of liberal feeding. The nature of these Roses is to keep on all but continuously growing when in a temperature that admits of such taking place, but unless they receive a regular and liberal supply of manure in either a solid or liquid form, they neither increase in size nor produce flowers in abundance. They require and will bear much more in the way of stimulants than is generally supposed, and so applied they have a much better effect than any quantity of solid matter added to the soil which they will bear at the time of potting. Where the plants are turned out in beds, and their roots have thus unrestricted space in which to extend, they naturally are better able to take care of themselves, but even in this case a free use of manure water will be found advantageous. Whether cultivated in pots or planted out, they should be regularly syringed every day to keep down red spider, not merely sprinkled in the way often thought sufficient, but letting them have water without stint, so as to drench the foliage. Where Rose culture under glass is ever expected to be above mediocrity, there must be a ceaseless outlook for mildew, especially during this and the ensuing month, and wherever a curled leaf is seen sulphur should at once be applied.

FRUIT.

PINES.—The weather being generally bright, early-started Queens, now swelling rapidly, will take more generous food than can be given in dull, wet seasons. Keep the soil in a healthy growing state by the use of clarified liquid and guano water, and damp all available spaces after closing, which should be pretty early, so as to insure a high temperature from the afternoon sun with a corresponding degree of atmospheric moisture; but guard against much overhead syringing, as it encourages the growth of crowns and suckers, at all times prejudicial to the full development of the fruit. Endeavour to keep the bottom-heat steady at 90°, ventilate early when strong firing is needed to maintain a night temperature of 70°, gradually increase the air until about 1 p.m., and close in time for the afternoon sun to raise it to 90° or 95°. If any winter starters remain on hand give them the above treatment until they begin to colour, and then remove them to a dry, warm place to ripen. Examine the roots of plants intended for starting early in June, and, while guarding against injury from drought, induce a period of rest by withholding water for a short time and keep them moderately cool, particularly through the night.

SUCCESSIONS.—Where strong bottom-heat is obtained from fermenting materials, spring-potted plants soon fill their pots with roots and require shifting on. To carry on the system of keeping small batches in advance of each other always have materials of all kinds dry and ready for use at any time, and never on any account shift a plant into a larger pot unless its roots are in a moist state, as no amount of after-watering will ever penetrate a hard, dry ball when it becomes embedded in the rough turfy soil adapted to its future growth. Keep all young stock near the glass, shade from very bright sunshine, and give plenty of air to prevent them from becoming drawn into weakly growth.

ORCHARD HOUSES.—When the stoning process is complete make the final thinning, bearing in mind that a light crop of fine fruit gives more satisfaction than a heavy one. Always give the preference to Peaches and Nectarines which point to the sun or can be coaxed into doing so, otherwise the stalk instead of the apex will receive the colour so much admired, but not always attained. A general pinching of all the strong shoots will now be beneficial to the rapidly swelling fruit, but weak ones will be best left alone, as the only wood

bud which they make is at the point, and stopping would render the shoot useless for another year. Good syringing and liberal feeding must have daily attention, and sharper forcing may be indulged in by day, particularly when the house can be closed with plenty of solar heat and moisture, but hard forcing is not advised, as it invariably ends in pale watery apologies for Peaches which nobody thinks of eating. It is understood that the house must be closed every afternoon for the attainment of size, but night air should be given, and the temperature should range from 56° to 58° at banking time, and 50° in the morning, with a steady rise to 65° or 70° by day.

LATE HOUSES.—If the trees in late houses were clean and in good condition, the "set" of fruit will be all that can be desired, as the days have been brilliant, and although the nights have been cold, we have seldom had occasion to light a fire. With such hopeful prospects, lose no time in giving relief by timely thinning down to within a moderate percentage of the intended crop. Disbud by degrees, use water freely, always warm if attainable; feed with weak liquid manure for the present, and aim at a firm, sturdy growth by giving plenty of air through the early part of the day, and by closing in time for the water from the last syringing to dry off the foliage before night-fall. If fires are available, be ever on the watch, as a severe frost might injure the young fruit where blossoms would escape. Where Plums or Cherries are grown with the Peaches, they will do best in the coolest and most airy part of the house, as a close, moist atmosphere often does more mischief than dry frost. Figs require the warmest end, and Pears, where space is limited, may be plunged on a warm border out-of-doors when the fruit begins to swell and there is no longer danger from spring frosts. Look well to pot Strawberries on the side shelves, and keep them well fed and syringed, as it is to their culture that we are invariably indebted for the first appearance of spider.

CHERRIES.—As soon as the stoning process is complete and the fruit shows signs of colouring discontinue wetting the trees with the syringe, and maintain a free circulation of air to prevent condensation or the presence of stagnant moisture, otherwise a large percentage of the finest fruit will crack and become useless either for present use or for hanging on the trees for a considerable time after it is ripe. If very early ripening is an object, a little more warmth may be given through the day in preference to making any alteration through the night, but unless this is really necessary the same steady mode of culture which has been hitherto followed will give the best result. Examine the borders and if sufficiently wet to finish the fruit mulch with some dry, non-conducting material to keep in moisture; but if, on the other hand, they are likely to require another supply, choose a fine bright morning for giving the needful quantity at the mean temperature of the house. See that the trees are quite free from aphids, as smoking cannot be resorted to when the fruit is in daily use. Tie down leaders, stop side shoots to form spurs, and see that strong-growing late kinds which are expected to hang are regularly and evenly clothed with foliage without being in any way crowded. Follow the usual routine in late houses, always bearing in mind that a low night temperature and an abundance of air by day are the first elements of success. Give the trees plenty of water, and syringe regularly up to the time of colouring. Keep grubs in check by picking and smoke for green fly.

MELONS.—Early Melons now swelling fast will require liberal feeding with warm liquid until they have attained their full size and show signs of changing for ripening, when a moderate quantity of pure water to prevent flagginess will keep them going and improve their flavour. If the plants are well cropped, lateral growths will no longer be troublesome, and as the size and quality of the fruit will depend upon the health of the old foliage, this must be kept clean and free from insects by copious syringing every afternoon at closing time. Morning syringing in light, bright houses must now be given up, otherwise the foliage will scald;

but all paths, walls, and surfaces may be well damped with warm water as soon as the morning heat begins to rise. Ventilate early to allow moisture to dry off the foliage, then gradually raise the heat to 85° or 90° with sun; close at these figures, and descend to 70° for the night. Grow on successions with plenty of heat, air, and water, but carefully avoid producing a gross habit by feeding until after the fruit is set and swelling. Keep the glass clean, never shade after the plants get established, thin out and train the young growths, also remove male blossoms, and allow a wild, abandoned style of growth during the time the fruit is setting. The end of this month is a good time to make up manure beds in the frame ground for the growth of a summer crop of Melons, and as a steady heat is of the greatest importance, let the manure and leaves be well worked and fermented before they are put together. Build the bed just large enough to receive the frame, make it very firm, and protect from the weather. When the heat begins to decline and approaches 90°, prepare the hills in the usual way, always bearing in mind that the strong roots should be prevented from going down into the manure by the use of large sods of fresh turf laid Grass-side downwards along the centre of the bed. To economise compost and to facilitate feeding, place two broad planks on their edges and 2 feet apart longitudinally on the sods; fill loosely with compost, beat firmly when warmed through, and turn out the young plants 12 inches apart.

KITCHEN GARDEN.

VEGETABLE MARROWS, ridge Cucumbers, and Gherkins—all useful vegetables—should just now claim attention. We make trenches 8 feet wide and 1 foot deep, building up the soil at the edges of the trench and filling it up with old material used for Seakale and Rhubarb forcing in the spring. Mixing with this a few loads of fresh manure from the stable soon gives the whole mass a nice gentle heat. We then earth it over from each side of the trench, and it is ready for hand-lights placed in the centre. We always sow the seed about the first week in May, taking the nurserymen's advice to sow thickly and thin early. Early Potatoes now showing above ground should be earthed over to keep them safe from frost; when caught and blackened they never turn out so good a crop. The frost seems to paralyse and does them much injury. Turnips, Spinach, Parsley, Brussels Sprouts, and a pinch of Cabbage seed may now be sown, the Brussels Sprouts being for late use, but all spring Broccoli keep in the seed store until the beginning of May. Beet should now be sown; also make successional sowings of Peas. Broad Beans should be sown according to the demand. Witloof sow at once if wanted, but that now is very rarely. The ground lately occupied with Broccoli should now be made ready for Celery by taking out the trenches. Lettuces may be planted on the ridges. Well manure the trenches and dig them up a good depth if the soil admits of it, and by the time the plants are ready the soil will be well pulverised through the action of the weather. Mustard and Cress, Radishes, &c., sow in accordance with the demand.

FORCING GROUND.—The present backward spring has proved the importance of cold pits, frames, and hand-glasses for bringing forward a good supply of early succulent salads and vegetables. At the present time they will be full of Potatoes, Carrots, Turnips, crisp Lettuces, and a host of spring-sown plants of Cauliflower, including Veitch's Autumn Giant and Dickson's Eclipse, two of the best varieties in cultivation, Brussels Sprouts, and Cos Lettuce. The great point in the management of these inexpensive structures is ventilation through the early part of the day to secure stout, stocky growth, followed by early closing with solar heat on fine afternoons. The drying winds and bright sun will have prevented full exposure of the tender plants, but a healthy growing atmosphere may be maintained by tilting the lights on the south side. See that Potatoes and Carrots are copiously supplied with tepid

water, choosing the early part of the day, as it is important that the foliage becomes dry before night. In the warmest section look well to Tomatoes, Capsicums, Vegetable Marrows, and Cucumbers intended for planting on ridges of half-exhausted manure from the Seakale and Rhubarb. Pot on the plants as they require it, and guard against having them drawn by keeping too close through the early part of the day. French Beans enjoy plenty of heat and moisture in a pit which can be well ventilated on the ground line to prevent a stagnant atmosphere. Make successional sowings in pots or otherwise for preceding the first crop in the open air, which will be late this season. A good batch sown in small pots for planting in frames after Potatoes or on early borders where they can have temporary protection will do good service. A good Mushroom bed should be made up in a dry shed facing the north. Almost any kind of short fermenting manure with an admixture of turf will do for the body of the bed, and this may be faced with horse droppings and stiff loam for the reception of the spawn.

HERBS.—In many pretentious gardens herb beds are very often neglected or left to take care of themselves, the same subjects being allowed to occupy the same spot from year to year until eventually they die out and disappear. A warm convenient corner is generally selected, and being strong, exhaustive growers, such things as Mint, Tarragon, Sorrel, Camomile, and Pennyroyal should be broken up and replanted either on fresh ground or with a good addition of new soil annually. We sometimes hear gardeners say Tarragon positively refuses to grow and live through a winter, but if replanted in fresh soil every spring and allowed to carry all its old stems until new growth starts, this useful herb, like many hollow-stemmed, herbaceous flowering plants, will pass unharmed through the wettest winters. Just now the old flower-stems on our bed are 3 feet high, and young growths like quills will soon be ready for use. Chervil also likes change, and in order to allow it to accommodate itself we hang a few seed-bearing stems about in pyramidal fruit trees, and always find an abundance of healthy plants. Thyme, one of the most useful herbs grown, very often falls off before the end of a severe winter, but if sown annually and planted out in new stony soil at the foot of a west wall it will thrive and set the frost of most winters at defiance. It is the constant cropping and picking which injures Thyme, and to avoid this the young plants should have a year's grace before they are interfered with.

KITCHEN GARDEN.

POTATO PLANTING—LARGE V. SMALL SETS.

THERE has been much dispute at times on the subject of planting large *versus* small sets of Potatoes. The late Mr. Robert Thompson, of Chiswick, gives the theory of the matter in his "Gardener's Assistant" thus: "In all plants large buds tend to produce large shoots, and small or weak buds the reverse. Now, the eyes of Potatoes are true buds, and in small tubers they are comparatively weak; they consequently produce weak shoots, and the crop from such is inferior to that obtained from plants originating from large tubers furnished with stronger eyes." One is surprised at a statement like this coming from such a practical man as Mr. Thompson, but perhaps all that is written in his name is not his. Still, many gardeners yet adhere to the idea that large sets produce the best crops, which *bud for bud* is not by any means true, and as planting is conducted at present, viz., by planting a certain distance between the sets and between the rows, be the sets large or small, nothing is gained by planting sets of extra size. I always plant sets whole if they are small, and if they are large I cut them, being convinced, as I am, that the small sets are as good as the large ones. It is quite a fallacy to suppose that small Potatoes comparatively produce the weakest buds. The true theory

of the matter is this, as anyone may see for himself. Large Potatoes produce the greatest number of eyes, and consequently the most buds, but the buds are not stronger than those on smaller tubers, for the reason that in both cases the number of buds is always in proportion to the size of the tuber, and, therefore, the buds on a large tuber have no greater reserve of vigour behind them than those on the smaller tuber. This is my experience, at least. I have examined hundreds of tubers, and have found that, while a moderately large tuber will have twelve or fourteen or more eyes or buds, a smaller tuber will not have above half that number. The two sets should, therefore, be equal, and it is so, for the buds on the one are just as strong as those on the other. As the rule in planting is to plant all the sets the same distance asunder, and disbud to one or two buds at the crown, it follows that the cropping power of the two tubers must just be about the same. I freely grant, however, that the biggest Potatoes—that is, the Potatoes with the most buds—produce the heaviest crops, for the more stems the more tubers, but these stems must have proportionately more room; hence, those who believe in this theory do either give their large sets more room and save all the eyes, or else they cut the large tubers into two or three sets and plant them separately as we do here and as plenty of others do. The size of the sets is not a matter of so much importance, perhaps, in gentlemen's gardens, but it is to farmers and cottagers whose supply of seed is taken out of their general food store. I attach much importance to the simple fact, proved over and over again, that a large Potato cut into three good sets produces twice or three times the weight of crop that a large set divested of the greater portion of its buds does, and also more than a large Potato planted whole with all its buds, but not allowed proportionate room. The whole subject of cut and small *versus* whole and large sets wants enquiring into further than it has been.

J. S. W.

WINTER BROCCOLI.

A GOOD supply of winter Broccoli is invaluable where there is a large demand for good vegetables, and there is no more useful variety than Snow's Winter White, which comes in in November, and if the weather continues mild its season lasts more than six weeks. Osborn's Winter White makes a good successional crop, following, as it does, closely after Snow's, but wholly distinct from it. It is not only more vigorous in growth, but produces larger heads. Both these sorts require to be treated in the same way. They should be sown any time during April, but the earlier in that month the better. A piece of ground should be set apart for that purpose. Our winter Broccoli and Brussels Sprouts I like planted on ground that was occupied the year previous with Carrots or Parsnips. It is necessary to plant in well-manured deeply-dug soil, which ought to be prepared during winter and allowed to remain uncropped. Plant 2 feet apart each way, and dull showery weather should if possible be selected for the operation; at the same time there must not be any serious delay in getting the plants out; first, because they will be getting crowded in the seed bed, and secondly because they should be got out as soon as they are large enough for transplanting, so as to give them as long a time as possible to make their growth, for as they come into use in November, under the most favourable circumstances the time in which they have to make their growth is not too long to get strength sufficient to produce good-sized heads. In dry weather we always draw drills about 3 inches deep, in which to plant them, and then, if they require water afterwards, the drill prevents any waste, as it concentrates the supply where it is likely to reach the roots; the only after-attention they require is to keep them free from weeds, and the surface moved occasionally between the plants with a Dutch hoe. In November, if there is any appearance of frost, it is a good plan to go over the plantation every week, and as fast as heads fit for table are formed dig up the plants, shake all the soil from their

roots, and plant them again in a bed of soil in a cold pit or frame, taking care that they are not too much crowded. Under such circumstances it is an easy matter to protect them, and they keep just as well as if they were left in the open quarters, even if the weather should be mild.

J. C. C.

GARDEN EDGINGS.

ALL live or plant edgings are to be preferred on the score of picturesqueness; all dead edgings on the score of endurance and utility. In choosing between live or dead substances it is well to determine fully at the first whether the after cost and labour of maintaining live or plant edgings will be recompensed by their greater irregular beauty and freshness, or whether it is best to face the first cost of some hard material, and having properly laid it be assured that the first cost was about the only one. I think we may take it for granted that ninety-nine gardeners out of every hundred would prefer a solid, hard edging to their kitchen garden paths in preference to edgings of plants of any kind. If a live edging of any sort is to be put down, the general verdict will be in favour of Box, because that of all bardy plants is the most fitted and most enduring. Box needs trimming only about once in the year; and if done in the spring and neatly, very little further trouble is given. Still, to have a good edging of Box it is needful to lift, thin out, and replant every few years, for an edging 6 inches in height and as much through, and which gets thin below, and broken, and irregular in many places is not a tidy or desirable edging, and cannot be recommended. Now, a thick margin of Box becomes a fine cover for snails and slugs, and very frequent hand-weeding is needed to keep it free from Grass and other obnoxious plants, so that even so popular an edging plant as Box is not without its objections, especially in those gardens, and they are many, where labour is short. Perhaps no kind of labour is less remunerative than is that expended upon the maintenance of path edgings. All plant edgings are liable to become preservers of weeds, and need constant overhauling to keep them down. No greater nuisance can exist in any well-kept garden than a weed preserve close to the gravel paths, for weeds should never be permitted to seed upon the gravel. Again, many plants are recommended as edgings that bloom freely, as, for instance, the small and large Thrifts, Violets, Daisies, Cerastiums. However pretty as edgings plants may look when in bloom, they are simply detestable when the flowers are decaying. The giant Thrift, for instance, with its big heads of bloom borne on stems 10 inches high, would, with the first shower, be found sprawling all over the path, and very unsatisfactory that would look, and indeed, as I know to my cost, does look. Then in the winter the birds, and especially big birds, have a peculiar penchant for plant edgings, and seem to find them full of insects, for they literally tear them to pieces and cast the portions all over the paths. This is peculiarly the case with Aubrietias, Daisies, Sedums, and similar dwarf creeping plants. As to the question of labour in keeping plant edgings in decent order, I have found the most satisfactory results from the use of *Festuca viridis*, one of the dark wire Grasses; for although the plants bloom in the spring, yet once this is clipped off there is an end of work, so far as the plants are concerned. Moreover, until in some half-dozen years after planting the edgings have become too dense, they not only want no farther attention, but give a graceful outline, as the Grass is dwarf and free in growth. Violets, especially strong growing kinds, are most unfit for garden edgings. Few would think of recommending them; fewer still would think of using them. Without doubt the best of all dead edgings are those made of stout plain tiles or of specially made bricks. I prefer hard white bricks made 12 inches in length, 2½ inches broad at the base, and bevelled in on one side only—the path side, to a rounded top edge of 1½ inches. These should be set evenly upon a hard base surfaced with sand, and have the ends tied together or set with cement to exclude

weeds from the joints, and keep the line straight and even. Such an edging as this would, if set well, with ordinary care endure for 50 years, and thus prove of life-long usefulness and service.

A. D.

NOTES ON BIRDS

In the Garden, Sheen Lodge, Richmond Park.
(Continued from p. 350.)

SPARROW (*Passer domesticus*).—Our colony remains pretty stationary as to numbers; they are never molested, and are fed in winter. Being formerly accustomed to coax these town birds at that season to the windows of my official residence in Lincoln's Inn Fields, I was hardly prepared to do justice to the well-marked, agreeable, un-sooted attire which both sexes, and especially the males, present in the clear atmosphere of my present abode.

BULLFINCH (*Loxia pyrrhula*).—This visitor is readily recognised by its well-marked, varied, glossy plumage. Though the native notes be simple and not loud, the vocal organs are susceptible of being trained to discourse motives, and even to emit intelligible words. One would not suspect from the native note of this fine-plumaged bird that such vocal accomplishments were hidden through lack of tuition. But the success of the German trainers of its powers of song is testified by the prices given for accomplished pupils, and especially for the pair of cock bullfinches who have been taught to sing in parts.

CHAFFINCH (*Fringilla cælebs*).—This lively, pretty bird announces its early arrival by notes which soon, growing in power and regularity of recurrence, might be construed as an instance of natural musical rhythm. The species change their quarters according to the season, but without any distant migration.

GREENFINCH (*Fringilla chloris*).—My only recorded notice is of its active, varied flittings about the shrubberies during the pairing season in April.

LINNET (*Fringilla linaria*).—To this well-known bird I am indebted for its occasional sojourn in winter-time, as well as for the ornament which the bright red breast of its nuptial plumage in April and May adds to the transient gleams of colour amongst the greenery in the spring season. Its lively, sweetly varied song is then also a welcome addition to the feathered orchestra.

GREATER REDPOLE (*Fringilla cannabina*).—In its spring plumage this may be easily mistaken for the linnet, but its instinct of nidification is different and is constant. I have never found its nest in a bush—always on the ground, generally concealed by the Ground Ivy which carpets the shrubberies.

GOLDFINCH (*Fringilla carduelis*).—This charming bird, tempted by the abundance of larval food at its nursery time, occasionally looks in from its favourite nesting places—the Thistles, Gorse, and Teazels of the adjoining preserve and neighbouring commons. But our contiguous "palewell" has been invaded by the early bird-catcher from the Seven Dials, and the Gorse bushes there have concealed no nest of goldfinches during the latter periods of my explorations.

STARLING (*Sturnus vulgaris*).—These active gregarious birds inhabit and breed in vast numbers in the trees in and near Coombe Wood, but I am always favoured with their visits to the lawns, which they help to clear of worms, myriapods, and insect larvæ. Save an occasional raid on the Raspberry bushes, I have nothing to lay to their charge, but I have been the recipient of groans from accomplished "growers" on the score of their wholesale depredations.

JAY (*Corvus glandarius*).—I was one summer shocked at the spectacle of three fine specimens of this beautiful bird shot by my gardener and laid out for laudatory inspection near the Pea rows in the kitchen garden. At the season when the luxury of fresh-gathered Peas is a welcome feature of the dinner-table it is aggravating to your grower, who has taken all due pains and care in the supply, to see the havoc which these greedy plunderers make in the well-laden rows. "They comes, sir, out of the preserve almost as fast as I

can shoot them, and wouldn't leave a cod on the stem if they had their own way; they care nothing about your old hat and coat there, sir, on the stick." "Well, Collins," I replied, "we must see what we can devise in the way of a more effectual 'scare.'" I got some balls of twine and white worsted; I set the maids in the evening to knot portions 2 feet in length of the worsted to the twine at intervals of about 2 feet. A length of the twine so arrayed was stretched over each row of Peas, and with every movement, however slight, of the air the worsted tags were in perpetual agitation. I have not since heard any complaint of a visitation from my beautiful feathered neighbours of the adjoining wood. I have listened with pleasure to their cheery, loud, and varied notes, but cannot make up my mind to pay for them with fresh, ripe Peas.

CARRION CROW (*Corvus corone*).—This is one of the park birds under the ban of the ranger; but it is significant of their craft and wariness that I have never found a pair absent there, with their nest well hidden in some generally grand old Oak. How the species comes to be reckoned among my garden visitors is this: At early dawn and sunrise in June and July, if we have succeeded in getting a brood of bonny ducklings, which then have the "run" of a part of the front lawn temporarily wired off, a pair of carrion crows steal quietly into the covert of the old over-shadowing Chestnut tree, then in flower or full leaf. Choosing their moment, they swoop down, and each bears away a duckling in its beak. A warning that such was the cause of diminution of the brood led me to leave my bed at daybreak, and with the gardener watched, concealed, this manoeuvre; but I could not give the word to "shoot." I thought it well worth the loss for once, but afterwards I covered the brood plot with netting, which has proved an effectual check, though the predatory visit is often repeated as this season. From the

ROOK (*Corvus frugilegus*) I have received nothing but favours. They take their share in diminishing lawn pests and other insect plagues; their ways and instincts afford endless interest. When I took up my abode at Sheen Lodge, there was in the Elm wood leading there from Sheen gate a small rookery at our end. I am bound to say that at the nesting season complaints of being awake and kept awake, from 3 a.m., were frequent and well founded; but this is the only exception to the pleasure which the cawings at evening and other seasonable times have given to one whose busy life, in great proportion, is spent in London.

My friend, the author of "Recreations in Natural History," especially enjoyed his visits at the rooks' breeding season, and the worthy magistrate declared that he should unquestionably commit certain members of the cawing community for theft and burglary if they had been other than feathered bipeds. The case was this. A young married couple could always be discriminated by the unusual activity displayed in preparing the abode for the incubator and her coming brood, yet, by reason of the unconscionable practice of their elders, and possibly parents, they spent twice the time and trouble in completing the nest than did the more experienced birds or than was fairly needful.

The old couple, perched near the framework of their former nest on a higher branch, instead of flying forth to collect their own lining materials, awaited the return of the younger pair, each with a beakful of moss or wool, which they then busied themselves in properly disposing in their unlined nest. This being done, forthwith off they flew again to gather more material, whereupon the stationary old rooks, who had generally monopolised the topmost localities, would hop down from twig to twig and deliberately transfer the lining material of the young pair's nest to their own; nor, until the old birds had thus provided for themselves, were the young couple permitted to finish theirs.

We sometimes fancied we saw movements of the plundered ones, after fruitless flights, indicative of suspicions of foul play. But, in the long run,

all went on well; the coming generation was duly hatched out and provided for. Food could not be larcenously fetched from the beaks of the new-wedded ones' brood so easily as the wool from their nests.

In the seventh year of my residence the rookery was broken up; the birds changed their locality, not without satisfaction expressed by the female powers at the lodge. The circumstances were these. Some aged decaying trees in the Elm wood were condemned, but the forest authority had postponed their removal until the time when the rooks were confined to the duties of incubation. The noise and row of laying bare the roots and prostrating the trees, crashing past their neighbours in their fall, may be conceived. The whole colony, male and female, rose in the air, wheeling wildly about, and cawing loudest erulphous imprecations at the radical procedure. But not one of the Elms in which they had built was touched. In two days all was cleared away and peace restored.

Broderip watched with me the commotion, and we speculated whether the females would return to their nesting duties. They did so; brought out and reared their broods as usual. A remoter speculation with both of us was as to the effect of the scare on future proceedings. Nothing occurred in the course of that year to indicate a change of corvine affairs; but the rooks did not return to their nests the following spring, nor have they ever returned. The nests have gradually rotted off or been blown away, and all sign of the old rookery has departed.

Applying one's own—of course, highly superior—psychical powers to the predicament, one feels disposed to say that the birds, or the older and more experienced members of the community, came to the conclusion that the disturbance in spring was a revolutionary procedure; that no constancy of the conditions of a respectable rookery could be trusted any longer in such a locality; therefore, "we had better be off and settle elsewhere," which they did, and the community thrives peacefully to this day in a wooded part of the park about half a mile off. Whether it was a matter of debate submitted to the November parliament of rooks, which assemble in numbers, blackening acres of the park sward on the other side of the piece of water in front of my abode, I presume not to surmise, but our keepers hold the belief that rook felonies are judged of at such gatherings, and point to some unlucky or worn-out ones usually left dead on the ground as convicted individuals that have been dealt with accordingly. It is, at all events, an interesting period of the year to the observant naturalist.

On calm, misty days in November, in soft weather, when the ground yields easily to the grub-extracting beak and the crop is well filled, the rooks will assemble as if for sport, then sweep through the air in curving flights with unwonted swiftness, and as they near the ground wheel about and turn over like tumbler pigeons, not resting long on the ground when alighted, but flying up to the lower branches of the nearest Oak or Elm, as if waiting for later arrivals to the "caucus." The rushing and sweeping noise they make as they swoop in this playful flight is remarkable; the accompanying modified cawing comes then nearest to a song.

Leaning motionless against the trunk of one of the tall Elms near my abode to watch this sport, I have been made aware of the accession of fresh families to the assemblage by the "sough" or rushing sound in the air before I caught sight of the birds, which from their lofty flight swept suddenly down to join the general association. Meanwhile, the air resounds with clear modulations of shrill and singular notes like those of the daw combined with the hoarser croaks of the rook. As they settle down the sward of the park is speckled for acres with at first ever-moving black spots, which are finally aggregated in a dense multitude. In an hour or so the assembled Corvidæ disperse.

THE JACKDAW (*Corvus monedula*) may contribute its quota, but it is indistinguishable when

not forming part of a looser flying flock. The nest of this species is, in my locality, usually concealed in the hole or hollow of some old Oak, in and out of which the parents may be seen busily passing during the month of April.

MAGPIE (*Corvus pica*). — The rare, but occasional, visits to the garden of this active, prying bird are looked upon with suspicion, but I cannot charge it with any abstraction from the poultry yard or the toilet-table, the window of which may be temptingly open in summer mornings and evenings.

The penchant of both pie and daw for glittering objects, utterly useless, as it seems, to them, never suggested any explanation to my mind till I saw the "bower" which my friend Gould brought home, with his accumulated ornithological treasures of

like nest is impracticable. But it might have been enjoyed in prehistoric times, and some lingering trace of the ancestral bower-building and bower-adorning instinct may be at the root of that otherwise inexplicable penchant to abstract and fly off with a bright object which the bird cannot, at the present advanced state of post-glacial Europe, put to any manner of use. We have no evidence at least of a daw or magpie laying the filched silver spoon or jewelled ring at the feet of his bride.

RICHARD OWEN.

PUBLIC GARDENS.

HULL BOTANIC GARDEN.

A GENERAL meeting of the shareholders of the

it would have a botanic garden; and if it did not want one it would be useless to attempt to force such an institution upon it. To enable them to determine this question Dr. Rollit said he should again put facts and figures as plainly as possible before them, and he then stated that the Company owed about £26,000, viz., a sum which might, it was believed, be compromised for £20,000. This was in respect of the balance of about £22,000 or £24,000 due as the purchase money of the gardens to the North-Eastern Railway Company. There were also owing other debts, obligations to make roads, interest, and the like, about £6000. So much for the capital account, which showed about £26,000 to be owing. As to revenue, this depended on the number of subscribers. The appeal for subscriptions, which had been issued, had produced



Nephrodium Rodigasianum, a new plant shown at Ghent (see p. 387).

specimens and facts, from Australia. In one of these singular constructions, now in the British Museum, by a species akin to our *Corvidæ*, both entry and exit of the "run," formed by the long Australian Grasses, carefully stuck down in two opposite rows and interarched above, are ornamented by collections of coloured shells, gay feathers, and other bright objects, for example, quartz pebbles, including, in one instance observed by Gould, a glittering line of gold. The building of the bower is mainly the work of the male bird, and, as Gould observed, the added treasures might be collected as an attraction of the female by a parade of wealth; the construction is wholly distinct from the nest. The courting couple chase each other in successive runs through the bower. The female then selects her tree and in a secluded part of the branches builds a nest resembling that of the magpie, and there she rears her brood.

It is evident that the preliminary structure on bare ground could only be made and enjoyed in an extensive uninhabited or sparsely populated country. As our Australian colonists spread, the *Chlamyderæ* must go farther afield to indulge in their courting and dancing bowers. In a land like ours such a structure preceding the business-

Hull Botanic Garden Company was held on the 18th inst. to take into consideration—first, the continuance of the gardens after the present season; second, the suggested transfer of the gardens to the Corporation; and third, the winding up of the Company or otherwise. Dr. Rollit, the recently-elected chairman of the Company, presided. The secretary read the minutes of the previous meeting, at which it was resolved that the North-Eastern Railway Company should be allowed to retake possession of the gardens at an early date, and in the meantime the Corporation be approached with a view to the gardens being secured to the town either as a park or as botanic gardens. The chairman said the fact was, that by the last meeting public opinion had been aroused by means of plain speaking, and the shareholders and town had now begun to realise that, unless they acted at once to some purpose, the botanic gardens would be lost to both. The directors and himself were most anxious that it should be otherwise, and that, for the sake both of science and public recreation, the gardens should be kept open in some form. But little or nothing could really be done without the co-operation of the shareholders and the public, and, in short, if the town wanted a botanic garden

some result, and some of the directors and the curator had already obtained many additional subscriptions, facts which perhaps justified the strong opinion of the curator that amply sufficient subscriptions could be obtained to meet current expenses, and even to leave a surplus. The practical problem was, therefore, how to raise the £26,000 due on capital account, or at least £20,000, which must be paid to the North-Eastern Railway Company in October, since that Company was bringing an action to recover possession of the land, and time had only been granted until the date he mentioned. The great difficulty had been from the first, and was still, that the gardens had been weighed down by surplus building land.

The suggestion of the Board was that that land should be divided into plots, each having a frontage to the gardens. There would be ninety-six such plots, but if only eighty-six were sold it would raise a sufficient sum to pay the railway company. If, therefore, they were taken up the gardens might be saved; if not, they would be lost. There was, however, one alternative which the resolution of the last meeting had directed to be investigated. It was to inquire whether, if the Company was unable to survive, the Corpo-

ration would be willing to take and maintain the garden as a public park. With this object he had seen the Mayor and the Parks Committee, and he thought he might say that the suggestion was one which might be entertained, and that it would be legally practicable to maintain the gardens in much their present condition as a place of public recreation and as headquarters for stocking and storing plants for the public parks of the town. Nothing had, however, been determined. The directors were anxious to do everything in their power to maintain the gardens if they met with practical encouragement, and there were reasonable prospects of ultimate financial success.

Mr. MacMahon, the secretary, in reply to Dr. Gibson as to what the cost of keeping the gardens up, supposing all the plots were sold, said he had estimated the total expenditure at £1200 as against an income of £1550, leaving a balance of £350.

Mr. Copland thought it would be a lamentable thing to see a fine property on which £15,000 had been expended handed back to the North-Eastern Railway Company, or even handed to the Corporation, although he should prefer that the Corporation should take the gardens rather than the railway company. He did not think that it would be a serious effort on the part of many gentlemen present to take plots of land.

Colonel Pudsey was strongly in favour of the gardens being continued. The motion was then put, with the following addition: "That the Board be and are hereby directed and authorised to keep the gardens open for the present session; that all possible subscriptions be solicited and obtained at once, and arrangements for fêtes, flower shows, and the like be forthwith made." The motion was carried unanimously. It is satisfactory to add that of the eighty-six plots required to be taken to pay the railway company, fifty-two were bespoken, thus leaving only thirty-four to be disposed of. When this is effected, Mr. MacMahon is of opinion that the gardens are likely to be placed on a firmer and more satisfactory basis than ever they have hitherto been.

GARDEN DESTROYERS.

REMEDIES FOR INSECTS.

ON Roses or Peach trees, if aphides are very troublesome, it is a good plan to use tobacco water, with which the trees may either be syringed or the shoots dipped in it. The way in which to prepare the tobacco water is to steep tobacco in it, a pound being sufficient to make four gallons quite strong enough to kill any aphids. Tobacco juice is offered for sale, but I do not find it any better or cheaper than that which one can make. There are many insecticides, however, that are good, one of the safest and best being nicotine soap, which is fatal to aphides without doing harm to the foliage. Where many Roses, Peaches, and Cherries are grown and much insecticide is required, a strong steep may be made by using Quassia chips, which may either be boiled or soaked in hot water, the former being best. With the Quassia some soft soap should be used, as well as tobacco, the proportions being a pound of the former and half a pound each of the latter to 12 gallons of water. When strained, this liquor may be applied with a syringe, and if used at a temperature of 90° or 100° it will do its work well.

Next to aphides, the worst insect with which we have to contend is the Rose maggot, a grub which folds itself up in the leaves, and in some knowing way brings them in contact with the flower buds, which it eats out or destroys. Insecticides do not reach this pest effectually; the only method of getting at it is either to pick it out or smash it *in situ*; the latter is the most expeditious plan. A similar kind of grub often affects Apricots, and may be searched out and dealt with in the same way; but the maggot to be found on Apples and Pears must either be picked off or knocked down by means of a forcible washing by the garden engine. The Gooseberry caterpillar is another

plague, against which various remedies have been recommended, one of the most effectual being Hellebore powder, and another almost equally good is the liquor in which Foxglove leaves have been boiled, applied by means of a syringe. Lime water also destroys it, but it should be used clear, so as to leave no deposit on the Gooseberries; and as prevention is said to be better than cure, it is a good plan to scatter lime under the bushes in the autumn, which destroys the grub in the ground before it can hatch.

Red spider, though most minute, is a pernicious insect, as when it gets on Peaches and Nectarines it gives them an impoverished look by sucking the sap out of the leaves. The primary cause of red spider is poverty, brought on either through dryness at the root or over-cropping. The remedy, therefore, suggests itself, viz., thinning out the fruit sufficiently and watering. Before this latter is done, however, the ground immediately around the trees should be mulched with half-rotten manure, which keeps the earth uniformly cool and moist, as when water is given it can soak in, but without the manure it quickly evaporates. What red spider dislikes very much is being wetted, and, that being so, its quarters may be made most uncomfortable by means of a garden engine or syringe, a shower bath of this kind being also most refreshing to the foliage after a hot summer's day. S. D.

Killing mice (p. 345).—The following are two good recipes for killing mice and rats. I have used both and find them to be good: First recipe—125 grammes crumbs of bread, 60 grammes of butter, 30 grammes nitrate of mercury crystallised, all well mixed together in an impalpable paste; lay some of the mixture on pieces of glass in the house where the mice are. Second recipe—250 grammes quicklime (not slaked) in powder, 50 grammes sugar in powder, 150 grammes flour of any kind (oat, wheat, or rye); mix well together, put some of the mixture on a little plate, and place near it a second plate with water. Mice after eating some of the mixture feel thirsty and drink the water. The lime, being quick, gets slaked in their stomachs and kills them in a few minutes.—A. B., *Bourg-la-Reine*.

—In THE GARDEN of the 14th April is a paragraph on killing mice, in which it is stated that Battle's Vermin-killer contains arsenic. From my examination, Battle's Vermin-killer contains strychnia, not arsenic. A threepenny packet contains about one grain of strychnia, with wheat, starch, and Prussian blue. If the mice eat Battle's Vermin-killer they will be soon destroyed, and by strychnia, not arsenic.—ANNIE H., *Lincoln*.

AN ITALIAN MARKET.

AT some distance from the West End Hotel, the Hotel de Londres, and other pretentious buildings which compose the modern San Remo, you turn down a small street leading from the principal one where the best shops are to be found, and you arrive at a picturesque square, the Piazza del Mercato.

The old houses and shops which enclose it on two sides are curious, while it is bounded on the east by the ancient cathedral of San Siro, with its Romanesque nave and its gaudy Renaissance west front, its tall campanile and its not unmusical bell, the remaining side consisting of a sort of verandah, affording protection to stalls, at which various useful and ornamental articles are sold. Here stands an itinerant mender of glass and china. His booth is just now crowded with anxious matrons or careless maidens bearing broken dishes, plates, or basins for his inspection. It is to be hoped that he performs his cures at a low rate, as the articles appear to be but of trifling value. Beside him lies a heap of papers of the wonderful cement, and he is now, with many gesticulations, explaining its virtues to a handsome, but weatherbeaten *contadina*, who decides to purchase six packets.

As the crowd disperses I observe him (he is a good-looking fellow, in brown jacket and waist-

coat, with an orange neckerchief loosely knotted round his sunburnt throat) carefully eyeing himself and arranging his curly hair before a morsel of looking-glass produced from his waistcoat pocket. He has done a good stroke of business to-day. Further on you pass through an archway, over which is inscribed "*Lavorio pubblico*." You descend a short flight of steps and look down on thirty or forty laundresses of all ages, from the wrinkled grandame, whose grey locks are appropriately covered with a bright red or yellow handkerchief, to the young girl with the large silver earrings and cross, and her dark hair coquettishly arranged. All are hard at work, washing their clothes in a huge tank or stone basin 40 feet or 50 feet long and about 12 feet wide. What a clatter! Their tongues go faster than their hands and arms, but these are not idle. How they scrub and wring! While peals of laughter resound through the stone arches which support the building. From the antiquity of these and from the Gothic windows, I conclude this may be the ruined crypt of a church. It is quite open on one side, and the bright Italian sun lights up their handsome faces. They are evidently charmed with their own jokes, or it may be (as they look up from time to time) that they are making fun of the idle Englishman, who is himself amused at the stirring scene. But it is of the market that I would chiefly speak. If you wish to buy provisions here you should not be later than 9 a.m., by which hour many of the careful housekeepers are making their purchases. This is considered one of the best markets on the coast, hardly excepting those of Cannes or Nice. Here you can procure every kind of fish caught in the Mediterranean, game in the season (I never can quite make out what the proper season is here, as partridges were offered us last Sunday at the *table d'hôte*), fowls, turkeys, guinea fowls, butter, and eggs. But the pride of the market is not in these. The show of fruits and vegetables, for the time of the year, was one of the best I ever saw. Apples, Pears, Oranges, and giant Lemons plucked with their leaves; large bunches of Celery, Cardoons, and Fennel, the roots of which are boiled here and eaten like Seakale; small red Carrots freshly gathered, bunches of excellent Asparagus, hampers of green Peas, crisp Lettuces, Potatoes without stint, but greatly inferior to those of English growth; Leeks and Onions, big Orange Gourds, some round, some long; Spinach and bouquets of fragrant herbs; while from the top of the stalls depend long ropes of Shallots and Garlic, enough of the latter to flavour all the dishes in the peninsula; dried fruit, Plums, Figs, and Raisins, with Almonds. There were no flowers, but these may have been disposed of earlier in the day, or may have found their way to the shops in the fashionable part of the town. The market itself is very picturesque. In the middle stands a fountain, always surrounded by merry girls filling their bright copper vessels, and enjoying a little gossip at the same time, while two tall Plane trees cast the shadow of their yet leafless branches across the square. Though the piazza is crowded, everyone is sober, notwithstanding there are no less than five shops where *vini nostrali e diversi* (native wines and others) stand ready to be drawn in huge casks. Look at that dark-haired peasant as he stops his curious open cart, drawn by a handsome mule, whose somewhat complicated harness is adorned by a number of red tassels. He is about to drive a bargain with that sunburnt old woman who is selling *conserva de tomates* (a dark red preparation heaped up in a pancheon, and not over-inviting either in taste or smell) at two soldi a measure. Life seems to be a joke to that peasant. There is a ring in his musical voice as he declaims in his Ligurian *patois*. His slouched hat, with its small feather, shades a face which an artist would love to paint. How rich the colours with which a southern sun has stained it. His fine, well-built figure seems well adapted for his free and simple life amid the mountains which border the Mediterranean. I have always thought the Italians of this district a noble race. They are thrifty and industrious, hardy and independent. They do not beg, and are

kind and courteous to strangers. Nature, in giving them for an abode an earthly Paradise, has endowed them in addition with some of her best gifts of body and mind.

MARK NESFIELD.

NOTES FROM THE GHENT SHOW.

IN addition to the report which we gave last week of the international show at Ghent, we find, on turning over our notes, the following, which may be of interest to our readers. With regard to new plants, usually the most interesting feature of an exhibition, we append a few notes respecting some of those which appeared to be worthy of special comment. Among the

NEW FINE-FOLIAGED PLANTS we omitted to mention last week the remarkably fine group which was exhibited (not for competition) by the Compagnie Continentale d'Horticulture, managed by the well-known horticulturist, M. Linden. This group contained some two dozen plants, all of which were new and many strikingly beautiful. One of the most distinct was *Aglaonema pictum*, a handsome leaved Aroid recently introduced from Sumatra. It has broad ovate leaves of a rich glaucous green blotched and marbled with silvery markings exactly as in the accompanying illustration, which represents the plant about a quarter its natural size. It is a handsome plant for pot culture in stoves, and being very neat in growth and not inclined to become "leggy," makes it particularly valuable as an ornamental plant. Another beautiful new plant shown by M. Linden, who has given us the opportunity of illustrating it, is *Nephrodium Rodigasianum*, a native of the Samoa Islands. It is a most elegant stove Fern, and one, moreover, of easy culture. The long pinnate fronds gracefully arch on all sides of the plant, and being of a lively green have a very pretty effect. *Vriesia bellula*, an attractive plant of the Bromeliad family, was shown in flower. It has a vasiform tuft of foliage and a flower-spike bearing scarlet and yellow bracts, the two making it very pretty. *Alocasia Putzeysi*, which is much in the way of *A. Thibautiana*, and quite as handsome, is a plant that will find favour as a fine foliaged plant, as the colours of its large heart-shaped foliage, which hangs vertically on all sides of the plant, give it such a rich and telling effect in a group. For its noble leaves, reminding one of *Theophrasta*, the new *Wormia Burbidgei* will be a welcome plant, and it has the desirable property of producing its huge foliage when the plant is still small; its flowers are said to be pretty. Two handsome species of *Schismatoglottis* were shown by M. Linden. These were *S. Lavallei* and *Lansbergi*, the latter an uncommonly pretty one, with deep green velvety leaves on bright red petioles. *Echeveria decora* may be best described as a variety of *E. metallica*, with the leaves marbled and streaked with white instead of being wholly of a livid purple. *Heliconia triumphans* is a Maranta-like plant with oblong leaves of a bright emerald green, blotched and barred with a deeper hue. Other plants shown by M. Linden were *Dieffenbachia magnifica*, *Begonia Diadema*, *Zamia myurensis*, *Pothos aurea*, *Aralia gemma*, an extremely elegant plant; *A. reginae*, and *Massangea hieroglyphica*: the last we considered one of the most remarkable plants in the whole show; it was a gigantic specimen, with leaves some 4 feet or 5 feet long, deeply channelled and transversely marked with irregular stripes on a pale green ground. The foliage spread out in an elegant recurved vasiform tuft, rendering the plant a beautiful object as regards form.

NEW PALMS.—Collectively, the Palms, though numerous, were not at all very remarkable; undoubtedly the most valuable new plant in the whole exhibition was the true *Pritchardia grandis*, a Bornean Palm, only recently introduced in quantity by Messrs. Veitch. It is an extremely handsome plant with broad rounded leaves, spreading out in a noble tuft on all sides. The blade of the leaf is folded into singular angular ridges, as if it were plaited, and the upper

surface is somewhat convex, which adds much to its stately appearance. The reason it is called the true *Pritchardia grandis* is on account of there being another Palm in commerce under the same name, but which turns out not to be the true plant, but a *Licuala*, and therefore now called *L. grandis*. It is distinct from *P. grandis*, and also a noble and handsome Palm, having broad plaited leaves, but more wedge shaped at the base than in *P. grandis* and not so spreading or stately. There is ample room in gardens for both these fine Palms, and in order to praise one, there is no need to speak derogatorily of the other. The plants of *P. grandis* shown on the present occasion were all comparatively small, the largest leaves being only about 12 inches or 15 inches broad, miniatures in fact of the fully developed leaves. The colour of the whole plant is a bright grass-green, which, together with its noble port, renders it distinct from any other Palm in cultivation. This plant was shown by two or three exhibitors in their collections of new plants, but singularly enough it was not shown in the class for the best new Palm, otherwise it would certainly have been first, as the Palm shown for the highest award in that class was very remarkable. It was named *Pritchardia Vuylstekiana*; it had broad, slightly recurved foliage, but the whole plant had the appearance of being in the juvenile stage. The second best new Palm was also shown by M. Vuylsteke, who exhibited the *Pritchardia*. It was called *Sagus amicum*, and had pinnate leaves, though not half so graceful as many other older kinds on the same table. A Californian form of *Washingtonia filifera* called *W. robusta* was considered to be the third best. It is considered to be more robust and harder than *P. filifera*. It came from M. Van Houtte. There was a class for ten new Palms, but not one of the plants shown in the several collections struck me as being very remarkable, excepting *Pritchardia grandis*. The names of the others were *Arenga Moensi*, *Wallichia Moensi*, *Ravania Hildebrandti*, *Kentia costata*, *Pinanga* (sp.), and a variegated *Chamærops humilis*. This collection was shown by M. Moens, who appears to be a specialist in Palms, judging by the numbers he exhibited and many other fine examples. Another ten from M. Vervae and Co. consisted of *Pritchardia aurea* and *P. grandis*, *Kentia Luciana*, a very handsome Palm; *K. gracilis*, *Ptychosperma Seemannii*, *Calamus australis* and *viminalis*, and the much-heard-of *Bismarckia nobilis*, which, however, in its present infantile stage is not in the least extraordinary, but it may develop into a noble Palm. In the third ten were *Pritchardia glauca*, *Calamus Tringay*, similar, if not identical with *Dæmonorops fissus*; and *C. pataniensis* in the way of *D. paleobanicus*. *Veitchia Johannis*, in the same collection, was a graceful Palm; likewise *Chamædorea tenella*, but much like an older and well-known species. We might here add a passing word in admiration of the Palms shown in the classes, about eight in number, specimen plants, which formed such a remarkable feature of the show. The gigantic plants from M. Ghellinck de Walle and M. Moens, who took the principal prizes amongst amateurs, and M. Van Houtte, M. Spae, M. de Haene, M. M. Vervae, the leading prize winners in the nurserymen's classes, were really grand, and showed plainly to what an extent and also to what perfection Palms are cultivated in Belgium.

NEW INDIAN AZALEAS.—Considering how numerous are the varieties of Indian Azalea, which may even be counted by the hundred, and how beautiful the best are, one would have thought that raisers of new sorts had long ago reached the climax of perfection. Such is not the case, however, with some of the Ghent nurserymen, who seem indefatigable in the matter of Azalea raising, and every year numbers of novelties come from their hands to compete with, and maybe supersede older kinds. On this occasion it seemed as if there had been an accumulation of novelties for some seasons, so numerous were they. As the Azalea constitutes such an important element in the Ghent exhibitions, there were eighteen prizes set apart for new varieties appor-

tioned to six classes, and the total number of plants shown was no fewer than seventy, the majority of which were superior to older sorts. The principal exhibitor was M. Louis Van Houtte, from whom a great number of the finest Azaleas have emanated. In five of the classes for new sorts this exhibitor took the first prize, and in some he won the whole of the prizes offered. The finest collections of six new sorts included the following, all semi-double, namely, Baron Nathaniel de Rothschild, with very large flowers of a bright purplish violet, one of the finest; Comte de Paris, salmon-pink; Comtesse Zebrowska, a fine semi-double white; Charles C. Brigham, brilliant crimson-scarlet, flower large and of perfect shape; John Hawkesworth, large double flowers of a rich salmon-pink; Remembrance of Princess Alice, brilliant rosy carmine, large and beautiful; Mdme. Van Wassenhove, full double pink, with white margin and spotted with crimson; Sakuntala, one of the best whites shown; Marshal P. Wilder, large, white flaked with pink; Prince Rudolphe, bright Indian red, very beautiful; Mdme. J. E. Planchon, white flaked and striped with rose; and Comte Adrien de Germigny, a brilliant crimson-cerise, large and fine. Among the plants in the two collections of four plants were Souvenir de Arthur Veitch, white flaked with rose; Mrs. Harry Veitch and Mrs. B. S. Williams, both very fine whites; and Remembrance of Princess Alice, already alluded to; T. W. Moore, a good carmine; Princess Beatrice, pure white; and these, together with one called John T. D. Llewellyn, a sort with double salmon pink and white flowers, and which won the highest medal constituted the pick of M. Van Houtte's varieties, and all of them will no doubt find their way into English gardens, and supplant older sorts of smaller colours. The finest of the whole lot we thought was Baron N. Rothschild, a kind very distinct from any other both as regards colour and other points. It is noteworthy, too, that all, or at least the majority, of M. Van Van Houtte's seedlings were semi-double, which some will consider a doubtful innovation. For our part we prefer either the decidedly single or a good double, not intermediate. Another prominent exhibitor of new seedling Azaleas was M. Vervae, who showed some really beautiful varieties, for the most part pure singles. His plants, however, were all small, and did not make such a display as M. Van Houtte's, but some of the varieties he showed were unsurpassed. The finest from this exhibitor were *La Tendresse*, a lovely sort with very large single flowers of snowy whiteness; M. Labrousse, semi-double, a kind of carmine-crimson and very brilliant; *Honneur de Gand*, very large, single, crimson-cerise; Edmond Vervae, in the way of the well-known variety *grandis*; Mad. Hermann Seidel, a semi-double white, one of the finest; *Perfection de Gand*, rosy crimson, very large; *Colomba*, white striped pink; and Mdme. Louise Vervae, a fine double white. Of all these the two named *La Tendresse* and M. Labrousse attracted us most, and both will undoubtedly have a bright future.

NEW RHODODENDRONS.—As we remarked last week, *Rhododendrons* were shown admirably by two or three exhibitors, and one collection of standard specimens in particular was as fine as one could see at any London show. The varieties, too, were of the best; but we observed that the majority of them were of English raising, and particularly the fine varieties that have been sent out from the Surrey nurseries of the Waterers. There was one class for eight new varieties, but on the whole the collections shown were not remarkable; one or two, however, we thought worthy of note, being uncommonly fine. The finest of all was one shown by M. Louis Van Houtte, under the name of Marie Van Houtte. It has dense massive trusses with large open flowers with crisped edges, white faintly shaded with pink. This was the admiration of everyone, as it stood out so conspicuously from all the rest. Another fine one shown by M. Van Houtte was called Mad. Wilhelmine Van Houtte; it had a dense truss and flat open blooms of a delicate rose-pink, shaded with white and spotted with yellow. Bne. George de St. Gervois was a beautiful pink, but lacked other

good qualities, and there was nothing remarkable about any of the rest. Among the other varieties of Rhododendrons shown was one in M. Vuylsteke's collection in the way of Joseph Whitworth. It was, as regards size and form of the flower, finer than any we have hitherto seen; it measured fully 4 inches across, and was perfectly flat; the colour was a rich plum-purple. It is the kind of flower that we want more of in our own varieties, but taken on the whole, and judging by the material at this exhibition, we have nothing to fear as yet in the matter of hardy Rhododendron raising. It was interesting to note that fully two-thirds of all the Rhododendrons in the show, which numbered some scores of varieties, were of English raising.

this plan; indeed, none whatever is wasted, except that carried through the chimney. We doubt, however, if the practice would find much favour in this country, for few gardeners would care to have such a scorching hot corner in their houses, and the risk of poisonous fumes is great. In this same house, which was a sharp pitched span designed for a fruit tree house, we noted that the flow was carried along the base of the roof while the return was carried along the front of a narrow border raised about 4 feet above the path. The ventilating apparatus in one house we thought excellent. The house was a long span-roofed one, and the top ventilators were so arranged as to open simultaneously throughout the whole length of the house by a lever at one end,

devices for quick working. In some there were thin transverse diaphragms; in others the plates ran longitudinally, and we imagine every one of them would be capital workers and very durable, for they were all well made, being of wrought iron and strongly rivetted. Another exhibitor had a series of copper boilers in various patterns, horizontal, vertical, plain, and tubular. One of the tubular copper boilers was in action at the exhibition, and it did its work very quickly and efficiently in every way. Of all boilers these are no doubt the quickest in action, but whether they are as durable as iron, or whether they repay the higher cost, is questionable. Probably some of our readers could give an opinion on this matter. There were numerous other garden



Aglaonema pictum, a new plant shown at Ghent.

PLANT HOUSES, though not numerous shown, possessed a few points of interest. One, a spacious span-roofed structure, was heated entirely by gas, which was ignited in a small copper furnace placed outside the house, and the heat from which was carried round the house through three 2-inch pipes placed immediately beneath the stages, which were formed of thick burnt clay tiles resting on crossstrips of T iron. Special care was taken so that no fumes from the gas could escape to the interior of the house, but whether the practice would answer in a lengthy trial was not apparent, neither could we clearly see what the heating capability of the system was, as the sun was powerfully playing on the house throughout the whole week. In another house we observed that the whole of the heating apparatus, including the boiler itself, was inside the house. The boiler was an ordinary saddle, fed from the outside, but so constructed that no fumes from the fire could reach the interior of the house. There is no doubt that a deal of heat is economised by

Simultaneous opening of ventilators is a common contrivance in our houses, but this one was different from any we had previously seen, but a sketch is needed to illustrate exactly what the plan is. There were several iron houses, and one we observed was contrived so that it could be readily removed in sections, which, bolted together, form a neat span-roofed house. We saw no style of glazing save the old-fashioned putty glazing, which, after all, is perhaps as good as any. The houses exhibited by Messrs. Foster & Pearson, of Beeston, Notts, for which two gold medals were awarded, were of their well-known stamp—one a plant house, the other a fruit house, and both perfection as regards the workmanship, fittings, and quality. Their frames, too, with their patent fastenings seemed to attract a deal of attention, being something unusual in Belgium. There was a goodly number of boilers exhibited, some of which were quite out of the ordinary run of boilers made here. Most of them were modified saddles, that is saddle shape with various

appliances, implements, &c., exhibited. Lawn mowers were miserably represented, and, judging by the display, there is not much demand for them. Those shown were little more than toys, so different from the powerful machines exhibited in this country. If the display was weak in lawn mowers, it was strong in pumps, for we have rarely seen so many of such diverse patterns, and, judging by the show of them, we should say that the Belgians are a long way ahead of us in the matter of garden water engines and pumps. There were rotary pumps of all descriptions, and all of them seemed to have been constructed on the newest principle, and always with due regard to easiness of working, a great point in a garden where labour-saving is an object. We saw a boy working one of the largest rotary pumps and throwing out such a large volume of water as from a pump of the old-fashioned up-and-down handle style could not have been produced by a couple of men in the same time. There is great need in both trade and private gardens generally of labour-saving appa-

ratus, and especially in anything relating to water. Among miscellaneous exhibits we noted some excellent tubs for large Palms, Ferns, Orange trees, and the like, which were made in two equal sections kept together by strong fastenings, so that these only had to be removed to examine the roots or for re-tubbing.

SOCIETIES.

ROYAL HORTICULTURAL.

APRIL 24.

ON this occasion the usual fortnightly show was supplemented by the Auricula Society's Exhibition, and the two combined produced the finest display that has been made at South Kensington this year. It was likewise a most interesting one, for the exhibits were of a varied character, and there was ample material to suit the tastes of the crowds that visited the exhibition. One hardly knew which to admire most, the Auricula show, the superb Roses from Cheshunt, the equally fine group of Clematises from Bagshot, the splendid collection of Daffodils from Messrs. Barr, or the Orchids, Cyclamens, Amaryllises, Pelargoniums, contributed by various others. New plants, too, were more numerous than usual.

First-class certificates were awarded to the following:—

MAXILLARIA HARRISONIÆ ALBA.—A new and very beautiful variety of an old and well-known Orchid. It differs in no way from the original except in colour; the sepals and petals are pure white and of wax-like texture, while the labellum is white and exquisitely lined and pencilled with purple. The perfume is quite as strong and as pleasant as in the type. It is a fine addition to garden Orchids, and a really useful ornamental plant. Exhibited by Mr. B. S. Williams, Upper Holloway.

AMARYLLIS ADOLPHUS KENT.—A seedling variety remarkable for the intensely deep crimson of its flowers, surpassing in richness that of A. Acramanni pulcherima, from which it is evidently descended. Its unique colour is its chief characteristic, for its flowers are but of medium size, and in form it is a little too funnel-shaped. Exhibited by the raisers, Messrs. Veitch & Sons, Chelsea.

ROSE MERVEILLE DE LYON.—A Hybrid Perpetual variety, having large, full, and finely-shaped white flowers, suffused with a delicate blush tint. It appears to be vigorous in growth and floriferous, and will, no doubt, become a standard variety. Shown by Mr. Turner, Royal Nurseries, Slough.

ODONTOGLOSSUM POLYXANTHUM GRANDIFLORUM.—The finest variety of this species, both as regards size and colour, that has been seen in this country. The flowers measure about 5 inches across the outstretched flowers, and the petals and sepals are much broader than usual. The ground colour is white, inclined to green, and heavily blotched with chestnut-brown. Exhibited by Mr. Woolford, gardener to Mr. Lee, Downside, Leatherhead.

MIMULUS GRANDIFLORUS BRILLIANT.—A very beautiful variety, having flowers about 2 inches across, of a glowing rich crimson inclined to scarlet, a colour seldom seen even among the variable Monkey Flowers. In habit of growth the plant is admirable; in short, it is one of the finest varieties we have seen. Exhibited by Mr. R. Dean, Ranelagh Road, Ealing.

CLEMATIS JOHN BROWN.—A single-flowered variety of the lanuginosa type. The flowers are large, the petals broad and of firm substance, and of a rich uniform purple. Shown by the raiser, Mr. Noble, Sunningdale Nursery, Bagshot.

AZALEA ANTIGONE.—A variety of the Indian Azalea, with large, semi-double flowers, pure white, striped and flaked with purple. Quite distinct from older varieties and a valuable acquisition. From Mr. Turner, Slough.

PRIMULA DOLOMITES.—A new species, having a tuft of broad-toothed edged foliage, from which are produced the flower-stems, which rise 3 inches

or 4 inches high. The flowers, borne in stalkless umbels terminating the flower-stem, are about an inch long, tubular, and gradually opening wide at the mouth. The colour is a bright chrome-yellow, which makes it quite distinct from other cultivated species. It is a neat and pretty plant, and a valuable addition to hardy flowers. Exhibited by Mr. J. T. Llewelyn, Penllergare, Swansea.

SCUTICARIA DODGSONI.—A new and handsome species intermediate between S. Hadweni and S. Steeli. It has long terete drooping foliage; the flowers are some 2 inches across; the sepals and petals are yellowish, heavily blotched with chocolate-brown; the labellum is boat shaped, and has purplish markings on it. It is a distinct and handsome Orchid. From Mr. B. S. Williams.

NARCISSUS PRINCESS MARY.—A very beautiful variety of the incomparabilis type, having large full flowers with white petals, and a broad shallow pale yellow crown; one of the finest of the race. Exhibited by Messrs. Barr and Sons, Covent Garden.

ROSE WHITE BARONESS.—A pure white flowered sport from the well-known and highly-prized Hybrid Perpetual Baroness Rothschild, from which it differs only in colour. It will no doubt prove one of the finest of white Roses. From Messrs. Paul and Son, Cheshunt.

POT ROSES.—A fine feature of the show was an extensive collection of pot Roses from Messrs. Paul & Son's nurseries, Cheshunt. There were about three dozen specimens in all, some being large fan-trained plants, as perfect as could possibly be as regards profuseness of flower and vigour of plants. The sorts represented by these large specimens were Edouard Morren, Comtesse de Serenye, Duke of Edinburgh, Magna Charta, La France, Céline Forestier, Louis Van Houtte, and Comtesse Riza du Parc, the last a lovely new Tea variety, with flesh-tinted flowers of good size and fine shape. The other plants in the group were for the most part standards, and comprising admirably grown plants of La France, Marie Van Houtte, Madame Falcot, Triomphe d'Alençon, Madame Margottin, Maréchal Vaillant, Moiret, and Catherine Soupet. Besides these there was the new White Baroness, perhaps the best pure white Hybrid Perpetual we have, the flowers being large, full, and pure in colour. There was also shown a new variety named Ulrich Brunner, having a splendid full flower of a bright cerise, and one that will inevitably become a standard Rose. Rarely have Roses been seen in such perfection in April, and Messrs. Paul provided a real treat for the visitors. The group was awarded the first prize of £6 offered by the Society for the finest group of Roses.

CUT ROSES.—A silver Banksian medal was deservedly awarded to Mr. W. Rumsey, Joyning's Nurseries, Waltham Cross, for an extensive collection of cut Roses, numbering twenty dozen trusses, which, having regard to the early date, did the grower considerable credit, as scarcely a bad bloom could be seen; on the contrary, the majority were of first-rate quality. The collection, too, was a thoroughly representative one as regards varieties, there being a fine selection of Hybrid Perpetuals and a similarly fine one of Teas. Some two dozen blooms of Maréchal Niel Rose were as fine as could possibly be seen, all the flowers being large, full, and highly coloured. Of such beautiful sorts as Auguste Rigotard, Dr. Andry, Star of Waltham, Marquis de Castellane, Marie Baumann, Annie Laxton, Paul Néron there were some blooms as fine as could be seen at any July show. Taken altogether, this was a remarkable collection, and Mr. Rumsey deserves the thanks of the community for bringing together such a gathering of April Roses.

ORCHIDS.—A collection from Messrs. Thomson and Sons, Clovenfords, Galashiels, N.B., contained many choice and beautiful things. A gathering of about a dozen spikes of Vanda suavis and varieties of V. tricolor showed plainly how well the Vanda is grown and flowered at Clovenfords, and what uncommonly fine varieties there are there; but as those shown were unnamed, we cannot particularise any. Other cut spikes were of Cattleya

amethystina, one of the best forms, a wonderfully fine Dendrobium Wardianum nearly 5 inches across, and another with plum-coloured markings, splendid forms of Cattleya Mossiæ and Mendelli, and a grand variety of Cypripedium villosum called aureum, with flowers fully a third larger than usual, and with a striking suffusion of yellow in the flower. Messrs. Thomson also showed a plant of the new Cattleya Gaskelliana, which is unquestionably a magnificent Orchid, having very large-spreading flowers with delicate mauve sepals and petals, and a wide shallow labellum with a yellow throat and heavily blotched with brilliant amaranth, and with a broad frilling of white. The plant shown bore two spikes, one carrying two, the other three blooms. An Odontoglossum in the way of Ruckerianum was likewise shown. It is a very handsome variety, but distinct both from Ruckerianum and Andersonianum (flowering plant of which was shown for comparison), but appears to be intermediate between the two. The plants shown bore a spike with five branches. A silver Banksian medal was awarded to Messrs. Thomson for their attractive collection.

A similarly fine collection of cut Orchid flowers was sent by Dr. Paterson, from Fernfield, Bridge of Allan. It comprised some exceptionally fine spikes of Vanda suavis and tricolor, Lycaste Skinneri, Odontoglossum Halli, Masdevallia Veitchi, and various others, all of which bore evidence of skilful culture. A bronze Banksian medal was awarded.

A marvellously fine variety of Odontoglossum called Stevënsi was exhibited by Mr. Stevens, from the Duke of Sutherland's garden at Trentham. It was, without exception, the finest variety of the Alexandræ type that has yet come under our notice. The flowers are large and have broad overlapping petals and sepals pure white, and blotched all over their surfaces with a pale cinnamon colour. The plant shown bore a long arching spike, and was a most attractive object.

A handsome unnamed variety of Odontoglossum came from Messrs. Jackson, of Kingston. It is near that named O. Wilckeanum, and is unquestionably a distinct and beautiful plant.

Messrs. Sander & Co., St. Albans, exhibited a plant of Cypripedium ciliolare, a new species in the way of C. Argus, and quite as handsome; also a flowering plant of the new and rare Phalenopsis Sanderiana, which, however, did not represent the plant so finely as the plants that have lately bloomed in Sir Nathaniel Rothschild's garden at Tring Park. Messrs. Sander also had a panful of the charming Pinguicula caudata, which they were the first to introduce to cultivation from Mexico. A panful of flowers was a pretty sight, and we observed several gradations of tint in the flowers. Among the Orchids shown by Mr. B. S. Williams were some well-flowered plants of Odontoglossum vexillarium, of which there was a variety called splendens, having large blossoms of the richest and deepest tint of any we have seen, a contrast to the waxy forms one often meets with. In the same collection was a specimen of D. densiflorum, with a dozen spikes all expanded; another of D. thyrsiflorum and of D. Wardianum with long wreaths of bloom.

AMARYLLISES.—A group of seedlings from Messrs. Veitch, numbering about a dozen plants, included some wonderfully fine sorts, as perfect in every point as any that have been shown previously by this firm. Among the most striking were Mrs. Burbidge, flower very large, bright freckled carmine, with a conspicuous band of white running through each petal; Schiller, large, with broad reflexed petals of a salmon-pink, striped with white; W. S. Parker, remarkable for its intensely deep crimson, but a rather small and ill-shaped flower; Goethe, with funnel-shaped flowers of a brilliant netted crimson, and white striped; Corneille, large and fine in form, crimson, freckled and mottled with white. The others shown were named Marmion, Molière, Sappho, Marianne, and Queen of Holland. It is now some six weeks or two months since Messrs. Veitch began to exhibit their Amaryllises this year, and still they have other seedlings to flower, so that the Amaryllis season now

extends over a long period. A new double Azalea, named *Hermosa*, also came from Messrs. Veitch. It is a profuse flowerer, the colour being a deep rose-pink, and the flowers are large and quite double.

CYCLAMENS AND AMARYLLISES, all finely flowered, formed a large and attractive group, from Mr. B. S. Williams, Upper Holloway, who was awarded a silver Banksian medal. The Cyclamens were of the large bold-flowered strain, known as Williams' Improved, and the Amaryllises comprised such remarkably fine sorts as Dr. Masters, which we have so often praised; William Pitt, with small flowers, but of a splendid rich crimson colour; Mrs. Gordon, large crimson edged white; Guiding Star, Mrs. Browne, Princess of Prussia, and the lovely white variety, Mrs. B. S. Williams. Among miscellaneous plants we noted in Mr. Williams' collection the new *Sarracenia Fildesi*; a double *Cineraria*, *Vortigern*, with bright violet flowers; *Azalea La Pucelle de Gand*, a large single white; and a beautiful small-flowered, semi-double flowered variety called *Duke of Edinburgh*.

RHODODENDRON EXONIENSE.—A large specimen, between 4 feet and 5 feet through, of this new *Rhododendron* was exhibited by Mr. Robert Veitch, of Exeter. It carried a profusion of white blossoms about the size of those of an ordinary Indian *Azalea*. They are white, faintly suffused with pink. It is one of the finest of this section of *Rhododendrons*, and is sure to become popular. Some small plants of it accompanying the large specimens were sufficient to prove that it is a profuse flowerer in even a very small state. Another *Rhododendron* named *gloxiniæflorum* was also shown by Mr. R. Veitch. It has large transparent flowers copiously spotted on the inside of the corolla; the trusses are large and handsome.

RHODODENDRONS AND INDIAN AZALEAS in one bold and effective group similar to that exhibited on the last occasion came from Messrs. Lane's nursery, Great Berkhamstead. Of course no other than a fine collection could be expected of such veteran exhibitors, but we thought these *Rhododendrons* finer than ever, all being large bushy standards completely smothered with trusses of bloom. Their natural, untrained appearance greatly added to the charms of both *Rhododendrons* and *Azaleas*. A silver gilt medal was awarded. A group of Indian *Azaleas*, consisting of admirably flowered specimens, came from Mr. Bown, Erd-sleigh, Gunnersbury, who was awarded a bronze Banksian medal.

CLEMATISES.—A splendid group of Clematides was shown by Mr. Noble, of the Sunningdale Nursery, Bagshot, who has paid a deal of attention to the cultivation and improvement of these beautiful flowers. The collection numbered some thirty plants, all in 12-inch pots and trained on cone-shaped wire trellises. There were single and double flowered sorts amongst them, and two were quite new. These were named *Krao*, with large violet-purple flowers and a conspicuous tuft of white stamens in the centre; and *John Brown*, of a splendid deep purple, having large broad petalled flowers. Both of these may be considered acquisitions, being distinct from other varieties of similar colours. Among the rest were such beautiful sorts as *Aurora*, *Proteus*, and *Undine*, all with double rosette-like flowers of various shades of violet; and *Elaine*, also a double of a bright purple. Of the singles the finest were *Maud Branscombe*, pale pink; *May Queen*, rich mauve; *Princess Beatrice*, delicate porcelain blue; *Duchess of Albany*, pure white; *Lord Giffard*, deep violet; *Margaret Dunbar*, bright purple; *Miss Bate-man*, white shaded with blue; and *The President*, the finest purple Mr. Noble has, the colour being intensely rich and deep and very uniform. For this attractive and much admired group Mr. Noble received a silver Banksian medal.

Cut *Pelargonium* flowers, representing single zonals, double zonals, and double Ivy-leaved sections, in their finest varieties came from Messrs. Cannell, of Swanley, who alone could make such a grand display of *Pelargonium* blooms in the middle of April. We have seen the zonal varieties quite as fine from Swanley, but never had we seen the Ivy sorts in

such fine condition, not even in the middle of June. There were about a dozen sorts shown, and as they were of the finest we give the names as being a good representative selection: *Comte H. de Choiseul*, cerise; *Mad. Crousse*, pink; *Comtesse H. de Choiseul*, bright amaranth; *Madame Pages*, deep mauve; *Albert Crousse*, bright carmine; *George Gordon*, deep mauve; *Mad. E. Galle*, pale mauve; *Eurydice*, deep mauve-pink, one of the finest; *M. Dubus*, amaranth; and *La Perle*, deep mauve. These can be recommended as being the finest of the numerous sorts now grown, but even among the large quantities Messrs. Cannell grow it could not have been an easy task to have cut such enormous trusses of bloom so early in the season. The zonals were the admiration of everyone, their brilliant hues lighting up everything about them. The same exhibitors also showed a fine potful of an early *Gladiolus* with salmon-tinted flowers of the *ramosus* type, and a basketful of plants of the double *Chrysanthemum coronarium*, aptly named the *Aurora Marguerite*. The flowers, about the size of a crown-piece, are as double as they could be, and of a clear chrome-yellow. For winter and spring bloom it will be a first-rate plant, and the dwarf profusely flowered specimens shown on this occasion admirably represented the variety. A silver Banksian medal was awarded to Messrs. Cannell & Sons.

From the genial climate of Bath Mr. Hooper brought from his nursery at Widcombe Hill some six dozen blooms of the *Pansies* he grows so finely, chiefly show varieties, also a smaller number of *Carnations*, which were excellent for the season. Cut blooms of *Maréchal Niel* Rose also came from Mr. Hooper. A double form of *Anemone coronaria* called *splendens* was shown by Messrs. Collins & Gabriel. It was indeed a splendid variety, as fine as we have ever seen, the blooms being fully double and of a vivid scarlet colour. A few such *Anemones* as this in a spring border would doubtless make a charming picture in any garden.

A fine variety of *Imantophyllum miniatum*, called *Mrs. Laing*, was shown by Messrs. Laing & Co., Forest Hill. It is remarkable for its large and finely shaped flowers of a bright glowing orange-red, as fine as the best of the Belgian varieties when seen at its best. A single yellow-flowered Wallflower called *Cranford Beauty* was exhibited by Mr. J. Graham, of Cranford. It is a vigorous growing sort, about a foot high, and very bushy, and the unusually large flowers are of a glowing clear yellow. It will be a useful plant for spring gardening, but in the absence of other yellow flowered Wallflowers to compare with it we are unable to speak of its distinctness.

TWO NEW *AZALEAS* were brought by Mr. Turner from his nursery at Slough, named *Comte de Kerchove* and *Hermosa*, both of which we thought uncommonly fine. The first has large salmon-pink flowers copiously blotched with crimson and edged with white. The other was the same as that shown by Messrs. Veitch. Mr. Turner also showed a most singularly coloured *Pelargonium* called *Dresden China*, having large flowers flaked and striped with white and pink, somewhat like the old York and Lancaster Rose. It belongs to the decorative class, but is distinct from any yet raised.

CLEMATIS COCCINEA.—The scarlet-flowered species figured a short time since in *THE GARDEN* was exhibited by Messrs. Carter, but the plant did not represent the species at its best, the colour being much brighter later in the season. The same firm also shows an attractive variety of *Primula Sieboldi* called *grandiflora* and a basketful of their new *Viola* called *Carter's Perpetual Blue*, which is said to produce a perpetual crop of its rich, deep purple flowers even throughout the winter. The Hoop Petticoat Daffodil was shown finer by Mr. Douglas, of Great Gearies, Ilford, than we had hitherto seen it. The plants, about half-a-dozen bulbs in 6-inch pots, were a mass of large golden yellow blossoms, which, being uncommon at a show, won a fair share of admirers. Mr. Douglas was worthily awarded a cultural commendation.

THE FRUIT AND VEGETABLE COMMITTEE had very little to do on this occasion, as there were but three exhibits. These were a new hearing *Kale* shown by Mr. Read, and which was considered worthy of a first-class certificate; Mr. Ellis, Biggleswade, sent some admirably grown examples of *Tender and True Cucumber*, and Mr. Kershaw sent samples of his new *Paragon Rhubarb*, which is said to be a first-rate variety—"very prolific, and never runs to seed."

SCIENTIFIC COMMITTEE (Mr. Loder in the chair):—

Grafted Conifers.—Mr. Noble sent a specimen to show the protuberant growth produced by *Picea nobilis* grafted on *P. pectinata*.

Abies Nordmanniana attacked by insects.—He also sent a bough of this tree terribly infested by coccus, to which the entire tree appeared to be succumbing.

Lilium Thomsonianum.—Mr. G. F. Wilson showed a plant bearing several spikes of flowers which have as yet been somewhat seldom seen. The question was raised whether it was a true *Lily* or *Fritillary*, which are distinguished by the form of the honey nectary, that of *Lilies* being a long groove, as in *L. Thomsonianum*, and in *Fritillaries* a deep circular pit.

Rhododendrons.—Mr. Boscawen sent several sprays of various forms, all having been grown in the open air, but amongst *Fir* trees, which, Mr. Llewellyn observed, constitutes an excellent protection, viz., *R. Thomsoni*, *R. fulgens*, a pink one, variety of *R. arboreum*, introduced, he believed, by Sir J. D. Hooker, a white seedling of much beauty, and Mrs. Townshend Boscawen. Mr. Llewellyn brought cut blooms of *R. arboreum album* or *ochraceum* (?) having a white, waxy, campanulate corolla very slightly spotted with black, the foliage having an ochraceous tomentum below; the tree is 15 feet in height. He also exhibited trusses of *R. Thomsoni*, *R. campanulatum*, *R. arboreum*, *R. Wallichii*, and *R. niveum*—all blooming now in the open air. He observed that they would have been over at this time had not the buds been held back by the cold for a month before the March frost began. They are now blooming as if there had been no frost.

Arum italicum.—Dr. M. T. Masters brought a specimen of this plant from Folkestone, the first instance of its occurrence in Kent, other habitats being Cornwall and Isle of Wight. It differs from the common *Arum maculatum* by having hybernal leaves, the petiole longer than the blade (over 12 inches), while the basal lobe of the sagittate leaf is larger as well as the spathe.

Primula elatior.—Mr. Boulger showed various specimens of this plant received from Mr. Christie, of Saffron Walden, described as scentless, but which had a marked odour of Apricots; after a coppice had been cut down it appears to run into several monstrous forms, such as fasciation, &c. He noted that single flowers on abbreviated peduncles come from lateral points on the rootstock, but the pedunculated umbel from the summit. This latter form, Mr. Henslow observed, is the one horticulturists now aim at securing in their numerous *Polyanthus*-formed *Primulas*, at the same time suppressing the isolated flowers which arise. He also showed a supposed hybrid between *P. officinalis* and *P. elatior*.

Sclerotium in Potato.—Mr. A. Stephen Wilson forwarded tubers diseased and several microscopic slides of preparations of the sclerotia, which were forwarded to Mr. Murray for examination and report.

NATIONAL AURICULA SOCIETY. (SOUTHERN DIVISION.)

APRIL 24.

THE Auricula season has again returned, and fanciers of this interesting flower are once more engaged in friendly rivalry with their plants. In the conservatory at South Kensington on Tuesday last the southern division of the Auricula Society held its annual show, which, taken as a whole, was finer than any that has hitherto been held, though perhaps the individual plants shown were not so fine as on previous occasions. This

was, however, chiefly attributable to the inclemency of the weather that we have lately had. Among the exhibitors there were the same familiar faces and also a few new-comers, a circumstance which plainly points to the fact that the Society has not been unsuccessful in its endeavour to popularise and foster the culture of one of the oldest and best known of our spring flowers. It was a noteworthy fact that fully one-half of the prizes went to exhibitors from the north—those from Warrington, Halifax, and Manchester—that well-known Auricula grower, Mr. Horner, of Kirkby Malzeard, being particularly successful. The chief prize winners in the south, as usual, were Mr. Douglas, of Ilford, and Mr. Turner, of Slough, both of whom showed some remarkable productions. The show altogether was a most attractive one, but visitors were far more charmed with the loveliness of the selfs and alpine varieties than by the show varieties with their green, grey, and white-edged flowers that are looked upon by the uninitiated in the light of curious monstrosities. These self and alpine varieties are evidently becoming more generally grown every year. The schedule was so arranged as to give both large and small cultivators a chance of competing, but we should like to see ten times the number of exhibitors. Subjoined is a detailed account of the exhibition, and those who desire to make a selection of the best kinds cannot do better than make a note of the names of those shown in the different classes.

Collections.

In the class for twelve, Mr. Douglas and Mr. Horner were equal firsts. In the collection of the former there were Prince of Greens, Smiling Beauty, Mabel, Conservative, George Lightbody; and of selfs, Pizarro, Blackbird, Charles Perry, and a few unnamed seedlings made up the dozen. Mr. Horner had R. Headley, Meiklejohn, Monarch, George Lightbody, John Simonite, Champion, and Acme among shows, and Beatrice, Mrs. Douglas, Heroine, and Blackbird among selfs. Mr. Pohlman, Halifax, had the third collection, and in it were fine examples of Brunette, Mrs. Douglas, and Garibaldi, three of the most beautiful selfs. The fourth collection was from Mr. J. T. Llewelyn, Penlegare, Swansea, and contained good specimens of Grey Friar, Ne Plus Ultra, Lovely Ann, and other fine show varieties.

The class for six plants was represented by only two collections, the best being from Mr. Pohlman, who had in his lot Ajax, Prince of Greens, Trail's Beauty, George Lightbody, Brunette, and Acme, all admirable specimens. Mr. Douglas had the second best six, which included besides two seedlings, Duke of Albany, Blackbird, Conservative, and Confidence.

The class for four was more numerous; there were eight competitors. The best came from Mr. Penson, Ludlow, who had Acme and George Lightbody in fine condition, Prince of Greens, and Topsy. Mr. Barlow was second with a green-edged seedling called Goldfinch, Alexander Meiklejohn, Smiling Beauty, and a new seedling self called Adonis. Mr. Brockbank, of Didsbury, was third with a fine plant of George Lightbody, also John Simonite, Lovely Ann, and a beautiful new seedling self. In Mr. Fife's collection, which was fifth, there was a good plum-coloured self called Formosa. Mr. Bolton, of Warrington, showed the fourth collection of four, having Alderman Brown, Prince of Greens, Reliance, a seedling self, and a good specimen of Glory. In Mr. Dean's sixth collection was a capital plant of Read's Brilliant (one of the finest selfs), Lancashire Hero, New Green, and an un-named seedling. Mr. Dombbrain and Mr. Turner showed the other two collections, and both had some excellent selfs, particularly one in Mr. Dombbrain's lot called Metropolitan, which was uncommonly fine.

The class for pairs was a very numerous one, as the small growers had a chance of competing in it. There were no fewer than fourteen exhibitors in this class. The best two were from Mr. Barton, who had Colonel Taylor and a seedling self called Caribunell; Mr. Penson was second with Ludlow and Prince of Greens, Mr. Brockbank third with Reliance and a seedling self (very handsome), Mr.

Turner fourth with Topsy and Beauty, Mr. Rowan fifth with Lovely Ann and Pizarro, and Mr. Bolton sixth with Frank Simonite and Prince of Greens. Messrs. Dean, Catley, Kew, Henwood, Dombbrain, and Phillips also showed in this class.

Single Specimens.

GREEN-EDGED VARIETIES.—There were no fewer than thirty-eight single specimens of green-edged sorts. Mr. Horner was first with a seedling raised by Simonite, Mr. Pohlman second with Col. Taylor, Mr. Penson third with a seedling, Mr. Horner fourth with a seedling, Mr. Brockbank fifth with Col. Taylor, Mr. Pohlman sixth with Imperator, Mr. Penson seventh with Col. Taylor, and the same exhibitor eighth with Talisman.

GREY-EDGED.—Of these there were over half a hundred single specimens shown. The first was George Lightbody from Mr. Pohlman; the same variety, shown by Messrs. Douglas, Horner, and Pohlman, took the second, third, and fourth prizes respectively; Mr. Brockbank was fifth with Alexander Meiklejohn, Mr. Douglas sixth with Jumbo, Mr. Pohlman seventh with G. Lightbody, and the same variety was shown by Mr. Douglas for the eighth prize.

WHITE-EDGED.—About seventy plants were shown in this class. The best was Conservative, from Mr. Douglas; Read's Acme, second, from Mr. Brockbank; John Simonite, third, from Mr. Horner; Silvia, fourth, from Mr. Douglas, who also was fifth with Dr. Kidd, and sixth with Conservative; Mr. Brockbank was seventh with Acme, and the same sort from Mr. Douglas was eighth.

SELFS.—About a hundred self varieties were shown in the single specimen class. Heroine, a very beautiful variety, took the first four prizes, a good proof of its worth. All four were shown by Mr. Horner, who raised it; Mr. Pohlman was fourth with Blackbird, and the same sort from Mr. Horner, was sixth; Mr. Brockbank was seventh with Cymbeline; and Ringdove, from Mr. Horner, was eighth.

ALPINE VARIETIES.—In the class for twelve Mr. Turner was first, with a very fine collection of such first-rate sorts as National, Sensation, E. S. Dodwell, Diadem, Mariner, Superb, Mrs. Thompson, Vesuvius, Tennyson, Phoenix, Raphael, and Artist. Mr. Llewelyn was second, his collection being remarkable for several fine unnamed seedlings. Mr. Douglas had the third collection, which comprised excellent plants of George Lightbody, Ada Hardwidge, and Rosamond. There were four sets of six plants. Mr. Turner was first with Troubadour, F. A. Dickson, Mariner, John Ball, John Brown (new), and Sensation—a very fine half dozen. Mr. Pohlman was second, five out of the six being seedling laced varieties, some of which were uncommonly fine. Mr. Llewelyn was third, and Mr. Douglas fourth.

SINGLE SPECIMEN ALPINES, with gold centres, were numerous, there being about two dozen shown. Mr. Turner took all the six prizes in this class. For the first he had a seedling called Dr. Hogg, for the second Unique, third Vista, fourth Roysterer, fifth E. R. Cutler, sixth John Brown, all new seedlings, and first-rate in their respective colours. There were about thirty white or cream centred varieties, Mr. Turner taking all the six prizes offered. He had new seedlings called Olivette, Bayard, Mabel, J. D. T. Llewelyn, Talisman, and Milton.

THE FANCY VARIETIES, so odd looking compared with the beautiful selfs or alpine, do not appear to be much grown, judging by the small numbers of them shown. Mr. Douglas had the best dozen, and Mr. Bolton, of Warrington, the next best, while Mr. Dean was third. In one or two the collections of fancy varieties there were some pretty laced flowers, which, being so distinct from any other race, might well be placed in a class by themselves.

POLYANTHUSES.—The class for six plants was represented by four collections. Mr. Barlow, a well-known northern grower, was first with excellent plants of Exile, George IV., Lord Lincoln, Cheshire Favourite, Prince Regent, and Sunrise,

Mr. Brockbank, of Didsbury, was second with Exile, George IV., Cheshire Favourite, Sir Sidney Smith, Beauty of England, and Lancer, all good examples. Mr. Llewelyn was third with President, Exile, Lord Morpeth, George IV., Prince Regent, and Cheshire Favourite. In Mr. Douglas' fourth set were fine plants of Lancer, Cheshire Favourite, and Exile. There were six sets of threes; Mr. Barlow was again first with Cheshire Favourite, Exile, and George IV. Mr. Brockbank was next with Sir Sidney Smith, Exile, and George IV. Mr. Douglas third with Cheshire Favourite, George IV., and Lancer; and Mr. Llewelyn fourth with Lancer, President, and Cheshire Favourite. Single specimens numbered about fifty. Mr. Brockbank was first with a fine specimen of Cheshire Favourite, Mr. Llewelyn second with Exile, Mr. Brockbank third with George IV., Mr. Barlow fourth with John Bright, Mr. Brockbank fifth and sixth with Nonpareil and Lancashire Hero respectively.

PRIMULAS were better and more numerous shown than we had hitherto seen them here. A really fine collection of twelve plants was shown by Mr. Llewelyn for the first prize. It comprised a fine specimen, over a foot through, of Primula Sieboldi, and also of the variety lilacina; also P. rosea (an admirable specimen), P. japonica, P. Auricula, P. verticillata, P. involucrata var. Munroi, and P. Pallasi with pale yellow flowers. Mr. Llewelyn also showed the second collection, and Mr. Dean had a fine group of P. Sieboldi—all the best varieties, and well grown. The principal prizetakers in the classes for border Polyanthuses and Primroses were Mr. R. Dean, Mr. Brockbank, and Mr. Hooper. The exhibits of Mr. Dean were particularly fine, as were also the double Primroses from Mr. Brockbank, who also had seven or eight remarkable seedlings, the offspring of Lord Lincoln, Exile, Cheshire Favourite, &c. They are as follows: John o' Groat, very fine, dark; Red Exile, very like the black variety; Excellence, a very pretty dark; Lord Derby, a grand tall variety; Beauty of Brockhurst, rivalling the old Beauty of England, and like it; Black Diamond, a very black ground; and Nonpareil.

We must not omit to mention the important collection of Primroses from Mr. Waterer, Knap Hill Nursery, Woking, which contained many beautiful sorts, and which were shown to pretty effect in long boxes. A silver medal was awarded.

NEW AURICULAS AND POLYANTHUSES.—Of these there was a goodly number both of show and alpine varieties, Messrs. Horner, Barlow, Brockbank, Douglas producing the former and Mr. C. Turner the latter. Prizes were awarded for the best green-edged Auricula, the first prize going to Mr. Barlow for a medium-sized, but very bright-looking variety of high-class quality—tube, paste, body colour, and edge all good; second, the Rev. F. D. Horner with Monarch, a large and very fine flower of excellent qualities. In the grey-edged class the Rev. F. D. Horner was first with Ajax, a large, very bright, and correct flower that promises to take a high position in its class; second, Mr. J. Douglas, with Miss Lodge, a very pleasing variety of large size and excellent qualities. In the white-edged class some seedlings were shown, but they were not considered worthy an award. In the self class Mr. Samuel Barlow was to the fore with a very fine lot of pale plum-coloured flowers, very smooth and correct. Adonis was placed first and Caribuncle second, both raised by Mr. Barlow, and likely to take high rank as exhibition flowers. The premier Auricula in the whole show was Conservative (Douglas), a very pleasing white-edged variety, with six finely expanded pips. In the classes for new alpine Auriculas, which are divided into gold centres and white centres, Mr. C. Turner was awarded both prizes in each division. The best gold centres were Dr. Hogg and Unique, very bright and effective edged or shaded flowers of the finest quality; the best white centred varieties, Olivette and Bayard. The four foregoing varieties were quite up to the mark of the splendid flowers raised at Slough.

Prizes were also offered for gold-laced Polyanthus, black grounds and red grounds. Mr. W. Brockbank was the only exhibitor of these, and received the first and second prizes in the class for black grounds, staging Black Diamond and Nonpareil, two flowers of high-class quality and great promise. No award was made in the class for red ground Polyanthus.

First-class certificates were awarded to the following new alpine Auriculas from Mr. C. Turner: Bayard, white centre; Dr. Hogg and Roysterer, golden centres. A first-class certificate was awarded to Horner's Ajax for its excellent qualities.

ROYAL BOTANIC.

APRIL 25.

THE second spring show of this Society was held on Wednesday last in the Regent's Park Gardens. It was of much the same character as that at South Kensington, on the day previous, with the exception of exhibits shown in the competitive classes and a few miscellaneous groups. Messrs. Paul were there with their superb group of pot Roses from Cheshunt; also Mr. Rumsey, from Waltham Cross, with his extensive gathering of cut Roses; Messrs. Barr had their fine group of Narcissi; Messrs. Lane, Rhododendrons; Messrs. Veitch, Amaryllises; Mr. B. S. Williams, Orchids, Cyclamens, and Amaryllises; and Mr. Noble, Clematises. In addition to these there was a beautiful group of Cyclamens, numbering about half-a-hundred plants, from Mr. Little's garden at Hillingdon Place, Uxbridge. This group, well diversified, as it was, in colour, was greatly admired, and well worth the silver medal awarded to it. From Capt. Patton's garden in the Alpha Road came a fine group of Narcissi and other hardy flowers, which, though gathered from a London garden, were specially noteworthy. There were over fifty varieties of Daffodils, comprising most of the choicest sorts in the Ajax, incomparabilis, and poeticus sections. The handsome Emperor, Empress, Horsfield, and some of the Leeds forms were particularly fine, as were also the poeticus varieties. These were supplemented by such choice hardy plants as Zephyranthes Treatæ, Triteleia uniflora, Fritillaria latifolia in variety, and some uncommonly fine plants of Primula cashmeriana, one of the finest of the denticulata type. Most of these were in narrow-mouthed glasses, in some cases plunged in pots of sand to steady them, but in all cases care was taken to hide the receptacles as much as possible. One could wish that Mr. Barr would take a hint from Captain Patton and exchange his blacking-bottles for receptacles that would better suit his Daffodils which he shows in other respects so admirably. We ought not to omit to mention some very fine plants of Begonia semperflorens shown by Captain Patton, which were a credit to his gardener. The flowers were larger and whiter than usual, and we learnt that it was a distinct variety, bearing the name of grandiflora. A small, but showy group of plants was exhibited by Messrs. Cutbush from their Highgate Nurseries. It consisted chiefly of New Holland plants, their great speciality, but the most striking was a collection of small bushes of Azalea mollis in several varieties. These were all densely flowered, their colours varying from pink, yellow, and salmon to almost white, a striking display, rendered all the more attractive by a fringe of Maiden-hair Fern.

The exhibits in competition for the prizes offered were none of them very remarkable, and though there were 15 classes in the schedule, some even of this number were not represented. Stove and greenhouse plants were shown by three or four in the nurserymen's class. The best collection of a dozen from Messrs. Reed were small, but neat, well flowered and fresh, and were decidedly superior to the rest. It was made up of the ordinary run of exhibition plants, such as Azaleas, Aphelexis, Heaths, and the like. Lady Goldsmid's gardener showed in the next best collection a remarkably fine specimen of the rarely seen but pretty, Hibbertia Reedi, also of Adenandra fragrans

and Leucopogon Richei, both comparatively rare, and the last an extremely pretty Australian shrub that should be grown in all gardens if only for cutting from. In Mr. James's third collection was a grand specimen of Anthurium Andreanum with six fine spathes, and an uncommonly fine variety of A. Scherzerianum, with spathes as large almost as those of the much-prized Ward's variety. In the other collection was a plant of Dendrobium thyrsiflorum with eight spikes. If the best dozen could have been picked out of these four collections, it would have made a very creditable display. Azaleas were not very remarkable except the collections from Mr. Turner and Mr. Ratty, both well-known Azalea exhibitors, who took the first prizes among nurserymen and amateurs. Mr. Turner's plants especially were remarkable for their trim appearance, not large, but perfect in every point, and a capital selection of varieties, among which were such beautiful ones as M. Thibaut, Comtesse de Flandre, Duc de Nassau, Reine des Pays-Bas, and Apollon, perhaps the finest of all whites.

The Roses of Messrs. Paul were the only ones shown in the competing classes, and fine they were, better even than on the previous day at Kensington. The nine included such standard varieties as La France, Mad. Lacharme, Anna Alexieff, Céline Forestier, Comtesse de Serenye, Mad. St. Joseph, and John Stuart Mill, all grown and flowered in perfection. There was only one collection of nine Pelargoniums, and this was from Mr. Turner, of Slough. All the plants were large and perfect specimens considering the early date. Nearly all were decorative sorts, such as Duchess of Bedford, Venus, Duchess of Edinburgh, Lady Isabel, La Patrie, Joe, Sappho, and Duchesse de Morny, all of which are excellent for early flowering. Cinerarias were shown by Mr. James and Mr. Wiggins, but the former was invincible, as his group of nine plants in point of quality of the blooms carried so much weight, but as regards culture there was little to choose between them, for both were excellent in that respect. Mr. James certainly carries everything before him in Cinerarias, for he is a long way ahead of everyone else. The new sorts he showed on this occasion were simply perfection. Amaryllises were not much compared with those of Messrs. Veitch, but Mr. Baxter's first prize lot contained one or two that were remarkable in point of colour, particularly that named W. S. Parker, which was as rich and brilliant in tone as could be. That named Percival was also a good sort in Mr. Baxter's collection. The other six were from Mr. Little's garden, the most noteworthy of which were Othello, deep crimson; Queen Mab, and Lytton. The Auriculas were much the same as those shown at South Kensington the day before. Mr. Douglas and Mr. Turner were the leading prize-takers in the class for a dozen plants, and Mr. Turner also showed a group of alpine sorts which were much admired. There were two collections of hardy plants, the best being that from Messrs. Carter's Forest Hill Nursery, in which were admirable specimens of Iris pumila azurea, with sky-blue flowers; Primula Sieboldi grandiflora, very fine; Primula viscosa alba, a fine potful; and Myosotis elegantissima, a pretty variegated Forget-me-not. The others were not remarkable. Mr. Llewelyn's second best lot comprised Trillium grandiflorum, Anemone Robinsoniana, a delicately-tinted variety of A. nemorosa; Trollius europæus, Primula longiflora, Hutchinsia alpina, and a singular Allium with porcelain blue flowers from Biarritz.

NEW PLANTS.—The following new plants, in addition to those certificated, were shown on this occasion: Cattleya Mendeli delicata, from Mr. B. S. Williams; Cinerarias Charles Dickens, Captain Williams, Rupert, Mrs. Elliott, William Robinson, Azalea Hermosa, and Amaryllises W. S. Parker and Schiller, from Messrs. Veitch. From Mr. H. Little came Polyanthus Rayon d'Or, Azaleas Empress of India, La Pucelle de Gand, M. J. N. Verschaffelt, and Cyclamen Mrs. H. Veitch; Pelargonium Dresden China, Azalea Comte de Kerchove, and Hermosa, from Mr. Turner; Clematises Duchess of Albany, John Brown, Maud

Branscombe, from Mr. Noble; Azaleas Master C. Connell and Mr. T. Todman, from Mr. Todman; Auricula Miss Lodge, Lieutenant Charrington, and Duke of Albany, from Mr. Douglas; Azalea Duke of Connaught and Amaryllis Guiding Star, from Mr. B. S. Williams; Rhododendron gloxiniflorum, from Mr. R. Veitch; Primula cortusoides amœna grandiflora and Viola Perpetual Blue, from Messrs. Carter and Co. Messrs. Barr and Sons had the following new Daffodils: Narcissus Minnie Hume, incomparabilis pallidus, Princess Mary, Mary Read Vincent, Rebecca Syme, Primulinus, and Barri conspicuus. Mr. E. Baxter showed Amaryllis Percival; Mr. H. James, Clematis Norwood Beauty; Messrs. Paul and Son, Roses White Baroness and Ulrich Brunner.

BOTANICAL CERTIFICATES were awarded to Mr. B. S. Williams for Odontoglossum Alexandræ grandiflorum, Crinum Kirki, and Scuticaria Dodgsoni; and to Mr. James, Castle Nursery, Lower Norwood, for Odontoglossum Chestertoni, a fine variety.

FLORICULTURAL CERTIFICATES were awarded to Messrs. Veitch for Amaryllises Adolphus Kent, Mrs. Burbidge, Thomas Moore, and Queen of Holland; to Mr. James, Woodside, Farnham Royal, for Cinerarias Mrs. White, Lord Boston, and Shirley Hibberd, all excellent sorts; to Mr. Turner for Rose Merveille de Lyon, Azalea Deutsche Perle (a double white), and Azalea Antigone; to Mr. Douglas for Auricula Conservativa (a grey-edged show variety); to Mr. Noble for Clematis Krag; to Captain Patton for Narcissus incomparabilis Princess Mary; to Mr. Little for Cyclamen Mrs. H. Veitch; and to Messrs. Barr & Son for Narcissus Minnie Hume, N. Princess Mary, N. bicolor, J. B. M. Camm, and N. Purity.

A list of awards will be found in our advertisement columns.

Carpet bedding (P.).—1, edging of Echeveria secunda glauca, or of Sedum glaucum; 2, groundwork of Herniaria glabra; 3, dot plants of Echeveria metallica, or of any other tall succulent; 4, line of Pyrethrum Golden Feather, or of Mesembryanthemum cordifolium variegatum; 5, Alternanthera paronychoides; 6, Alternanthera amabilis, or else Coleus Verschaffelti; 5 and 6 may have a central plant of Grevillea robusta, or of Dracæna australis lineata; 7, line of variegated Pelargoniums, or of Centaurea.—W. W. H.

CATALOGUES RECEIVED.

Stansfield Brothers' (Southport) Alpine and Hardy Perennials.

Winch & Sons' (Ipswich and London) Garden Furniture.

Krelage & Sons' (Haarlem) Bulbous Plants.

Rawlings Brothers' (Romford) Descriptive List of Dahlias—P. S. Williams' (Upper Holloway) New and General Plant Catalogue.

W. Paul & Son's (Waltham Cross) New Roses, Geraniums, &c.

W. B. Smale's (Torquay) General Nursery Catalogue.

R. Smith's (Worcester) Fruit Tree List and Rose List.

Fritillaria oranensis, planted in November on arriving from Algeria, came up early in March, before any other Fritillaries, and stood perfectly unhurt through the severe weather in the middle of the month, when the foliage of Primroses, Violets, and Anemones in the same situation was entirely destroyed. It is a very dark kind, with green stripes down the divisions outside.—G. J.

Names of plants.—Devonian.—The plant now so pretty in patches at Mentone is Linaria aureo-reticulata.—*J. R. R.*—A pale form of Lycaste Skinneri (not uncommon).—*J. C. T.*—Erinus alpinus.—*Wakeman*.—1, Anemone coronaria; 2, Saxifraga sarmentosa.—*C. Mussell*.—Phalenopsis Schilleriana. The names of the Heaths next week.—*Busy Bee*.—Solanum jasminoides.—*L. E.*—Narcissus incomparabilis fl.-pl. (Orange Phoenix).—*R. M.*—Filumna fragrans.—*R. G.*—Maxillaria Harrisoniae.—*T. G. K.*—1, Dendrobium cambridgeanum; 2, D. crassinode; 3, Cyrtocidium maculatum; 4, Kerria japonica variegata.—*Mrs. Leach*.—The old white Azalea indica alba; can be obtained from any good nursery.—*S. K.*—Dendrobium fimbriatum.—*J. S.*—Erica arborea. E. melanthera not likely to be hardy in Scotland.

"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

ANTHONY WATERER AND THE PRIMROSES.

TO THE EDITOR OF THE GARDEN.

SIR,—That many Primroses should come from Knap Hill to a flower show is a sign of the times. I have long been under the impression that the only suitable background for a good man in that district was a fine bush of Rhododendron; but I am agreeably undeceived. The best things at the recent show at South Kensington were Primroses sent from Knap Hill, fine in vigour of growth and bloom. They were sent in large boxes; there was no trimming, dressing, or any of the usual "refinements" that go on among the hard-shell florists and "pip men." It was Nature unadorned, and supreme in every way over the poor little exhibits of the pip men. As Mr. Waterer showed the Primroses, we could get some idea of their value for garden decoration and of the splendid variety and colour that is among them. If one could have seen the very best colours he had, each in a separate box, then an idea would have been at once given of the high value of the plants for outdoor work. Beyond the merely hard-shell florist world there is a vastly greater world of men and women who love flowers for their beauty, and the truth is these people have a better knowledge of what is right and admirable than the florists as we now know them, with their little artificial complexities and limitations. There is not one in ten of the public who care, or ever could care, for flowers as these florists' flowers were shown. Let our nurserymen who care for such things go on in this way, and we shall soon see the old-fashioned florist take his due place. If Mr. Anthony Waterer or others will take up good races of Primroses and show what can be done with them, they will confer a great benefit on the public. There is the Auricula, the value of which has never been shown at exhibitions, owing to the delicate and pretty little forms seen at shows; but no fairer or hardier flower lives in Europe, and there would be no difficulty in the culture of charming hardy kinds, which grow out of doors as freely as Primroses, with bold leaf and beautiful flowers and buds. So long as a plant which is a native of the coldest mountains of Europe is housed in a greenhouse or cold frame we must expect that only the more delicate kinds will be developed under such circumstances. Not one person out of ten who know the Auricula knows its value in a moist, free soil out of doors. The Polyanthus also is an admirable plant in points which one can never see as shown in the old way. The one thing necessary in this connection is the selection of good, as opposed to bad and weak colours. There is a splendid range of fine colours in all these plants if people will but take the good, and not the merely curious and streaky varieties. We are rather too apt to fancy merely variegated kinds, and not take notice of the quality of colour which is the essential thing when the plant is seen in groups or masses. I do not wish only for decided colour; there are many wants in colour apart from decided colour. The softest colours may be extremely valuable, more so than many decided ones.

To rescue various beautiful hardy tribes of plants from the obscurity of the cold frame, and help to show their great value in garden decoration in all parts of this cold and rainy land of ours, is well worth the attention of our nurserymen, and I am very much obliged to Mr. Waterer for making so good a beginning. Up to the present time it is only in a private garden here and there that one meets with examples of the value of such plants; the great body of the trade have yet to be convinced of their importance. The pip men on the one side, few and weak, and the poor herbaceous border men on the other, succeeded between them in convincing the trade that there was nothing in hardy plants. Now, however, the scales are beginning to fall off their eyes. J. M.

NARCISSI AND OTHER FLOWERS AT GUNTON.

I HAVE sent you a few flowers of the new incomparabilis forms of Narcissus, kinds that appeared to me to stand out with great beauty and distinctness from many others, viz., *N. Leedsi Humei*, *N. sulphureus grandiflorus*, *N. aurantius expansus*, *N. Leedsi amabilis*. After reading for weeks past in THE GARDEN about the many fine kinds of Narcissus in flower in more favoured parts of the country as regards climate, the longing to see them open puts one in a state of suppressed excitement. *N. maximus*, *N. poeticus angustifolius* and *ornatus* opened their first flowers to-day (April 26); *bicolor Nelsoni major* and *Nelsoni pulchellus* are not yet opened; *N. Horsfieldi*, *N. Emperor*, *Backhouse's Emperor* and *N. sulphureus* are in flower at the present time. There is this consolation: if we have not the pleasure of seeing them so early in this part of the country as in some others, we have them with us when they are over in more favoured localities. I send five flowers of the Aldborough Seedling *Anemone* that I had from the late Mr. Nelson's collection; they vary somewhat; one has a white ring like *stellata*, which I had not noticed in the bed of original seedlings at Aldborough. Through the liberality of Captain Nelson in giving me a nice bit of fluffy seed last year I have a splendid batch of seedlings for flowering another year. I hope some day to be able to cut them as freely as we do the other two old kinds of which I have enclosed flowers. The scarlet Mr. Barr named *A. stellata annulata*, the dark pink variety, I do not know; though an old plant, I believe it is but very little known. These two varieties have been established here in quantity many years, and I am told no flower can surpass them and few equal them for lasting in a cut state in a London house. Our borders in the kitchen garden filled with *Iris reticulata*, *Scillas*, *Anemone fulgens*, *Narcissi*, *Triteleia*, &c., half fills the flower box during the spring months, supplemented with *Maréchal Niel* and other Roses twice a week; than these nothing gives so much pleasure or satisfaction at this season.

WILLIAM ALLAN.

Ruscus androgynus.—Your notice of this plant last week induces me to show you a flowering leaf. It is too little grown and is hardy in some parts of England. At Bitton I saw it growing against a wall, and from Mr. Ellacombe I got my plant about seven years ago. It is now 15 feet high and 3 feet through, a pyramid of perpetual rich glossy green. I grow it in a 22-inch pot in a conservatory. Another recommendation for its cultivation is that no insect seems to touch it, and so persistent is the foliage, some of which is 2 feet long, that several of the leaves are still fresh that

were on the plant when I received it from Bitton. It seems to enjoy about the same amount of shade as a *Lapageria* growing by its side.—J. M., *Charmouth, Dorset*.

PLANTS IN FLOWER.

CLIANTHUS DAMPIERI.—We have received from Mr. Niel McDougall, Ormiston, near Edinburgh, spikes of this showy *Clianthus*, each bearing five and six flowers. The plant, a seedling, is stated to be 4 feet high and still growing fast. It is planted out in a house in which Melons used to be grown. The jet black boss with which each flower is furnished gives this species a distinct and striking appearance.

BUNCHES OF PRIMROSES of all colours—orange, pale yellow, pink, crimson, white with yellow eye and striped red—come to us from Mr. Caudwell, of Wantage, where these charming spring flowers have long been grown and well, as the size of the blooms and foliage sent testifies. Coloured Primroses are now becoming plentiful everywhere, but not more so than they well deserve to be. We should like to see them in our woods and copses as well as in gardens.

CLIANTHUS PUNICEUS.—Wreaths of this good old plant, sent to us from Mr. C. R. Scrase-Dickins, of Coolhurst, show how superior for general cultivation it is to the more tender of the same family, even though it has smaller flowers individually. A shoot nearly a yard long, with many rich clusters of flowers hanging from it, and good also in its graceful leaves, is a notable thing from a gardening point of view; but the charms of our own spring flowers are now so great, that few tropical things can compare with them.

BEAUTIFUL ROSES.—Owing to their large and abundant foliage, some Tea Roses from Gunton seem to possess a rare beauty. The flower commands so much admiration, that the delicate beauty of the foliage of Roses is said little about. These long and massive buds of Tea Roses are much more admirable by reason of the rich and graceful foliage in which they are half buried. Perhaps the noblest use to which our often stiff and bare houses can be put is the growth of these precious Tea Roses which our climate is too severe for in winter. It is not difficult to create a little Madeira or California for them in which given previous good culture they will bloom kindly for us.

ALPINE AURICULAS.—Dr. W. H. Browne, The Laurels, Aldborough, Hull, sends us trusses of three handsome alpine Auriculas, named *Star of India*, *J. C. Niven* (both laced sorts), and *Maud Browne*, a deep mulberry with a conspicuous yellow eye, and the handsomest by far of the three. Of this some of the flowers measured $1\frac{1}{2}$ inches in diameter. A taste for showy and hardy Auriculas of this class has now set in, and is sure to march onwards. It is not everyone who can afford to cultivate the show kinds, but the alpine are within the reach of all, though they are all the better for the assistance of a cold frame in winter.

EUCHARIS SANDERII, now in flower at Kew, is finer than we have hitherto seen it. The flowers are larger than we have seen them before, and, moreover, not so funnel shaped, but flatter and more spreading. They are $2\frac{1}{2}$ inches across, with broad segments of firm texture and of snowy whiteness; indeed, there is nothing to mar the chaste purity of the bloom save a few faint streaks of pale yellow in the interior of the tube. The foliage is bold and handsome, quite different from that of either the other two species of *Eucharis*, and more resembling that of *Euryclis australasica*; it is broadly heart-shaped, pale green, and the upper surface is traversed by distinct furrows. It is seemingly a free grower and flowerer, and will doubtless become as popular as either of the other species of *Eucharis*, particularly for furnishing cut blooms.

MAGNOLIA SOULANGEANA NIGRA.—This is unquestionably one of the noblest and handsomest flowered hardy trees we have in gardens at the present day. It differs from the older and better known *M. Soulangeana* in having larger flowers of

a much deeper colour, being of an intensely deep maroon-purple, in fact almost black, on the exterior of the petals, but lighter within. It flowers a little in advance of the leaves, which are sufficiently unfolded to lend their tender green to harmonise with the richly coloured blossoms. This *Magnolia* is now in great beauty in Messrs. Veitch's nursery at Coombe Wood, whence we have received some admirable specimens of it.

FORTUNE'S YELLOW ROSE.—I am sitting with the first blossom of Fortune's yellow China before me, the loveliest thing I know, but instead of yellow it is all colours—pink, blush, buff, all blended together.—W.

BORONIA ELATIOR.—A very pretty bright New Holland plant, with many cheery rosy purple flowers and buds and cut leaves, somewhat resembling the Water Violet (*Hottonia*). It comes very well grown from the gardens at Nash Court, Faversham, and is one of the plants that make us wish for a revival of the once active fancy for New Holland shrubs. It is at home in the cool greenhouse.

FABIANA IMBRICATA, a neat Heath-like shrub from Chili, is sent us by Mr. Rogers, from Nash Court, Faversham. It is slender in growth; the long, spindling shoots are covered at this season with tubular white blossoms. It is almost hardy in this country, and quite so in Ireland, and in the warmer south counties, such as Devon and Cornwall. About London it succeeds admirably against a sunny wall. It belongs to the *Solanum* family, but is very unlike other members of the order, at least those in cultivation.

A NEW SEEDLING RHODODENDRON from Messrs. Lacombe, Pince & Co.'s nursery, Exeter, is a lovely variety. It is of the greenhouse section, and reminds one of *R. fragrantissimum*, but there is a delicate suffusion of pink in the flowers which renders them very beautiful. The blossoms measure 4 inches across the outspread petals, and are of good form and substance. The leaves are rather small, oblanceolate, glaucous, and scaly beneath, and ciliated at the edges, but glabrous on the upper surface. It appears to us to be a good addition to the list of tender *Rhododendrons*.

STOCKS AND WALLFLOWERS.—I send you flowers of the white Cape Stock, which gives 80 per cent. of doubles. It would make a fine kind for pots for conservatory decoration. The double yellow Wallflower is the dwarf branching kind, and shows how inferior it is to singles as regards effect. The single yellow Wallflower is sent to show how much inferior is the kind in common cultivation to Mr. Graham's Cranford Beauty. It is to be regretted that market growers confine their attention wholly to the dark red kind, as such a grand yellow as this would be purchased freely enough by the public.—A. D.

EDWARDSIA GRANDIFLORA.—This old-fashioned bush grows rather slowly in most parts of the country, but Mr. Scrase-Dickins sends us a beautiful branch of it from Horsham. Its curious and finely-coloured yellow pea blooms held in little brownish cups have a distinct beauty. If it could be grown and flowered freely, it would be very useful as an early flowering shrub. We do not learn from Mr. Scrase-Dickins how it is grown, but assume that it is out of doors. If so, what grows on the Horsham clay would grow easily on many better soils. When the flowers are looked at from above, there is a beautiful harmony of colour between the green-yellow of the flower and the green-brown of its cup. Usually it does well as a wall shrub.

EXOCHORDA GRANDIFLORA.—Trained against a sunny wall in the herbaceous ground at Kew, a bush of this beautiful shrub at the present time is bearing long wreaths of lovely snow-white blossoms. Though against a wall here, this shrub is perfectly hardy, and forms a neat, spreading bush if planted in good soil in an open position. When unprotected, however, by a wall it does not flower so early, and the blossoms are more at the mercy of the weather, wet and wind soon ruining them. We could not name a lovelier open-air shrub than this for spring flowering; but, beautiful as it is,

it does not appear to be much known. One good bush of it is worth more than a dozen of the second and third-rate flowering shrubs that are often crammed into shrubberies. A coloured figure of it appeared in *THE GARDEN*, Vol. XI., p. 152. It is nearly related to the *Spiræa*, and is a native of North China.

HARDY SHRUBS in flower from Mr. Stevens' garden at Grasmere, Byfleet, include such handsome kinds as *Pyrus floribunda*, some long sprays of which are profusely laden with coral-red buds and flowers. *P. Maulei*, with branches laden with bright orange-red blossoms, is also highly attractive; likewise the yellow-flowered Currant (*Ribes aureum*), which thrives to perfection in the light soil at Byfleet; *Forsythia suspensa*, one of the showiest of spring shrubs; *Rubus spectabilis*, and *Menziesia empetrioides*, with flowers like those of the Irish Heaths, but with narrow, Yew-like foliage.

Berberis stenophylla, at present one of the finest plants in the open-air garden, is brought to us in grand condition by Mr. Stevens from Byfleet, and Messrs. Veitch from Coombe Wood. One of the specimens measures just a yard in length, and the entire shoot is a dense wreath of golden blossoms. A large bush of this Barberry with flower-laden slender shoots falling over on all sides might in truth be likened to a fountain of gold. *B. stenophylla* is a hybrid between *B. empetrifolia* and the beautiful *B. Darwini*, of both of which Mr. Stevens brings us excellent flowering sprays. Without these beautiful Barberries, a garden in May would be deprived of half its charm.

TULIPA KOLPAKOWSKYANA.—A flower of this new Tulip comes to us from Mr. Stevens, Grasmere, Byfleet. It is of medium size compared with ordinary Tulips. The flower segments, which are brilliant vermilion, are narrow and pointed. At the base of each division is a conspicuous black blotch; the anthers are also black, while the filaments are brown. Flowers of the bright yellow *T. sylvestris*, our indigenous species, are also brought by Mr. Stevens; likewise several other interesting hardy plants, including the pretty *Viola Munbyana*, with showy flowers of a bright violet-purple. It appears to be quite hardy at Byfleet.

PLÆDRANASSA CHLORACEA.—Of this extremely handsome and rare bulbous plant there is now a fine flowering specimen in the Royal Exotic Nursery, Chelsea. It has large globular bulbs, which produce long and broad deep green foliage. The flower-stems are stout and erect, and rise from 2 feet to 3 feet high, each surmounted by an umbel of from six to a dozen flowers, which, being large and supported by slender stalks, droop gracefully. They are tubular and nearly 3 inches long, the colour a brilliant crimson tipped at both ends with a deep pea-green—a singular combination. The plant is a free grower in a greenhouse temperature such as that of an intermediate Orchid house, and it is of easy culture if care is taken to rest the bulbs after they have perfected their growth. It is a native of the Andes of Peru. A coloured plate of it appeared in *THE GARDEN*, Vol. XVI., p. 286.

SPRING FLOWERS at Hoole House, Chester.—The rockery at this place, the residence of the late Mrs. Hamilton, is now gay with *Aubrietias*, which are really charming, dense clusters of them being covered with hundreds of flowers, clasping the rugged stones in a way not easily forgotten. The *Forget-me-nots*, too, are very fine, and so are the alpine *Auriculas*, which seem quite at home on ledges of the rock. *Primulas* of many kinds are also flowering finely, and noticeable in the collection was one called *Arthur Potts*, a beautiful rosy pink variety of great substance. *Phlox frondosa*, *Nelsoni*, *subulata*, *setacea*, *atro-purpurea*, *The Bride*, *compacta*, and *Perfection* are also in bloom. *Gentiana acaulis* and the beautiful little *G. verna* seem quite at home in a little shady nook. Of *Anemones* there are several—*fulgens*, *apennina*, *memorosa* and its double variety, *Robinsoniana*, and the *Pasque Flower* (*A. Pulsatilla*). *Saxifraga muscoides* and *muscoides atro-purpurea*, the beautiful

S. Wallacei, *Rhei*, *lævis*, *cæspitosa*, *hypnoides*, *Rochelliana*, and *cordifolia* are at present very interesting. *Iberis corifolia* and *sempervirens* are represented in grand style, and that beautiful little gem, *Arenaria balearica*, clings to the stones and flowers profusely. *Epigæa repens*, with its beautiful Hawthorn-scented blossoms, *Daphne Cneorum*, *Scilla campanulata*, *Epimedium alpinum*, *Arabis albida* and *bellidifolia*, *Ranunculus montanus* and *amplexicaulis*, and *Viola palmarumensis* are all finely in blossom. A grand piece of *Anthyllis montana*, a yard through, is covered with half-expanded blooms, and promises to be a fine sight at no distant date. *Caltha parnassifolia*, a valuable subject for a rock garden, is bearing rich yellow blossoms in profusion. Several *Narcissi*, too, are in flower, amongst them being *Emperor*, *Empress*, *bicolor*, *Horsfieldi*, *ornatus*, and *incomparabilis*; also various others, the names of which would occupy too much room.—JAMES FINDLOW, *Botanic Gardens, Manchester*.

RHODODENDRON GLOXINIFLORUM.—We have in the grounds here a large plant 9 feet high and 8 feet in diameter of this beautiful *Rhododendron*. It is a great acquisition, being one of the hardiest and freest flowering grown, and when in bloom is a glorious sight, proving far hardier than any of the Nobleman race, buds and flowers of which were completely destroyed, while not a bud of this one was injured. We have a good collection here, but I consider this the most valuable of all, and I would advise all lovers of *Rhododendrons* to procure it.—JOHN D. NANSCHAWEN, *Whiteway*. [Truly a lovely *Rhododendron*, with large thimble-shaped blossoms of transparent waxy texture, profusely spotted inside with purple. The truss is large and dense, and the foliage rusty brown on the under surface. It seems to be an uncommon kind.]

WALLFLOWER CRANFORD BEAUTY.—Of this new Wallflower, Mr. Graham, the raiser, brings us a beautiful gathering which shows admirably what an extremely fine sort it is—the finest single yellow-flowered variety we have seen. Its blossoms are unusually large, and their colour a clear rich yellow. The perfume, too, is delicious. Mr. Graham remarks that an acre of this Wallflower in his grounds at Cranford, near Hounslow, is one of the finest sights imaginable. For comparison Mr. Graham brings a bunch of a sort raised by his late father and called *Graham's Yellow Perfection*, from which the present novelty has descended. It, too, is a fine sort, but the flowers are not so large as those of the new kind, and the colour is rather deeper. This was awarded a first-class certificate twenty years ago by the Royal Horticultural Society. For the spring garden and for cutting from this new Wallflower is a great gain.

BARBACENIA PURPUREA.—This remarkably distinct and handsome plant is quite out of the ordinary run of stove plants, and one, moreover, that is seldom seen in flower, but a few days since it was in bloom in the T range at Kew. It belongs to the family *Hamodoraceæ*, and the genus contains but a few species, all natives of South America, but chiefly Brazil. *B. purpurea* is a herbaceous perennial, having long narrow leaves beset at the margins with fine spinules. The foliage is borne in dense tufts at the apex of the stem. This character, together with that of being recurved, reminds one at once of some of the smaller growing species of *Pandanus*. The flower-stems produced from the middle of the tufts are tall, slender, nearly erect, and considerably overtop the foliage. Each stem bears a solitary tubular flower, measuring about 2 inches across the six outspread segments. The colour, a rich velvety purple blended with maroon, is very beautiful and uncommon even among flowers. The plant appears to be free in growth under conditions of treatment that suit other plants which delight in a warm and moist atmosphere.

PRIMROSES FROM BEDFORD.—Some of these from Mr. Dean are very varied in colour and show a wide range. From what we have lately seen we believe there is a great deal to be done with our common *Primroses* and *Polyanthuses*. There are too many of the merely streaky and hard colours, and too few of the good velvety colours.

The point is to select colours that are good in quality throughout, and therefore likely to give a fine effect in group or mass. It would be impossible to limit what is wanted in the way of colour, because colours may be good in any degree—decided colours, or quiet and neutral ones. Mr. Dean has made a speciality of these flowers, and we hope that he will go on increasing his collection. The fringed varieties lately sent out are a distinct addition. The least valuable in colour are the variegated forms. To fairly judge the values of colours each kind must be seen in groups or masses in the open air—the right place for any of our native Primroses. They might be well shown in wide wicker baskets or in boxes, each kind apart.

AMERICAN ALOES IN FLOWER.—Two remarkable specimens of these interesting plants have arrived at their flowering stage in the Oxford Botanic Garden. They have been removed from their winter quarters in the large house devoted to the cultivation of succulents to an adjacent lawn, where they have been provided with temporary protection from unpropitious weather. As in the process of flowering these Aloes entirely exhaust their vitality, it will be seen that two notable specimens will soon be lost to the collection, which is one of the most complete in this country, and includes many exceedingly rare species. The largest is a splendid plant, with leaves striped with yellow, some of them being more than 6 feet long, from which rises a healthy flower-spike measuring no less than 10 feet in height, and which promises to be an exceedingly fine one when fully developed. The other, producing leaves which are not variegated, bears a flower-spike but little less gigantic. Their respective ages, we believe, cannot be determined with certainty, but it may be assumed that they have entered their traditional five-score years.

CYDONIA JAPONICA.—Of this well-known hardy shrub, Messrs. Veitch send us from their Coombe Wood Nursery some new and strikingly beautiful varieties. One named *atropurpurea* has flowers of the richest crimson imaginable, many shades deeper than the colour of the ordinary kind. Another, called *coccinea*, is of a glowing cherry red, distinct from any other and a most pleasing colour. Then there is the snow white flowered *nivalis*, which differs from the old white variety in its flowers being without the faintest suggestion of colour. A variety, too, without a name, is of a delicate pink like that of Apple blossom. These are most valuable additions to hardy shrubs and if properly placed would have a fine effect. Like most other flowering shrubs, the Japanese Quince abhors being crammed into a crowded shrubbery, as it too often is. A group of these beautifully coloured varieties placed in an open position on a lawn or on a sloping bank, with a background of some evergreen foliage such as that of *Mahonia*, would form at this season an uncommonly pretty picture. One would hardly imagine that so much diversity in colour existed in the old-fashioned Japanese Quince.

Bramley's Seedling Apple.—Canon Hole has kindly sent us a good many specimens of this very noble and, he says, hardy and fertile Apple. If such handsome Apples can be grown in Nottinghamshire, why should we go to Connecticut for worse? At this season this Apple has lost some of its flavour and juice, as most of our Apples do. The great want in our market seems to be a good supply of Apples in the spring. Whether by totally changing our ways of keeping Apples by storing them in cellars, or somewhere where they would not be dried up, in a warm or dry shed, we could improve our supply is a question worth considering. But why should we not try to raise a race of Apples, crossed with some of the later kinds, which would come in in spring? It is not enough that an Apple should merely retain its shape; we want its flavour, and this in March and April. It is a bad sign of our land system when we have to search the world for the Apples for which there is always so great a demand in our large towns; and even with all our importations

it is frequently difficult to get good Apples at a reasonable rate at this season of the year.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 380.)

CYRTOMIUM.—This small genus only comprises three species, which are amongst the most useful for decoration, on account of their rapid growth and their firm texture, besides being all three very distinct and particularly handsome in appearance. They are, indeed, the best Ferns to be used in the least favoured places—in rooms and staircases, where their leathery foliage seems to defy the deadly influences of draughts, smoke, and even gas better than that of any other Ferns with which we are acquainted. Their bold foliage makes a striking contrast with that of finer-cut species when planted out in the cool fernery, in which place and under which treatment they will develop themselves into handsome specimens in an incredibly short space of time, and show themselves off to great advantage. For that purpose especially they are all three of the greatest value, as by the use of them we are enabled to give additional charm to the rockery not heated artificially, but simply covered with glass, where they, being evergreen, retain their beauty during the whole of the winter months. Their culture is very simple and their requirements very limited. The soil which suits them best is a compost of about equal parts of loam, peat, and silver sand, but care should be taken that they are not potted hard, or, if planted out in the fernery, that the soil round them should be kept moderately loose. They require a good supply of water at the roots during the growing season, and frequent syringings are beneficial to them during that time, but they should be watered sparingly during the winter months. It must be borne in mind that, although given to thrips, they will not get infested with them if not grown in heat.

C. ANOMOPHYLLUM.—This Japanese species is thoroughly distinct from the other *Cyrtomiums*. The fronds, which are produced in greater quantities than by any of the others, are from 1 foot to 2 feet long and pinnate, with numerous pinnæ falcate-lanceolate, slightly auriculate, and about 2½ inches long, rather thin in texture, and of a dull dark green colour when matured, but prettily mottled with paler green in their young stage. It is of a close, compact, and rather erect habit.

C. FALCATUM.—This highly ornamental species, like the preceding one, comes also from Japan, and is the hardiest of the genus, as it has been found to stand out of doors uninjured in several parts of England, Ireland, and Wales, in which cases, however, it became deciduous. It produces a very stout, densely scaly crown, from which its beautiful fronds rise to the height of 2 feet to 3 feet; they are pinnate, with pinnæ elliptic-lanceolate in shape, about 6 inches long and 2 inches wide. On account of its extreme hardiness, of its easy management, and probably also of the very rich dark glossy green of the whole plant, it is the species most commonly found in cultivation. Its habit, although not loose, is not so compact as that of the preceding species.

C. FORTUNEI (C. caryotidium).—Although a native of the East Indies, this species is just as hardy as the other two already described, and from which it is totally distinct, first by its drooping habit and also by the colour of the fronds, which, instead of being of a dark green colour, are of a most conspicuous light green tint. They are also produced from a thick, fleshy crown and pinnate, with pinnæ strongly auriculate at the base, and much larger than those of the other two species. It is quite different from any other Fern in cultivation, and requires but very little care in its management.

CYSTOPTERIS.—Although this genus contains numerous species and varieties of British origin, there are but few exotic kinds in cultivation. Like our native ones, the exotic forms are all decidu-

ous and perfectly hardy under a glass structure, not requiring any artificial heat at any time. They are of very graceful habit, and their delicately cut fronds, gracefully arching over, make them charming ornaments for the hardy rockery, where they should be planted in rather stiff soil, and in such spots that no water should be allowed to rest on their crowns during the resting season. It is also advisable to avoid wetting their tender and brittle fronds at any time.

C. BULBIFERA.—This essentially North American species, of a very striking habit, produces fronds about one foot long when mature, herbaceous and rather thin in texture. They are about 5 inches or 6 inches wide at their base, and grow gradually narrower towards their extremity, so that they have a narrower and more tapering outline than any other Fern with compound and feathery fronds. The stalks are slender, about 8 inches long, smooth, and rather brittle, usually of a green colour except at the very base, where they are dark brown; they are rounded at the back, and have a deep, though narrow, furrow in front; the pinnules are oblong, obtuse, and more or less toothed. It is extremely peculiar on account of the formation of little bulbs which are found on the underside of the frond, mostly at the base of the pinnæ, but they often occur in various positions. They consist of from two to four rough, fleshy, greenish or deep-coloured masses, which contain one or two rudimentary fronds. These bulbils, falling to the ground, soon emit a few slender rootlets, and send up some little fronds. The next season they reproduce the parent plant with all its characters. Greenhouse.

C. FRAGILIS.—A thoroughly cosmopolitan species found in habitats very far apart, and having, according to its native places, characters almost sufficiently distinct to make different varieties of them. For instance, the *C. fragilis* commonly found in North America produces fronds averaging about 6 inches or 8 inches in length, whereas the fronds of those found in the Hawaiian and Canary Islands, as well as in the south of Mexico, are generally over 1 foot long, while the representative of that interesting species found in England produces fronds about 5 inches long; but it must also be borne in mind that this species is extremely liable to alter its forms according to the temperature of the season and the moisture of the situation. But apart from the various sizes and the little variations in the cut of the pinnules, it may be said to produce its fronds in dense clusters; these are supported on slender brittle stalks about 6 inches long, of a dark colour at the base, while the rest of the stalk, as well as the whole of the frond, is of a light green; they are generally of an ovate lanceolate shape, commonly a little narrower at the base than at the second or third pair of pinnæ. These have a narrowly-winged midrib, so that while the frond appears bipinnate it really is only pinnate. Among the numerous forms that this species has produced only a few remain constant under cultivation. The two most distinct in characters are *C. fragilis laciniata*, with the segments of pinnæ varying much in shape and more still in cutting; they are deeply and irregularly lacinate, the fronds at the same time being narrower in all their parts; and *C. fragilis tenuis*, a most elegant little plant with bipinnate, ovate lanceolate fronds of a dark green colour, and on that point at least differing very much from the species. This variety rarely grows more than 6 inches high. Greenhouse.

DAVALLIA.—This extensive and well-known genus is composed of favourite species of great interest, all rivalling each other in usefulness and elegance, but varying essentially in forms and habits. They may be divided in two very distinct classes, the most conspicuous and most admired sorts forming a much appreciated group, popularly and deservedly known as Hare's-foot Fern (*D. canariense*), Squirrel's-foot Fern (*D. bullata*), Bear's-foot Fern (*D. Tyermanni*), &c., all denominative names given to these interesting species in allusion to the brown, grey, or silvery rhizomes with which they are provided, and which to a great extent

resemble, when destitute of foliage, the feet of the animals to which they owe their popular names. The second section contains only a few species equally beautiful and quite as ornamental, although deprived of the rhizomes, which in the former section are a constant source of attraction. *Davallias* have been found widely distributed, for although the majority of the species known at present come from the East Indies and the numerous islands of the Malay Archipelago, some, however, are from Australia and New Zealand, while in the south of Europe, Madeira, the Canaries, and adjacent islands is found the most popular species of all, the *D. canariense*. In consequence of their being scattered in such a large area and being found in such totally different habitats many beautiful forms can be made to decorate either the cool or the tropical fernery. Many of them may be used with great advantage as basket plants, where they make charming objects, especially those species with slender and flexuose rhizomes, such as *D. bullata*, *canariense*, *dissecta*, *pentaphylla*, and *Tyermanni*, whose habit it is to twine round and cover anything on which they are allowed to grow. If not grown in baskets or on blocks of peat, those with rhizomes, when potted, require to be a little elevated above the rim of the pot, as nothing is more injurious to them than to have their rhizomes buried in the soil, especially the species whose rhizomes are clothed with chaffy scales. Besides being highly decorative as specimens, their fronds possess another equally desirable quality, that of lasting a very long time when severed from the plant, which renders them very useful for bouquet-making and most valuable for the decoration of ladies' hair. Most of them are averse to heavy or close soil, and delight in a compost of light materials made of three parts of fibrous peat, one part of chopped Moss, or, better still, of good leaf-mould if procurable, and one part of silver sand, with thorough drainage and an abundant supply of water at the roots during the growing season, while they must be watered only sparingly during the winter, never allowing them, however, even those that are deciduous, to become quite dry. This is a very important point, as if their rhizomes are allowed to shrivel the ensuing growth will be much weaker. They require no syringing overhead to be grown in perfection, but will derive great benefit by being kept near the glass, where good light is obtainable.

D. ALPINA.—A charming little species of trailing dwarf habit, entirely distinct from any other kind. Its fronds, which are produced freely from very slender, flattened rhizomes, scaly at their points, are nearly triangular in shape when barren, tri-pinnate, coriaceous, and of a dark shining green. The fertile fronds perfectly triangular in outline, also tripinnate, are much more finely cut, and give the plant a very elegant appearance; they rarely exceed 5 inches in length, and last a very long time on the plant. This species, a native of Borneo, to be grown in perfection requires a very warm temperature and moist atmosphere, although it is not partial to watering overhead. Stove.

D. ACULEATA.—This very handsome species from the West Indies is particularly remarkable on account of its climbing habit, its elegantly divided fronds possessing the singular property of lengthening at the points very much in the way of the *Gleichenias*. They grow to an indefinite length; the stalks, rachis, and, indeed, the entire under surface of the fronds are covered with numerous short sharp thorns of a hook shape. The numerous pinnæ are cuneate in shape and bright green in colour. The plant is rendered still more attractive by the slender stalks and the fresh growths being of a pale claret hue. This species is devoid of rhizomes, all the fronds starting from a central crown, and makes a beautiful pot specimen; it may also be used with great advantage for covering a rustic pillar or for climbing over some rockwork, and should be either planted or potted in a more sandy or gritty compost than most *Davallias* generally are. Stove.

D. BULLATA.—A very pretty, small-growing, deciduous species from the East Indies, commonly

known as the Squirrel's-foot Fern from the general appearance of the creeping rhizomes, which are covered with minute scales of a reddish brown colour. The fronds, which are very abundantly produced on these rhizomes, are tripinnate, nearly triangular in shape, and of a rich, shining green; they seldom exceed 10 inches or 12 inches in length. It is one of the most useful kinds in cultivation, and makes a very fine specimen when grown in a shallow pan of good dimensions, where the rhizomes have plenty of room for extension. Stove.

D. CANARIENSIS.—Probably the best known of all *Davallias*, and commonly called the Hare's-foot Fern. The rhizomes are thicker than those of any other species belonging to the same genus, and produce magnificent triangular fronds of a bright green colour, and growing upwards of 2 feet high. It is a very ornamental plant either for basket, pot, or for planting out on rockwork. Being a native of the south of Europe, Madeira, the Canary Islands, &c., it does very well in a greenhouse.

D. DECORA.—A species from Java somewhat similar to *D. bullata*, but larger in all its parts. It is, besides, distinguished from that species by its growth being much stronger, its fronds averaging 1½ feet to 2 feet in length and 10 inches in width. They are produced on rhizomes, also quite different from those of *D. bullata* by the scales which cover them being larger and of a much lighter colour. Moreover, it is an evergreen species, and makes a splendid basket Fern. Stove.

D. ELEGANS.—This very grand species, a native of the Malay Islands, is no doubt one of the most charming of *Davallias*. Its rhizomes are stout, of a brownish colour, and produce a great abundance of tall, decompoundly, divided fronds of a rich, dark, glossy green colour, very useful for cutting, as they last a long time when off the plant if kept in water. It is very ornamental and of very vigorous growth, its beautiful fronds often attaining 3 feet in length. Stove.

D. ELEGANS VAR. *POLYDACTYLA*.—In its general aspect this garden variety resembles its typical form, and is as strikingly handsome as regards the dark glossy green of its substantial, long-enduring fronds; but instead of the extremity of the frond itself, as well as the extremities of the pinnæ and pinnules, terminating in a narrow point like those of the species, they become in the variety dilated and split down into several divisions, each of which is again divided several times, so that all the extremities are crested. It is very distinct and elegant, the whole contour of the plant being extremely ornamental. Stove.

D. FIJIENSIS.—As its name implies, this charmingly elegant Fern comes from the Fiji Islands. It is up to the present the most finely divided of the *Davallias* in cultivation. The fronds, which although finely cut are firm and durable in texture, have a deltoid outline, and are of a bright green colour; they are, besides, gracefully deflexed and compoundly divided, the whole fronds being split up into lanceolate, almost linear, pinnules, and finally cut into narrow linear or bifid divisions. It is remarkably graceful in its whole contour, and being of free growth and of evergreen habit, it must rank amongst the most ornamental of the whole genus. This noble species has already produced two varieties worthy of cultivation—the *D. fijiensis plumosa*, with very elegantly pendulous and graceful fronds terminated at their extremities by a rich tassel, which still gives the plant a richer appearance; and the *D. fijiensis major*, also of a graceful habit. Although of much more robust growth than the species, this variety produces fronds equally as beautifully cut, although not so fine; they are borne on slender stalks, and of a much lighter colour than the two preceding kinds. It is very useful as a basket or pot plant, and very valuable for decorative purposes generally. All three species and varieties require stove temperature.

D. GRIFFITHIANA.—A very handsome species from Northern India, producing thick fleshy rhizomes covered with light grey scales, giving

their extremities quite a silvery appearance. These rhizomes produce some large, spreading triangular fronds of thick texture, which in a young state are of a charming metallic hue, turning later on to a pale glossy green. They are tripinnatifid, and their pinnules finely cut in proportion to the size of the fronds. Stove.

D. HEMIPTERA.—A very elegant, small-growing, and quite distinct species from Borneo, producing slender, creeping rhizomes, from which arise a quantity of pinnate fronds averaging about 8 inches in height, with pinnæ finely cut on the superior edge, and of a pale green colour. The general appearance of the plant is somewhat similar to that of certain *Lindsas*, but it is much easier to manage and of more vigorous growth. Stove.

D. MARIESI.—This very graceful Japanese Fern is of free growth and of very dwarf habit. As a basket Fern it is, no doubt, one of the best of the genus on account of its rhizomes being very slender, readily taking possession of the whole exterior surface of the basket and peeping out in all directions. In Japan it is even made use of in a very peculiar way. Some sticks being covered all over with Moss, some of its slender and very pliable rhizomes are tied to them and made into any form imaginable; they are then hung up in rooms or in the gardens under trees, and all they require then to produce their elegant fronds in profusion is a constant supply of moisture, which they get by occasional dipping in water; by these means an enduring globose mass of verdure can be made in a very short time. This pretty Fern is also very effective when grown in a pan in the greenhouse.

D. MARIESI CRISTATA is a very prettily crested garden variety of the above species, rendered more elegant still by the tasselled extremities of the fronds and of their pinnæ. It is extremely attractive when cultivated in a suspended basket, over which its flexuose rhizomes creep in every direction, as in that case the weight of the tassels helps to show to perfection the grace of its arching fronds. Greenhouse. PELLÆA.

LATTENBURY HILL HOUSE.

THIS place is chiefly notable for its pleasant situation, near the summit of the highest ground in Huntingdonshire, and for the collection of hardy trees which surround and shelter it, hiding it completely from the public road. There is not much of formal gardening, but there are plenty of cosy sheltered nooks for early bulbs and other choice flowers. There are several handsome specimens of the Cedar of Lebanon, one fine specimen overhanging the front entrance. Creepers adorn the walls everywhere, and bulbs and other early flowers grow close up beneath the windows. The view from the lawn across the adjoining valley, taking in the high ground in the distance, is very pretty, and this part of the county of Hunts being well timbered has a park-like character. Mr. Martin, the gardener, has occupied his present situation in the Sperling family more than 60 years, and most of the choice trees which adorn the grounds have grown up under his care. Singular to say, I had the pleasure of measuring a Cedar of Lebanon which girthed 10 feet 2 inches at 3 feet from the ground in the presence of the planter, Mr. Martin, who is now upwards of eighty, having planted it in 1820, or sixty-three years ago. I measured other Cedars planted about the year 1820 that girthed upwards of 8 feet, but the first one I named was the largest, and it stood in an open position in front of the house. It is sometimes stated that the Cedar is a slow-growing tree, but on good soil it is not so. The soil at Lattenbury is a heavy loam on clay, the clay coming up near the surface. There were also very handsome thriving specimens of *Wellingtonias*, *Taxodiums*, *Picea Pinsapo*, &c., as well as deciduous trees, including many specimens of Weeping Birch. One of the great charms of this little place is the repose, the peacefulness which the style of planting adopted seems to secure.

E. HOBDAV.

GARDEN DESTROYERS.

THE OAK LEAF ROLLER MOTH.

(TORTRIX VIRIDANA.)

THE caterpillars of this pretty little moth are very destructive to the leaves of Oak trees, particularly in the south of England, and they occasionally occur in such extraordinary numbers that they entirely divest the trees of their foliage. When this is the case the trees suffer very much; in some seasons not only are a few trees here and there attacked, but acres, and indeed miles, of woodland are covered with swarms of this pest. Unfortunately, there is little or nothing that can be done to save large trees, particularly those growing in woods, from the attacks of these insects, but in the case of solitary or specimen trees much good may be done by spreading sheets on the ground under the trees and shaking the branches sharply, when the caterpillars will fall in great numbers. It is better to begin operations at the top of the trees, so that those which fall from thence and are caught by the lower branches may have another chance of being shaken to the ground. This insect is by no means very abundant every year, but, as is the case with many insects, for several years they may be positively scarce, and then for some reason, whether the absence of their natural enemies, or particularly favourable weather at a critical period of their existence, or some other circumstance is uncertain, they make their appearance in very great numbers for one or more seasons, and then suddenly disappear as mysteriously as they came, their disappearance being as difficult to account for as their arrival. Sometimes their very numbers prove the means of their extinction, as the foliage is all devoured before they are fully fed, and they die for want of nourishment. A high wind and heavy rain no doubt dislodge and kill many of them. The birds, as usual, help immensely in destroying these caterpillars. Rooks, jackdaws, starlings, thrushes, titmice, chaffinches, whitethroats, yellowhammers, the much-abused sparrows, and some others have been observed feeding on them, and are attracted to the infested trees by the prospect of abundant food. Pheasants feed on those which drop to the ground. The ichneumons and other parasitical flies attack them with great vigour, and on one occasion it was found that more than half the caterpillars were infested by some parasites.

The year before last I received a box full of caterpillars that were found feeding on the Oak leaves and stripping the trees; they were in such a state of decomposition when they reached me that it was impossible to say what they all were, but no doubt there were some of these Oak leaf roller caterpillars among them; in the box were also a number of hairworms (a species of Mermis, one of the Gordi), some of which were 7 inches in length and as thick as a piece of twine. As far as I could judge nearly every one of the caterpillars must have been infested with one of these worms, which had no doubt left their victims at their death. The only thing which we can do at present to diminish in any appreciable degree the numbers of this insect, considering how little we know of the circumstances which influence them beneficially or otherwise, is by encouraging as much as possible their enemies. In the case of birds this is easily done by not allowing their nests to be disturbed or the birds killed. Unfortunately, many persons still look upon birds of all kinds as destructive to the garden and farm crops; this is a great mistake, for birds do far more good than harm, and any crops which are liable to be injured by them can be protected by a little care and trouble. We know so little about the life history of the parasites of insects, that it is impossible to suggest any means for encouraging their increase except by not destroying them.

The moths appear towards the end of June, and lay their eggs on the twigs or buds; the caterpillars are hatched in the following spring when the young leaves are just appearing. They almost at once begin to roll up the leaves into a kind of

tube, which forms a protection for them against the weather and their various enemies. This would seem an almost impossible task when we consider the minute size of the caterpillars and the comparative stiffness of the leaves, and that each caterpillar works alone on a separate leaf. Many, if not all, caterpillars are provided with the means of spinning a silken thread, as silkworms do, being furnished with two internal tubes containing a thick gummy fluid (liquid silk, in fact); these two tubes are joined together, and terminate in one very fine one, which projects slightly from the head just below the mouth. When the insect wishes to form a thread it touches the object to which it is to be attached with the end of this tube and ejects a drop of the fluid, then drawing back its head or letting itself fall, a fine stream of this sticky fluid is drawn out, which immediately hardens into a strong thread. When the young caterpillar wishes to roll up a leaf, it attaches a thread to the underside of the edge of the leaf and fastens the other end to the



Oak leaf roller moth and caterpillar and rolled leaves.

leaf a little way from the edge. The thread in some way becomes tighter, causing the leaf to curl slightly. Some say the caterpillars tighten the thread by pressing it down and re-attaching it, or by pressing it down and spinning a fresh and tight thread which holds the leaf in a bent position. I am of opinion that the threads contract as they dry, and my own observations bear out my views. It is quite possible that both theories may be correct; the result is, however, the same. Subsequent threads attached in the same manner cause the leaf to curl more and more; others are then attached to the outside of this roll, which eventually presents the appearance of those shown in the figure. Within this shelter the caterpillar lives in comparative safety, feeding on the internal coils of the roll. If disturbed by the entrance of any enemy at one end of its dwelling it very quickly makes its exit at the other, letting itself fall, but still attached to the leaf by a thread, by which when it considers all danger is over it climbs up and regains its old quarters. When a branch infested by these caterpillars is shaken, large numbers may almost immediately be seen dangling at the end of their lines some feet in length. The caterpillars attain their full size about three weeks after they are hatched; they then become chrysalides within the curled-up leaves; in the course of about a

month the moths appear, and after pairing lay their eggs, as before mentioned.

The Oak leaf roller moth belongs to the family Tortricidæ, a family which contains several very destructive species, such as the codlin moth, the Plum tree Tortrix, and some smaller species, the parents of the grubs in Rose leaves. Members of the family may generally be recognised by the ends of the fore-wings which look as if they had been cut off straight. Tortrix viridana, so called from its beautiful green colour, measures nearly an inch across its wings when fully expanded; its head and thorax are of a pale green colour, its eyes dark brown, and its antennæ yellowish brown; the upper wings are the same colour as the thorax, except their front edges, which are whitish yellow; the lower wings and body are brownish grey. The caterpillars are about 5-8ths of an inch in length when full grown and are of a dull green colour with brownish spots; they are provided with a pair of legs on the first three, the sixth, seventh, eighth, ninth, and last six joints of the body. The chrysalis is of a very dark brown colour. G. S. S.

FLOWER GARDEN.

NEW AURICULAS.

THOSE who visited the National Auricula Society's exhibition at South Kensington on April 24, and who have been accustomed to visit such exhibitions during the last few years, could not have failed to observe how greatly the interest in Auriculas has increased since the first exhibition of them was held at the Crystal Palace, and more, what a great improvement has been made in them. Some look with contempt on the plodding florist; but from a rather extensive acquaintance with florists, I have no hesitation in saying that they get as much real enjoyment from their flowers as any botanist or practical horticulturist either. The Auricula exhibitions are the red-letter days in the florist's calendar. On those days they meet to compare notes, and to place their seedlings in comparison with those of others brought from distant parts, in order to show what progress has been made from one year to another. Five or six years ago certain varieties were exhibited in competing collections which would have no chance whatever to gain prizes now. The winning collections all contained seedlings raised during the last few years, and this, coupled with the fact that in 1881, and also in the present year, recently raised seedlings stood at the head of the prize list in a large competition, proves very conclusively that considerable progress has been made.

THE GREEN-EDGED class comprises very few really good flowers, and some of the growers are trying to improve it, and have had much success. Amongst varieties in commerce Prince of Greens (Trail) has the greatest merit, and is much esteemed by the fanciers. It has a handsome truss supported on a rather tall and stout stem, a fine green edge good ground colour, dense paste, but a pale tube, which dies off with an inky tinge. The old Col. Taylor (Lee's) is also very good as a green, and if it was as constant as Prince of Greens in producing good trusses, it would have to be placed before it. Nearly all the other greens have serious faults, which detract much from their other good qualities. Mr. Horner's new seedling named Monarch is very promising. Greenfinch, exhibited by Mr. Barlow, was not quite strong enough to show its qualities, but in the shape of a small plant it looked as if it would prove to be a good flower, the green edge and dark ground colour being regular and well defined. Lieut. Charrington, exhibited by me at Regent's Park, has a really good green edge, but the ground colour is faulty, although it has a good gold tube. There are other promising flowers in collections which will probably be exhibited on a future occasion.

THE GREY-EDGED CLASS, although not open to so much improvement as any of the others, may yet be added to with advantage. George Lightbody (Headley) is yet the best in commerce, and,

taking it altogether, it probably cannot be surpassed. Ajax (Horner) and Miss Lodge (Douglas), though considered the best at the recent national exhibition, are not equal to it in all points. Probably they are behind Mabel (Douglas), which gained the premium prize two years ago, and was awarded a certificate. It also gained a certificate from the Royal Botanic Society on April 25. Mrs. Moore (Douglas), figured recently in the *Florist*, has also had certificates from two societies. Silvia, by the same raiser, is a distinct and good flower, which is much thought of by the fancy.

THE WHITE-EDGED is also a class in which there is nearly as much room for improvement as in the green. John Simonite (Walker) is perhaps the best that has been sent out as yet; but Read's Acme is a neat, constant, and good variety. Heap's Smiling Beauty, long esteemed as the best of this class, is gradually falling into the background. Mr. Horner has raised some excellent varieties during the last few years. Godfrey Horner exhibited last year is a good flower. Mrs. Horner, Snowflake, and others may be heard of again. Conservative (Douglas), which has received two certificates from the principal societies, and gained the premium prize as the best Auricula in the exhibition on April 24, has many good qualities. Mr. Simonite's Frank, sent out very recently, is a free growing good flower of a pleasing bluish purple ground with a good white edge. In

SELFS, the new varieties are well in advance of the old ones. Pizarro (Campbell), which has several faults, is now left in the rear, but it has long held the highest position. Heroine (Horner) is the best self yet raised, and it was exhibited in grand form on the 24th; Ringdove (Horner) is the next to it, and is a beautiful variety; Duke of Albany (Douglas) is a fine dark flower, the edge of which contrasts well with the snowy white centre; Sapphire (Horner) is a distinct and good flower, rather rough, but worth growing for its beautiful bluish colour; Mrs. Douglas (Simonite) is thought to be a better flower, and is much of the same colour as Charles James Perry (Turner). Mr. Simonite has a good crimson seedling, a colour in which there is much room for improvement, as Lord of Lorne is rough and Duke of Argyle a shy grower.

THE ALPINE AURICULAS have been much improved since the first national exhibition was held in London. Mr. Turner, of Slough, has quite taken the lead in this section, and annually introduces many very fine seedlings. Perhaps no better type of an alpine Auricula was ever raised than the variety named Dr. Hogg. It has a beautiful shaded edge with a fine gold centre. Roysterer, E. S. Dodwell, E. R. Cutler, Mariner, Artist, &c., are great advances on the old self-edged kinds, which were grown and valued less than ten years ago. The alpine Auriculas are much easier grown than the show section; the flowers have no delicate farina or meal on the foliage to be marred by the least touch, and they are very interesting and beautiful when planted out in the flower borders or in the rock garden.

J. DOUGLAS.

VICTORIA ANEMONES.

THE truly superb display of cut blooms of these so-called Victoria Anemones staged the other day at South Kensington by Messrs. Collins & Gabriel calls for more than a passing notice. It is doubtful whether visitors to South Kensington, or indeed to any other English show, have seen for many years past, if ever, such a show of coronaria varieties of Anemone in such fine form and superb colours. It says much for the enduring character of cut Anemone flowers that these should have travelled so well all the way from Cannes and opened so admirably without losing a petal. In your report of the show just alluded to it was said, "would that we could grow such Anemones in our English gardens." To that let me reply, so we can and do, only the blooms are not quite so large, but in all other respects they are quite as good in form and varied in colour. Let me impress upon the readers of THE GARDEN the fact that

although dry roots are cheap and safe, yet seed is much cheaper, and sown now under glass will yield for about 1s. 6d. spent several hundreds of strong plants next autumn, which if planted out in good garden soil will bloom superbly from November to the end of May. I looked carefully over the several hundreds of fine flowers shown by Messrs. Collins & Gabriel, and also over Mr. Cannell's smaller collection from the same source, but found none of those semi-double flowers which were plentiful thirty years ago. My own strain produces every year a few of the real double section, which consists of an outer row of guard petals, whilst the centre is a dense cluster of enlarged or petaloid stamens; but with these, though richly coloured, I am not greatly enraptured. The semi-doubles of old days gave two or three rows of petals, and resembled very much semi-double Peonies. I remember that in 1850 the gardener at Westwood Park, Southampton, had this semi-double strain, the flowers of which were remarkably fine and well varied in colour, but that garden has long since disappeared. I hope to be able to get this strain back again in time, because I have already noted in my own beds two or three flowers having twice the usual number of petals, and these may reproduce a strain of the desired flowers. I met with one, to me remarkable, novelty in my beds the other day, viz., a pure white flower having white stamens. Except that one I have never seen a bloom, let its colour be what it may, that had not a cluster of black stamens.

A. D.

BLUE SPRING FLOWERS.

It has often been remarked how rich the alpine flora is in plants of a blue colour, while in the lowlands it is rarely seen. Those who, even in a small way, endeavour to cultivate alpine plants can bear witness to this, especially in the early spring months. Both amongst bulbs and plants there are some of the most exquisite shades which can be imagined. In looking round my little plot I have been enabled to find the following:—

MUSCARI BOTRYOIDES.—The exquisite tint of deep sky-blue colour in this Grape Hyacinth is quite unique, and the plant itself most easily grown, either on the rockery or in the herbaceous border. There are several varieties or newly introduced kinds, but I do not think that there is anything superior to the old well-known inhabitant of our gardens.

ANEMONE APENNINA.—A group of this on a part of my small rockery is now one sheet of bloom; its star-like flowers, thickly placed on its low cushion of leaves, form a very pretty object. There is a variety of it of a silver greyish blue, which is also very pretty. It is another very easily cultivated plant, and ought to be generally grown. The same may be said of a flower very similar to this, Anemone blanda, which blooms earlier, coming into flower with the Cyclamen, and long before those flowers which we are in the habit of associating with earliest spring the Snowdrop and Crocus venture to make their appearance, and rapidly cover the ground, as does A. apennina, and the chief care is to prevent weeds growing in amongst the roots, especially the common Crows-foot, which at a distance bears some resemblance to its foliage.

GENTIANA VERNA.—Here, instead of easiness of culture, we have an exceedingly difficult one—at least it is so to the generality of cultivators—and is one of those cases which seem to point out the cause of difficulty. I have some plants of it on the rockery which are struggling for an existence, while a pan under glass is a mass of beauty; and what can surpass it? The cause, then, seems to be the excessive wetness of our autumn and winter months. During that time, in its natural habitat, it is covered thickly with snow and kept perfectly dry and warm; this is a condition we cannot emulate in our climate, and the changes of temperature to which it is exposed are injurious to its well-being. I had half-a-dozen fine plants of it from Froebel at Zurich in the autumn, and planted them with great care in suitable soil on my little rockery. They have become miserable-

looking, and I find that the slugs have a peculiar fancy for the flowers, which are no sooner formed than they are eaten. I have consequently to-day (April 21) lifted them from the open and planted them in a pan, and I have little doubt that after a time they will revive, but one grieves to find that after so many trials its out-of-door culture has to be abandoned. I hear of, and indeed now and then see, a tolerably successful attempt at its cultivation, but it is a difficult matter to accomplish, and many failures will take place before success is reached.

GENTIANA ACAULIS.—This, on the other hand, is as easy of cultivation as verna is difficult. I know one large garden in Kent which is completely bordered with it in broad masses 9 inches wide; and lovely it is in the spring months, with its thick dense foliage and its deep cobalt-blue flowers standing well up above the foliage. When the sun is shining on some good plants of this flower, nothing can exceed the loveliness of its colour. The idea that this is a difficult plant to grow has prevented many from growing it, but, except in very dry soils, no plant is easier to cultivate. I imagine that its closer, more rigid foliage enables it to resist the influence of wet, and hence it does not suffer from the winter as verna does. It is not so early to bloom as verna, rarely showing its brilliant flowers before May, and, just as I have seen Gentiana verna in lovely masses on the Col de Balme in the early part of June while it had long been past its best in the valleys, so with this and many other flowers; their situation greatly regulates their time of blooming. I think it well to say that more than once when I have ordered Gentiana verna this has been supplied to me instead, and when I was told once that a more robust form of verna had been discovered, I found on receiving it that it was my old friend the Gentianella.

SCILLA SIBIRICA.—A well-known, easily grown bulb, with flowers of a different shade of colour from any of the preceding; there is a metallic hue in it which is very distinct.

SCILLA BIFOLIA.—Another very pretty bulb. There are two varieties of it, one flowering very early, almost with the Cyclamens, and another somewhat later. Very easily grown, and most desirable. With the former of these (sibirica) I have experienced disappointment this year; I do not know from what cause, but I imagine from the depredations of slugs which eat off the shoots when they are just appearing above ground. By-the-by, I wish I could say with Professor Owen that these were a rarity; there is never a shot fired in my garden, and I have blackbirds (the thrushes have suffered from severe winters), but withal, the slugs have been and are a perfect pest, and of course the stones on a rockery form a delightful harbour for them; the slugs, too, seem especially fond of the blooms.

MYOSOTIS DISSITIFLORA.—Everyone knows and admires the Forget-me-not, and this seems to be the earliest flowering one. The charming little rupicola I cannot manage, and I fancy that in our garden soil it loses its dwarf character. It must be borne in mind that there is nothing which seeds more freely than the Forget-me-not, and that very soon the whole rockery will be covered by it if it is not closely watched; happily, it is very easily pulled up. In my small rockery it has overflowed the back of it, and is a mass of bloom. There it is quite at home and undisturbed, but I have to very carefully guard the front portion, or it would soon be nothing else.

OMPHALODES VERNA, or creeping Forget-me-not, as it is sometimes called, is an easily grown and rapidly spreading herbaceous plant. The flowers are, unfortunately, too scantily produced, but are of a very lovely shade of colour. This plant grows well in shade, and is valuable wherever it can be introduced, but, to my mind, can never equal the Forget-me-nots in value, for, while they are one sheet of flower, this only produces its flowers, as I have said, sparingly.

AUBRIETIAS.—Not strictly blue flowers these, but very nearly so, and their lovely purple blossoms are abundantly produced. A plant which I

had given to me some years ago by Mr. Ingram, of Belvoir, is, I think, the best that I have seen, and is now one sheet of lovely purple.

CHIONODOXA LUCILLÆ.—This, the latest addition to our spring flowering bulbs, from the mountains of Smyrna, is, I think, the most lovely of all; true, the flowers have not the intense blue of the Gentians, but there is a loveliness in the corulean tint of the petals, relieved by their white centre, which makes them unsurpassed. As it has only recently been introduced, it has hardly been seen in its real character. Some bulbs that I have had three years in the ground threw up long racemes of flower, seven or eight in number, so that when we get it fully established it will be a delightful addition to our gardens. It is the hardest of the hardy; it was in flower in my garden when the intense frost and snow of the latter end of March came on it, and I thought it was done for; but it burst forth into fresh beauty, and, although a cold north-easter is not favourable for vegetation, yet it has bloomed bravely through it all.

Such are some of the vernal beauties of various shades of blue one may have, where alpine plants are loved and cultivated; there are doubtless many others, but these are what I have now under my eye, and which have given me real pleasure.

DELTA.

OUTDOOR HYACINTHS.

ALLOW me to corroborate all that Mr. Archer-Hind says about the quality of Hyacinth flowers from imported bulbs planted out in the open ground. It is a mistake to suppose that after the first year only very weakly flowers are produced, as with ordinary care good strong spikes will be thrown up every season. Even when the bulbs have been forced they will, if taken good care of, bloom tolerably the following year, although I think it preferable to give them a season of complete rest by picking off the flower-spikes as soon as they form. Of course no one can expect them to do other than dwindle if, after being used for decorative purposes, they are at once turned out of their pots and laid in the open ground, there to be at the mercy of the elements. If no frame room can be accorded them they should be sheltered in some way on cold nights and in inclement weather, and they should be kept well watered until the foliage decays. In this way they will go as naturally to rest as if growing in the open ground. Mr. Archer-Hind does not say if he bestows any special culture on his bulbs in the way of annually lifting and fresh planting in new soil, or whether they are allowed to remain undisturbed from year to year. Probably one reason for the common notion that imported Hyacinths rapidly deteriorate is that they are set out in impoverished soil and allowed to remain from year to year without nutriment of any kind being afforded them. The change from the highly manured bulb fields of the Dutch growers is so great as to alone account for any sudden loss of vigour. I should say that no crop grown has so much expended upon it for manure as Hyacinths, sometimes several hundred pounds' worth of cow manure being put into a single acre of ground. There is therefore no wonder if bulbs go back rapidly when deprived of this rich food; it would, indeed, be a matter for surprise if they did not. Even when planted out in beds of rich soil they often do not get a fair chance, as they are frequently lifted before the foliage begins to decay, in order to make room for the summer "bedders." Where the natural soil of a garden is good, and annually receives a coat of manure, Hyacinths will throw up strong spikes of bloom every year, and it is almost superfluous to say that the poorer the ground naturally the more need for its application. There is no actual need to take up the bulbs every year, as some stimulant may be applied in the form of a top-dressing.

J. CORNHILL.

Hesperochiron californicus is a very dwarf and pleasing perennial. Its flowers are white, slightly tinged with rose towards the edge, much resembling those of a *Convolvulus* in general appearance. Some have distinct dark purple honey

lines down the centre of the corolla lobes. The leaves are greyish green and hairy, and most of them paddle-shaped. From one crown will spring over a dozen flowers with as many leaves; the whole plant does not measure above 6 inches across nor its graceful flower-stem more than 3 inches high at most, while an expanded flower is 1½ inches across at the tips, its tube being about half as long.—P. SEWELL, *York*.

DAFFODILS AND THE DRY SEASON.

IT is curious what a difference soil makes in dry seasons. My Daffodils are finer this dry spring than they ever were, Emperor and Empress especially, the latter this year quite surpassing Horsfieldi, though the latter is unusually fine. Ajax princeps, too, which Mr. Wolley Dod says does not succeed out of doors so well as *Telamonius*, is splendid here standing well out of the ground; on the contrary, in Mr. Brockbank's garden, which is sandy, they are not so fine as usual. I see a good deal of controversy about white Daffodils. Whether or not Mr. Wolley Dod is right in saying that they may all be reduced to varieties of two species, viz., *moschatus* major and minor, as figured in the Bot. Mag., the fact is perfectly well proved by my experience, year after year, that the variety usually called *cernuus*, and sold by Mr. Barr and others under that name, is much harder than the *moschatus* or silver trumpet, grown extensively in Holland and imported thence. The former increases as quickly as any of the hardy yellow trumpet Daffodils, but *moschatus* dies out after a few years. *N. Bulbocodium*, too, only survives on a raised sheltered mound of peat soil grown with Heather and other peat plants which protect the young leaves.

Aigburth.

E. H.

WHITE DAFFODILS.

THE more authorities we examine about these, the more puzzled we are sure to get. In the first place, who gave them their names? Mr. Burbidge in his monograph tells us that they were introduced from Spain about the year 1600. In those days everything foreign was said 'to come from Spain, and as I cannot prove that white Daffodils came from any other place, we will assume that this is true. Thirty years later, when Parkinson wrote, several varieties were in possession of names, which we will suppose to have been given by the botanists of the period from certain characters of the plants; let us see what their names mean.

1. **MOSCHATUS** (imbued with Musk).—The botanists of those days were rather fanciful, and perhaps one of these white Daffodils grew amongst that troublesome garden weed, *Mimulus moschatus*, for no recent writer pretends to have recognised the smell of Musk in any white Daffodil flower.

2. **ALBICANS** (inclining to white).—We may suppose this was given to one which had flowers seeming as if they were going to be white, but never becoming quite white. This is the character of more than one of the so-called white Daffodils.

3. **CERNUUS** (looking down).—All Daffodils do this when opening, but most of them raise themselves afterwards till the tube is nearly at right angles to the stalk, but two or three of the varieties of white-flowered Daffodil remain to the end with their noses to the ground. The most cernuous Daffodil I have come to me from Mr. Brockbank with the name *tortuosus*.

4. **TORTUOSUS** (twisty), probably referring to the perianth segments, though an accomplished gardener and botanist told me he had always taken it to refer to the green leaves. Those Daffodils which have these segments narrowest twist them most, but all the white-flowered twist them more or less.

The next thing to speak of is figures, and I will only mention those which are coloured—two in Curtis's *Botanical Magazine*, t. 924, representing *moschatus*, and t. 1300, representing *moschatus* d. or minor. These are the best figures of Daffodils I know, and all subsequent writers on the species have referred to them. The larger flower (t. 924) is identified with *tortuo-*

sus both by Herbert and Haworth (monograph of *Narcissineæ*, published as an appendix to vol. i., series 2, of Sweet's "Flower Garden."). Haworth calls t. 1300 (printed by error 1800) *moschatus*; Herbert calls it *candidissimus*. Sweet's figures, though more elaborately got up, have not the truth of character which Curtis's have. I speak by comparing those of well-known flowers. He figures two white Daffodils, series 2, t. 101, *N. cernuus*, double and single, and t. 145, *N. albicans*. Neither figure recalls unmistakably any form I know. In Burbidge we have *moschatus*, two good figures of the larger white Daffodil, and *cernuus*, double and single flowers of the more slender form. I have no doubt, by comparison of the above figures, that both names and kinds are in confusion.

A very few words on the natural history of white Daffodils. I am investigating this, and, so far, am inclined to believe that they are all accidental seedlings from *N. Pseudo-Narcissus*. There is a meadow in Oxfordshire in which Daffodils with whitish flowers grow indiscriminately, mixed up with common wild Daffodils, showing no distinct character, except colour. A careful observer living in Devonshire sent me this year a flower which he felt sure was a seedling from *N. moschatus*, which has all the colour of *N. Pseudo-Narcissus*, and I have this day received a letter from a clergyman in Dorsetshire, from which I copy part: "I have little doubt that you are correct in believing that most of the Trumpet *Narcissi* are varieties of *N. Pseudo-Narcissus*. A few years ago I saved a seed-pod of *N. cernuus*, and obtained from it three plants; two of these on flowering could not be distinguished from the common *N. Pseudo-Narcissus*, and the other was like the parent, *cernuus*. This fact goes some way towards proving the case." If this is so, we can hardly expect the white varieties to exhibit more fixed characters than their parents, the wild Daffodils.

C. WOLLEY DOD.

SPANISH DAFFODILS IN WALES.

THE origin of the Spanish Daffodils, which have for a very long time grown wild in South Wales, has frequently been referred to in THE GARDEN, and only recently by Mr. Burbidge, who stated that the Flemings had probably been the means of introducing them. As, however, the Flemings settled in Gower as far back as the reign of Henry V., and as the Tenby Daffodil is not known to Mr. Llewellyn as being found wild in Gower, we must look for some other possible occurrence which may have led to its introduction. In a former note I alluded to a tradition I had heard about Orange trees which are now growing in South Wales, and which had been obtained by the shipwreck of a Spanish vessel. Mr. Llewellyn, of Penllegare, tells me that this is so. They were brought from Spain as a present to William and Mary, and, being wrecked on the coast, were impounded by the Lord of the Manor, and are now at Margam in the possession of Mrs. Talbot. Mr. Llewellyn has also ascertained that there was a Spanish galleon wrecked off Gower, and that gold moldores of the date of about 1622 are frequently found upon the shore near the place at which the shipwreck happened. Here, then, we have two instances of the shipwreck of Spanish vessels in the neighbourhood of Carmarthen Bay. One may, therefore, reasonably suppose that some sailors or Spaniards had reached the shore, and possibly settled down in the country, as the Flemings had done, and thereby the possible introduction of the Spanish Daffodils may have resulted.

Mr. Llewellyn tells me further that other forms of Spanish Daffodils grow wild upon his estate near Swansea, and that Mr. Barr after seeing them wrote, "How came they into Wales? I should say they were Spanish or Portuguese, and if you can trace any connection between your estate and these countries either in commerce or family, you may account for your plants, which are close on *Narcissus* major, and very much like a form of *N. major* collected wild and sent to me from Oporto." Here, then, is another undoubted

form of Spanish Daffodil growing wild in South Wales in addition to *N. obvallaris* at Tenby. The subject is an interesting one.

Brockhurst, Didsbury. WM. BROCKBANK.

VARIETIES OF ANEMONE CORONARIA.

THESE are the very best flowers one can have at this season, as they yield an abundance of the brightest and showiest of blossoms, which last fresher and longer in water than any others with which I am acquainted. Here we have had them in plenty ever since Christmas, when we used them in a cut state along with Hellebores, a combination that was very effective, especially as regards the scarlets and blues of different shades, which show up in most pleasing contrast with the white of the Hellebores, and make one of the finest of displays. To get the Anemones in so early we took up plants with good balls and placed them in a frame where they could get a little bottom-heat from pipes running underneath, which kept them gently on the move; and as they were well up to the light, and had plenty of air, the flower-stems came short and stout, as they do in the open. The plants on the border from which those referred to were lifted have supplied us with blooms since, and are still gay, with lots open and coming. The seed was sown about this time last year, but, good as they are, I have no doubt they would have been still better if we had done as "A. D." has—sown early in heat and pricked the plants out, as then they would have been larger and stronger. As the time is passed for this now, I would advise all who wish to grow these fine Poppy-headed Anemones to prepare a border at once and sow them; but to meet with the fullest share of success, the position must be a sunny one, as warmth is absolutely necessary for their welfare, and they only expand their gay blossoms when the solar rays are upon them, except they are cut and placed in water in rooms, where the warmth causes them to unfold and keep open. They are therefore most valuable for cutting, as they last as long as they do on the plants. The soil most suitable for Anemones is that which is light and rich, and if not so naturally it should have a good dressing of leaf-mould and rotten manure dug in together with a sprinkling of sharp sand, which will keep it open and porous. The proper distance to sow the seed is to have drills about a foot apart, in which it can either be scattered thinly or dropped in patches 8 inches or so from each other, and when the plants come up they should be singled out.

S. D.

Androsace carnea, considered a difficult alpine, succeeds well in a perfectly level spot in the alpine garden in hard, well-drained sandy peat. It had grown fitfully and flowered sparingly for four years on rockwork, and has much improved since it was moved to level ground, and is now covered with flowers; flat flakes of stone laid round the necks of the plants just keep the foliage off the earth.—G. J., *Surrey*.

Primroses from seed.—What a wealth of variety can be obtained from a single packet of good seed! I counted upwards of fifty distinct varieties at Captain Bagwell's to-day near this town. There was every conceivable shade and marking, from the purest white to the deepest fiery red and brightest yellow, through rose, purple, magenta, pink, lavender, lilac, mauve, bluish, and so on; fringed, serrated, lacinated, rough, and even-edged; some large, small, and others diminutive. Even the foliage was essentially different. They had, however, one delight in common—they were all sweet scented. No wonder they have so many admirers, and that they are becoming so popular.—W. J. M., *Clonmel*.

The great Christmas Rose.—In a bed of Hellebores here there is a plant of *H. niger* maximus, the bloom buds of which were destroyed by mice in the autumn; consequently, the usual season's flowers were lost, but during the mild weather after Christmas it began to throw up more buds, and has bloomed almost continuously since,

and buds are still appearing. I forward a specimen cut to-day. This seems to point to a way of obtaining a long succession of flowers for those who have spare plants and desire it, but probably few would have the courage to sacrifice the first crop, coming as it does, so welcome in the dreary season. The illustrations and frequent articles in THE GARDEN on this beautiful and useful family have, no doubt, in no small degree contributed to their deservedly growing popularity.—J. M., *Charmouth, Dorset*.

MATERIALS FOR GARDEN WALLS.

THERE can be little doubt as to good bricks being the very best material with which to build a garden wall, and unless in exceptional instances, such as where suitable stone is to be found upon the spot, the most economical. Garden walls may, however, be built of stone and faced with brick, and if the materials are properly bonded together there need be no fear of their parting company. Garden walls, however, built entirely of brick with stone coping are undoubtedly the best, as in most gardens it is found to be expedient to use both sides of the wall for training purposes. Your correspondent (p. 365) proposes to build the north wall of the garden (that is, the wall on which the lean-to glass structures are to be erected) 12 feet or 13 feet high, and the remaining three walls 7 feet high. Now, unless the garden enclosed is very small, these heights are insufficient. If we suppose the garden enclosed to be three or four acres in extent, the walls should not be under 10 feet or 12 feet in height, and the wall against which the lean-to structures are to be placed might with advantage be at least 14 feet high. Such fruit trees as the Pear, Plum, and Cherry could hardly be fully developed upon walls not more than 7 feet high, and 14 feet would not be too high for the back wall of houses intended for the culture of Vines, Peaches, or Nectarines. Whether garden walls are built of brick or stone, or of a combination of both, they should have a sound and substantial foundation; that for a 14-inch wall should be several inches wider, and the work as it proceeds should be, as I have said, well bonded together by having the bricks laid lengthways across the work every other course or so. If this is done, few, if any, buttresses or supports will be necessary. A good coping can be formed of brickwork with a strong tile projection of 3 inches or 4 inches; but by far the best, and possibly the cheapest, is one of Arbroath stones. These can be had in lengths of from 3 feet to 6 feet of any desired width, and, being remarkably hard, resist anything like injury from inclemency of weather or other causes, and at the same time have an excellent appearance. This, or any other coping, should, of course, have a projection of 3 inches or 4 inches, and should also have a groove on the under side on each side of the wall at a distance of half an inch from the edge. This is of great importance, as it effectually throws off the water which would otherwise run down the face of the wall, and if it is intended to train fruit trees on each side of the wall (which is usually done) the coping should be laid level; but if it should be intended to train on the inside only, then it may with advantage be laid so as to give a slight fall to the outside.

In order, however, to make the most of garden walls, which under any circumstances are more or less expensive, it is usual to surround at least some portion of the garden with additional slips of land, which are found very useful for producing early and other crops of vegetables of various kinds, as well as allowing both sides of the walls to be used for tree training. This generally necessitates the use of a fence of some kind, such as a hedge of Holly or White Thorn. The former, however, is to be preferred, and the slips of ground so enclosed may be of any desired width, say 50 feet or 60 feet, thus forming a useful border for culinary crops, without rendering it necessary to crop too close to the roots of the trees on the walls. The too common practice of securing trees to walls by the use of nails and shreds is decidedly objectionable, and is very pro-

perly being discontinued, as it tends to seriously injure and disfigure the surface of the best built walls, whether of brick or of stone, and in the case of new walls it ought by all means to be avoided. Such walls should either have permanent studs fixed in them before the mortar becomes quite dry, or, what is possibly better, the walls when finished should be properly wired, so as to obviate the necessity of driving nails into them in the process of training the trees. Where it is decided to do this, a wall constructed entirely of stone with the surface of the same properly cemented may be little if at all inferior to a brick wall, as the surface of a cemented wall may, of course, be made to assume any desired shade of colour, so that the question resolves itself into one of appearance and of cost. Objections were at one time taken to wired walls, inasmuch as it was supposed that a current of cold air would be likely to be set up between the surface of the walls and the trees trained thereon, to the serious detriment of the latter. The conducting properties of the wire itself were also objected to, being in immediate contact with the shoots. There may perhaps have been grounds for such objections in cases where the wires were fixed at a distance of 1 inch, or even more, from the surface of the walls. But as now practised the wires are fixed as close as possible to the surface of the walls, so that the branches of the trained trees are as close to it as if secured by nail and shred, and no possible current of air can exist between them; the supposed conducting property of the galvanised wire is also neutralised by its contact with the non-conducting surface of the walls. At all events, it may now, I think, be said that the most successful cultivators of fruit are agreed in making no objection to properly wired garden walls. As regards the question of the most suitable aspect for the various kinds of fruit trees, it may be said that the Peach, Nectarine, Apricot, and Fig require and ought, if possible, to have a southern aspect; Plums and early Cherries will succeed on an east aspect, and a west aspect will be found suitable for most of the best Pears, or this latter arrangement might be to some extent reversed by having a portion of Plums upon a west and some Pear trees upon an east exposure, while a northern exposure is that best suited to the Morello Cherry, Red and White Currants, and for late Gooseberries, in order to prolong the season of these wholesome and delicious fruits.

I have even known some of our finest Plums, notably Coe's Golden Drop, to succeed admirably upon the north side of a high wall. Previous to the wiring of the walls, however, it is advisable to determine as to the kinds of fruit trees to be trained upon them—as, for example, the Pear, is usually trained horizontally, and the early varieties of the Cherry may also be trained in the same way, and for such the wires should be fixed at about 9 inches or three courses of bricks apart; but in the case of the Peach, Apricot, Plum, and Morello Cherry, in order that such trees may be properly trained, the distance between the wires should not exceed 3 inches or 4 inches, or a wire for each course of bricks.

Walls on which Roses and other flowering plants are intended to be trained are sometimes fancifully wired, that is, vertically, diagonally, &c., but the horizontal system of wiring garden walls is that most frequently practised, and is no doubt the best.—P. GRIEVE.

— "W. C. B." should build his walls with stone and face them with brick. There will be no danger of the two materials parting company. To build them wholly of stone would no doubt be the most economical, as he says it can be procured on the place; but unless stone walls are wired they make bad subjects for training fruit trees against; besides, stone does not absorb the same amount of heat as brick. He should make the wall against which he is to build his houses wholly of stone and face it with cement, as the trees which he intends to grow against it can be trained to a trellis. In height it should be 15 feet; 12 feet would either give a

short rafter or a flat pitch to the roof. Fourteen feet would not be too high for the walls, which will run at right angles to the one which will be covered. The height he proposes (7 feet) would afford but little protection in an exposed position; besides, a 7-foot wall would not afford room for the proper development of the trees to be grown against it. Seven feet would be high enough for the wall which will face the north, for if made too high it will shade too much of the lower portion of the garden. The wall facing the west he could plant with dessert Pears, Plums, and Cherries, while that on the opposite side could be planted with culinary Plums and dessert Cherries. The low wall should be reserved for Morello Cherries, Gooseberries, and Currants—the two last will come in for late use.—D. GRANT, *Castle Ward*.

NOTES.

A NOBLE ZEPHYR FLOWER.—Zephyranthes Treatiæ (Amaryllis Treatiæ it is also called in gardens) is one of the prettiest of all the Zephyr or "West Wind Flowers." To see these flowers in all the beauty of vigorous growth and wild, floriferous habit one must go to Ceylon, where they are used for edgings to beds and walks or for borders near the house. I never saw them prettier than growing apparently wild in a little tropical meadow facing the house of Dr. Veitch, when he was colonial surgeon in Penang. They evidently liked the shelter of the Grass, and their pink or white stars were most lovely as seen nestling in the herbage among their own glossy green leaves and pink-tipped buds. Z. Treatiæ is now in flower in a greenhouse at Mr. Ware's nursery, and is one of the finest of its race, bearing erect, pure white, six-petalled blossoms on slender stalks 3 inches to 6 inches high. Of all the Zephyr Flowers, this one and the rosy red Z. carinata would appear to be the best and most easily grown.

ENGLISH PLANT NAMES.—I often think that the question of English names requires a little explanation. When we see Professor Owen using English names for his garden birds, in addition to the Latin ones, we may be excused for asking why gardeners or why botanists are denied a like privilege. Latin names, being understood by persons sufficiently interested in science all the world over, must ever and always be used; but this much allowed, some of us claim in addition that every plant grown in English gardens must have an English name, not as a substitute, but as a necessary addition to the Latin one. If Latin names are allowable for the use of savants, why are English ones not allowable for the use of the masses who are not savants? In order to make gardening and botany "understood of the people," English names translated or original as best may be, but English names of some sort must perforce be used—in point of fact are being so used every day. All that is wanted to make them universally used is a little more opposition.

ST. BRIGID'S CHRISTMAS ROSE.—Allow me to say one word more in reference to this variety of Christmas Rose. I find that there is a very great demand in London nurseries just now for this fine old garden plant, the typical plant Helleborus niger. The Christmas Rose is figured in the *Botanical Magazine*, t. 8. H. niger maximus (H. altifolius) has been figured in THE GARDEN, and is rightly called "The great Christmas Rose." It may interest some to know that this last is grown by the thousand by Messrs. Backhouse at York, and by Mr. Ware, of Tottenham. Mr. Ware, jun. (who has just started a Hellebore farm near Bath), wishes to procure plants of the true St. Brigid's Christmas Rose, and I shall send him a bit of it; but as it is grown for sale by the acre in the neighbourhood of Manchester, that seems to be the best place to procure stock of it. I have had many applications for this plant, and am sorry that I cannot give more of it away; but I am quite sure Mr. Brockbank will not object to inform any bona fide amateur as to where it may be purchased.

THE BEST GRAPE HYACINTH.—All the species and varieties of Muscari or Grape Hyacinths are interesting, from the pure white form of M. botryoides, the buds of which remind one of a cluster of pearls, to that weird monstrosity yclept the "Feather Hyacinth," in which the flowers are to some extent suppressed, and in their place a mass of Rhus Cotinus-like purplish filaments are produced. The best of all the blue kinds is one we recently saw in Ware's nursery under the name of M. atlanticum (? M. Szovitzianum), a stout growing form with oblong clusters of dark blue bells at the apex of a scape 6 inches to 8 inches in height. The clusters of flowers are about 3 inches in length, and strike one as being bolder in form and brighter in colour than any other variety of M. botryoides which we have ever seen.

HOOPED PETTICOAT DAFFODILS.—On some soils and positions, even in the extreme north of England and also in Scotland, these golden chalice flowers are quite at home, and flourish from year



Varieties of *Narcissus Bulbocodium*.

to year in the open air; so also, as I am told, in Ireland. What they seem to like is drought and heat in the summer and autumn just after their foliage dies off naturally. The large sulphur Corbularia recently figured from Miss Jekyll's garden is of all one of the finest, and has this year been brought over by the thousand, so that for the future it will perhaps cease to be a rare plant. Those here figured, although merely forms or varieties of N. Bulbocodium, are distinct and pretty now with us in pots. The upper flower may be called N. Graellsii minor; colour pale sulphur, greenish behind; the lower flower is bright rich yellow. Those who think Narcissus golden should place a watch or a coin near a "golden" yellow flower and note how they differ. Mr. Barr grows several kinds well in raised beds and also in pots, protecting them when at rest by a cold frame or glass covering. It is not cold that these little bulbs fear, but too much wet at the wrong season.

SNAKE'S-HEAD FRITILLARY.—We do not make such good use of these quaint old flowers, varieties of Fritillaria Meleagris, as we ought to do in our modern gardens. Originally native of our own land as of other parts of Europe, we have now

many kinds of garden origin, and the best of these both white and coloured are worth the most skilful culture we can give them. Blooming with the Daffodils, they also with them have to face the winds of moody April. Many varieties which we saw at Ware's lately struck us as being singularly beautiful as they swayed and nodded in the wind. In early morning or at the close of day they are prettier than at any other time, as the sun shines through their segments and brightens their chequered markings. As seen in the waning sunlight, these flowers actually glow again with colour and reflected light, and in form also are not a little suggestive of lamps and lanterns as they glisten in the breeze.

RARE HARDY FLOWERS.—Among the hardy flowers we saw at Ware's nursery, at Tottenham, the other day the following were of especial interest; the Prophet Flower (Arnebia echioides) was opening its spotted yellow flowers in a cold frame, while in sheltered beds outside the Wood Lilies, Trillium erectum (purple) and T. grandiflorum (white), were opening their flowers. A bed of Primula cashmeriana in full bloom was a pretty sight to see in the evening sunlight, and by the Daffodils and Fritillaries, masses of Adonis vernalis displayed their starry flowers of greenish gold among their feathery foliage. Podophyllum Emodi displays its white cups above its drooping olive-green leaflets, and in hollow beds the Bamboos are putting forth their new leafage. Among the Fritillaries one of the finest is F. latifolia (Black Knight), bearing a shapely bell of a soft bronzy yellow colour heavily blotched and chequered inside with dark brown. Grape Hyacinths and Virginian Lungwort (Pulmonaria virginica) are in flower, as is also that noblest of all large-leaved Saxifrages, Megasea purpurascens.

TRITELEIA UNIFLORA.—Of this old and hardy bulbous plant there are two distinct forms, the one producing white stars an inch or more across, the perianth segments being delicately shaded with blue, while in the other form the segments are narrower and wholly blue in tint, and as seen in the mass they give a lovely soft cœrulean hue to a bit of bare earth in a sunny place. It is commonly called the Garlic flower, and yet so deliciously sweet are the outspread blossoms themselves as they shiver in the sunny breezes of April, that the bees love them and cluster over the flowers almost as lovingly as they do on the Eupatorium blossoms, or on the Cauliflower-like corymbs of the rosy Sedum spectabile in late autumn. I saw some large beds of this Garlic flower the other day 6 yards or 8 yards square, and very pleasing they were in the warm sunlight, with the soft murmur of bees among them. In some of these beds the two forms, the white and the blue, were mixed, and the effect so produced was a very good one. The only drawback is the strong Garlic-like odour of the leaves and flower-stems when cut or trodden upon.

WINTER ACONITE AND SNOW GLORY.—A very pretty combination in the floral way suggested itself to me the other day. It is this. How well a bed of Snow Glory would look if the bulbs were intermixed with tubers of the winter Aconite. Of course they would not flower together, but the Aconite would enliven the bed with its golden cups long before the Chionodoxa appeared, but the best effects would be seen just as the latter opened its little blue buds among the Fan Palm-like foliage of the Eranthis. Here with us the Snow Glory does not open its first flowers until the Snowdrops have departed, or that would be a combination very difficult to surpass. Iris reticulata and Eranthis is another good arrangement, not in a bed perhaps, but a good clump of each side by side looks well. In an old garden yesterday I saw clumps of Narcissus Bulbocodium blooming quite freely alongside a long edging of Iris pumila varieties, and the gold and purple colouring as seen in chequered sunlight beneath some gnarled old Apple trees in blossom was very lovely.

VERONICA.

NOTES ON BIRDS

In the Garden, Sheen Lodge, Richmond Park.
(Concluded from p. 385.)

VERY welcome are the occasional, but too rare, visits to the garden of the RING DOVE (*Columba palumbus*), the STOCK DOVE (*Columba ænas*), and the TURTLE DOVE (*Columba turtur*), all of which nidificate in the park and adjoining woods.

A pair of PARTRIDGES once nested in the garden next to mine belonging to a residence not then tenanted. I was surprised to see them occasionally running across the lawn.

A PHEASANT (*Phasianus colchicus*) from the adjoining preserve will now and then visit my poultry-yard. The intruder is a descendant of the old Euxine species introduced by the Romans from the banks of the Phasis, and is usually indicative of the oldest preserves established and kept up in Britain. The ring-necked variety from China is more common in later preserves; and the Japanese rather heavy flying variety with an addition of green to its gay plumage is the latest importation of the luxury.

At one time the WILD TURKEY (*Meleagris pavo*) was abundant in the park. I learned this from the father of the present excellent head keeper whom he succeeded in the office. I had asked the reason of the many fine old Oaks which had been pollarded, and which contrasted their huge bush-like forms with the more picturesque branching of the naturally grown trees. Mr. Sawyer told me it had been done in George I.'s time to afford roosting places for the wild turkeys upon the outstretched horizontal lower boughs of Oaks so treated. These fine birds afforded favourite sport to both the First and Second Georges, but they were so tempting to outsiders, and the affrays between keepers and poachers became so numerous, dangerous, and sometimes fatal, that early in the reign of George III. that benevolent monarch ordered the extirpation of the tempting exotic *Gallinacea*.

And here I cannot resist recording an incident in my own experience. A friend presented me with a pair of white turkeys. My neighbouring keeper one day informed me that the hen bird had made her nest in the adjoining preserve and was then "sitting;" but, he added, she would do no harm there, and should not be disturbed. Her mate regularly took up his quarters at night on an overhanging branch and roosted there, coming home, of course, in the daytime to feed. One morning the keeper looked in upon me with a grave face and said that a fox had trespassed in the preserve and had killed the cock bird. He begged me to return with him to the spot, and led me to where the poor turkey lay with much of the breast devoured. He showed me also the footprints, evidences of struggles, with down-trodden herbage and scattered feathers leading from the bush in which the female was still safely brooding to the final fighting ground. She apparently had not been disturbed. Now, our common inference was that her mate had discerned the stealthy approach of the fox, and had descended to do battle with the intruder; that such a conflict had been severe was too plain. The gallant bird had succeeded in drawing off the fell carnivore from the nesting-place of his mate, and finally had fallen a sacrifice to conjugal devotion.

"I think," said the keeper, "we might have a chance of catching that fox, if you can spare the bird to bait my traps." I assented willingly. He set three traps not far from the nesting-place with tempting portions of the victim's carcase. One night passed and a second without results; but on the morning after the third my neighbour looked in with exulting countenance, and reported reynard caught. I accompanied him to gloat over the culprit. "Ah!" said he, "I know him; he comes from Wimbledon; they are the hardest of all them vermin to shoot, is them foxes."

I may plead that we have no "hunt" in our vicinity. The female turkey hatched out her brood and brought all her pretty milk-white chicks safe to the poultry yard.

Returning to my favourite warblers, I may finally note the period of the twenty-four hours when their music can be most fully enjoyed.

With so many and such varied songsters one is apt to be disappointed at the shy and scanty performance in an afternoon's ramble or rest in the garden. Towards sunset, indeed, there are additions to the warblings of thrushes and blackbirds, and later on the nightingales exclusively hold concert and monopolise a grateful attention.

There is, however, a period in the twenty-four hours in which the whole strength of the avian orchestra may be heard, and the only period in my experience. The enjoyment involves quitting the pillow and gaining a retired seat in the garden as soon as there is light enough at early dawn to find one's way, say on a morning promising the poet's May weather any time in that month.

On such a day and hour, say 3.15 a.m., I have betaken myself to a seat beneath the old Cedar in the middle of the shrubby division of the garden where the main business of incubation and brood-rearing is carried on.

As the Command is being fulfilled, and light prevails, a few faint chirps and trills may be heard here and there from newly-awakened sleepers at the nests. These gain gradually in strength and distinctness, and specific notes or "motivos" can be recognised (friend Gould's tuition aiding). Soon are added the luscious warbles of the larger songsters, and the nightingales, unwearied by nocturnal trills, join the morning concert. The varied songs come from all parts of the shrubbery; the singers still remain near their sleeping-perches and nesting mates. Not a sight is seen or flutter heard of an active bird; no foreign sound save, perhaps, the distant sough of an early train jars upon the marvellous crescendo.

In this concert the counter-tenor of the cuckoo and the monotonous of the shriller cuckoo's mate chime in. To these are added the delicious soothing tenor cooings of the turtle doves, with the louder, clearer cries of the jays, from the contiguous woods. The daws, rooks, and the carrion crows with their harsher caw contribute a bass.

This glorious greeting of coming day continues as the light increases till the sun rises in his splendour. He is ushered in with such a "morning hymn" as may give a new pleasure even to an angelic host.

By degrees one vocalist after another becomes silent; the flutter of little wings succeeds the warbling of little throats. The unfeathered fledglings have awoke and opened wide their beaks for breakfast. Work comes after praise; business succeeds to pleasure; the garden is now alive with the fitting quests of parents after larvæ or other soft food.

In the blaze of sunlight one returns, perhaps, again to bed, nothing of the morning concert remaining save the cuckoo's cry and occasional caws from the rookery.

In reference to the sixty species of British birds, the subjects of the foregoing remarks, I may state that my garden has an extent of over three acres. Plans of it and of portions of it were taken for the editor of THE GARDEN, and may be found in the weekly issues for August 17, 1872, and for April 21 of the current volume. RICHARD OWEN.

Thrush and blackbird v. slugs.—Professor Owen is so very accurate an observer, that I should not think of disputing any statement he might make. But one point in his pleasant account of the birds at Sheen Lodge (p. 350) is so contrary to my own observations, that I should like to know how far it agrees with the experience of other observers. Professor Owen says that he has no slugs or snails in his garden, and that "the extirpators are the thrush and the blackbird." I know that thrushes eat a large quantity of snails in hard weather, but I did not know they eat slugs. I have certainly an abundance of thrushes and blackbirds here, but I have also an abundance of slugs. If the thrushes would clear them off, they should be welcome to my Cherries and Strawberries. I have heard of slugless gardens, but I

think the soil has more to do with that than thrushes.—HENRY N. ELLACOMBE, *Bitton Vicarage*.

—Professor Owen (p. 350) tells us that blackbirds and thrushes eat slugs in his garden. I wish they would do so in mine; but I have in vain watched them in the early morning when the dewy lawn is covered with slugs, and have never seen any bird except a duck eat a slug. For many years I have tried to obtain direct evidence that blackbirds eat slugs, but have failed. I know that both blackbirds and thrushes feed largely in autumn upon shell snails, and Yarrell, Gould, and other writers on birds have stated that they eat slugs too, but I have never met with anyone who could confirm the statement by his own observation, though I have often raised the question. Two or three years ago, when the blackbird came out in the second edition of Yarrell, the list of its food as given in the first edition remained unaltered. I wrote to the editor, whom I know calling his attention to it, and asking his opinion. He told me that he did not believe that either blackbirds or thrushes fed on slugs. Gould gives in detail the contents of the stomachs of three or four blackbirds which he examined, but no slugs were found in them. All this is only negative evidence, and it may appear captious to question what is so generally believed, but these birds appear to me to have a special aversion to the slime of slugs, and to avoid them accordingly.—C. WOLLEY DOD, *Llandudno*.

FRUIT GARDEN.

PEACH CULTURE AT KETTON HALL.

AMONGST indoor fruits Peaches hold a prominent position here; a range of houses 180 feet long and 11 feet wide in three divisions, having a trellis in front and also trees on the back wall, has just been erected for their accommodation. This range as well as others here is built and glazed on Rendle's system, and heated by two rows of 4-inch pipes along the front, with the necessary valves and mains. It is intended ultimately for early varieties, numbers of which are now on trial in other houses. The whole of the front lights are made to open, and the glass being in large squares fixed in metallic bars, they have a light and ornamental appearance. Roof ventilation is also amply provided. In front of and parallel with this range is another span-roofed house 100 feet long and 22 feet wide, in which there is an arched trellis occupying the whole width and planted on both sides mainly with mid-season Peaches. This house is heated by means of three rows of 4-inch piping, each side working independently, and is ventilated in a similar way to the previous range. Next comes the orchard house, a noble structure and worthy of the fine collection of trees which it contains. It is a curvilinear span-roofed house, 150 feet long and 28 feet wide, with iron rafters and a trellis on each side, the centre of the roof being left clear to admit the necessary light to the trees in pots, which occupy a space on each side of the centre walk. Three rows of 4-inch piping run the whole length of this house on each side, thereby rendering this "garden of fruits" secure against March winds, so disastrous to outdoor Peaches. The trained trees, from their size and vigour, appear to have been years in their present position, while in reality they were planted last October, the building of the house not having been commenced till the previous month of June. The trees in pots include Peaches, Nectarines, Figs, Plums, Pears, Apples, and Cherries, and form a most interesting collection. A span-roofed house made of wood 90 feet long and 16 feet wide, unheated, is occupied by Tea Roses and late Peaches, the border being utilised for Violets, salading, and early vegetables. The following list of Peaches and Nectarines in cultivation here may be interesting: The Peaches consist of A Bec, Alexander, Alexandra Noblesse, Barrington, Bellegarde, Belle Beauce, Crawford's Early, Chancellor, Dagmar, York, Dr. Hogg, Early Beatrice, Alfred, Louise, Dymond, Albert, Rivers' Exquisite, First Lord

(seedling), Goshawk, Grosse Mignonne, Hale's Early, Late Admirable, Lord Palmerston, Merlin, Morris' White, Noblesse, Nectarine Peach, Prince of Wales, Princess of Wales, Red Magdalen, Royal George, Sea Eagle, Stirling Castle, Violette Hâtive, Walburton Admirable, and Waterloo. It will be seen that amongst these there are many new kinds, of the value of which I hope soon to be able to give some account. The Nectarines consist of Albert Victor, Dryden, Downton, Early Newington, Elruge, Hardwick Seedling, Hunt's Tawny, Humboldt, Lord Napier, Pine Apple, Rivers' Orange, Stanwick Elruge, Spencer, and Victoria.

W. W.

FLUED WALLS.

It seems strange with all their advantages that these should have gone out of use, or rather that we should not have improved on them and had hot-water pipes, as one or two of these confined in a hollow wall would no doubt, even in the worst of seasons, secure a good crop of fruit, as with the bricks uniformly warm throughout radiating heat all night, frost would be repelled from the fresh tender blossoms. In the small space forming the cavity of a wall 10 feet or 12 feet high, it would not require much fire nor a very powerful boiler to keep up a high temperature within, and as the heat would only be required for a month or six weeks at most, the cost for fuel would be a mere trifle. If we are to have seasons like the present, and those for many years past, it is evident something must be done, or we shall soon have to give up attempting to grow Peaches, Nectarines, and Apricots out of doors, as in most places the trees are sadly crippled, and in many they are ruined or dead altogether. Glass, no doubt, is best, and next to that hollow walls with a pipe at the bottom, so that heat could be turned on and off at pleasure to protect the flowers or help to ripen the wood. Hollow walls would even gather warmth of themselves by absorbing sun heat; and though those of solid construction do this in some measure, they do not do so to the same extent, as beyond the solid brick there is nowhere to store the heat. Hollow walls have also other advantages—they are drier, and dryness means warmth and a great help in setting fruit blossoms, which often fail through damp. Hollow walls are, moreover, cheaper than solid ones, as the latter, when of any height, must be 14 inches thick, the building of which swallows up many bricks, whereas 4½-inch brickwork with ties across does for the former if the mortar and work are both good.

S. D.

VINE TENDRILS.

THE production of tendrils in place of bunches, as described by "Vitis" (p. 371), is doubtless simply the result of last season's wood being insufficiently matured. The Vine is naturally so disposed to bear, that, except through excessive weakness, it does not fail to show fruit in larger quantities than it can support if the preceding summer's shoots have been ripened properly. "Vitis" does not say what kinds the Vines are in his different houses, but he is no doubt aware that there is a good deal of difference in the time and means required to effect the ripening process necessary to insure a crop the ensuing year. Early varieties, of which Black Hamburgh and White Frontignan may be taken as examples, require a short season to ripen the crop and wood compared with such sorts as the Muscats, Gros Colmar, or Gros Guillaume (Barbarossa), the last of which requires the most hardening up of the wood if bunches instead of tendrils are to be expected the spring following. The fact of "Vitis" being in a position to see the shortcomings of his Vines by the latter part of April shows that they have been started time enough to allow of the wood being this season matured in a way that will prevent a like disappointment next year. Unless he happens to be in one of the worst sunless districts of the kingdom, he will have no difficulty in getting the wood of the earlier varieties into fruitful condition by simply shutting

up the house every afternoon whilst the sun is on the glass with enough power to get the temperature well up. In the case of late sorts, or such as the Muscats that require more heat, some fire should be used in dull, damp weather, with watchfulness as to the early closing, so as to make as much use of the sun as possible, and so minimise the expenditure in fuel. If "Vitis" will follow this course so as to get his shoots brown and hard all their length to where he first stops them whilst the leaves are green and healthy, he will not next year be troubled with tendrils instead of bunches.

T. B.

Charcoal in Vine borders.—So far as my experience goes charcoal does neither good nor harm in Vine borders, and if I could get it free of cost I would never use it in them, except I had a stiff, cold loam to deal with. In that case it might be of some service, but I should prefer to use a liberal supply of old lime rubble in its place. There are hundreds of gardens in which good Grapes are grown without the aid of charcoal—sufficient evidence that it is unnecessary except in exceptional cases.—J. C. C.

Coverings for Vine borders.—"J. C. C." is the first, I think, who has recommended stone flags as "generators" of heat for covering Vine borders. "The warmth generated by these stones would bring the roots near the surface," he says. If he will test a flagged border by a thermometer and another not so covered, he will find out his error. Flagstones are only warmed by the sun, and a border can be better warmed in that way without them. Light coloured flags, indeed, keep out the heat, and at the best they cannot possibly increase the average temperature of the soil. A "generator" of heat I apprehend to be a body that evolves heat of itself by fermentation or combustion.—S. W.

Black Prince Strawberry.—I was glad to see (p. 360) that good old Strawberry, the Black Prince, favourably noticed, as, though very old, it is the best early kind in cultivation. Some thirty years ago this and the Roseberry used to be the principal sorts grown for forcing first, and prodigious crops I have seen on the Black Prince. It is a free bloomer and setter, one peculiarity of it being the way in which it carries its petals, which remain quite fresh at the back of the fruit till it is ripe. Black Prince was brought into notice by Mr. J. Cuthill, at one time a market gardener at Camberwell. As Mr. Muir says, it is not only a good cropper indoors, but a capital one out of doors, and it is ripe nearly a fortnight before any other. Its small size is the only thing against it. It is a small, conical-shaped fruit, and, as its name implies, very dark in colour, and being highly varnished when ripe, the fruit is very rich-looking. It is a kind well adapted for a sloping bank or sunny border to get a first picking from, and to grow in pots for forcing for the same purpose, but few would be satisfied with it after Keen's Seedling or the Vicomtesse Héricart de Thury comes in. Keen's, however, is the best of the two, except for packing, for which it is too soft. The Vicomtesse, being more glazed and firm, bears packing well.—J. SHEPPARD.

History of Grapes.—I agree with your correspondent (p. 360) that it is desirable the history of our cultivated Grapes should be correctly known, and that the honour of raising them should go to whom it is due, but the history of the Abercainey variety as given by your correspondent is not correct. It was not John McIntosh, sen., who raised this Grape, but my predecessor, the late James Arnott, who was gardener here for thirty-five years, and who succeeded Charles McIntosh, jun., and the Abercainey Grape was not in existence for ten years after Mr. McIntosh had left here. There are still living several individuals acquainted with the circumstance, and one of them still connected with the gardens remembers the first fruit it bore. It has never to my knowledge been known as Moray's Grape, but as Arnott's Abercainey Seedling. Several years ago I had occasion to renew the house in which the original Vine was growing. I preserved it,

and have since grown the original and its progeny alongside West's St. Peter's, which here is quite a distinct Grape. Mr. Gilbert knows the Abercainey, having received it from me several years ago. Mr. Barron has now also got the true Abercainey, and in due course we will have his opinion on its distinctness of character. The keeping qualities of Lady Downes the Abercainey has not got, but being of a very hardy constitution, a free bearer, and good in quality, the Abercainey comes in handy after Hamburgs and before Lady Downes.—J. BROWN, *Abercainey, Crieff.*

PLANT NOMENCLATURE.

(HELLEBORUS NIGER ANGUSTIFOLIUS.)

ON every occasion on which, as in the case of this Hellebore, someone objects to a new varietal name, given to a plant by someone else, the whole subject of popular nomenclature again presents itself. I should imagine there are few people who have a liking for plants who would not prefer an appropriate expressive name in their own tongue to the often hard and sometimes far-fetched names in a dead language, given by botanists, if the change was not beset with difficulties. Anyone who doubts this has only to look at the last phase of the question, as propounded by Mr. Burbidge and accepted by Mr. Tymons. Mr. Burbidge disclaims any intention to supersede Latin names by popular ones, and approves of the use of both, and Mr. Tymons coincides with the idea. It seems superfluous to say that the use of names is simply to enable people to understand what is meant in speaking or writing of the things named. In the name of all that is reasonable, is the change proposed to be effected to be at the cost of having continually to be tacking the scientific name on to the popular one when speaking or writing of plants in general? If the result arrived at by Mr. Burbidge and Mr. Tymons means anything, it means this.

When an undescribed plant reaches the hands of the botanist, he gives it a scientific name, possibly not in all cases the most appropriate, but the name remains; no one in any country attempts to interfere with it. But what do we see in popular naming? The inevitable confusion certain to follow is foreshadowed by the case before us. Mr. Burbidge gives this particular Hellebore the name St. Brigid's Christmas Rose; then down comes Mr. Brockbank on him and will not have it at any price; then someone suggests another name, and with equal right a dozen or a score others may give it as many more as they choose. The whole business breeds nothing but confusion, as if there was not enough already in the same direction. Depend upon it there is nothing to be gained by the change except increasing the number of perplexing aliases. There will not be a single individual less to like flowers or grow plants on account of the harsh Latin names which many of them possess. No one objects to the familiar popular names borne by the comparatively few plants with which everyone is acquainted and knows them by, and if the kinds of plants in general cultivation could be reckoned by the score or hundred, then there would be no objection to the additional names proposed. But the field is too vast to venture on without getting into inextricable confusion, such as will necessitate giving a string of synonyms to make one's self understood when either speaking or writing of plants.

If even, instead of each individual who chooses to set up re-naming plants, the whole of those so disposed were to jointly deliberate and give the best English name they could devise for a plant, how are they going to get people to adopt it in the same way that they accept the authoritative Latin name given by the botanist by whom the plant is first described? The result would just be this: some would adopt the popular name and others would not acknowledge it, and in each case would give so little heed to the course followed by the others, as to not recognise the unfortunate plant when spoken of.—T. B.

— The subject of English plant names is daily becoming of more importance as (in great part, thanks to THE GARDEN) the cultivation of hardy

plants spreads amongst us. There is now an actual want for a trivial vocabulary, and if such want is to be supplied, the new names ought as far as possible to be of a kind easily to be remembered, and to some extent systematically arranged. There are many species of which the English names are amongst our earliest memories, and which none would wish to change; but in the invention of new terms, or the re-application of old ones, should not great care be used that the memory should be burdened as little as possible by non-relevant matter, and that the words used should be as far as may be intrinsically significant? No hard and fast rule is required; it is merely suggested that the second English name should in the main be co-extensive with the botanical genus, and that the first English name should be shortly suggestive of a prominent feature of the plant, or be in some sequence to its time or mode of flowering or the like. To refer to your pages of late, is not *Satin Flower* much to be preferred to *Rush-leaved Lily*? The former was first in the field, and could be adopted as a generic term; as to the latter, the *Lilies* have had too much to bear lately. Surely our language is not so poor but that another name could be found applicable to a somewhat *Lily-like flower*. *Plantain Lily* has taken root, and so should not be disturbed; yet it would, perhaps, have been wiser to search for a more distinctive appellation for the genus *Funkia*. Your suggestion, *Great Christmas Rose* for *Helleborus niger maximus* fills every want, whilst *St. Brigid's Christmas Rose*, though euphonious, is faulty in that the specific term is without significance. To remember the name of a genus is comparatively easy; species and varieties trouble the young gardener more, and if the specific name gives him a hint either in the plant as he sees it, or in his memory as he has seen it, the difficulty is almost overcome. Queen Anne's *Jonquil* requires an effort of the mind to connect with the flower, but who, once having seen, could forget *Codlins* and *Cream*, *Butter* and *Eggs*, or *Sweet Nancy*? To proceed with examples would be endless, there being now no authority, and the class, whose use is to be the ultimate judge, is only now coming into existence. If certain lines could be laid down within which the fabrication of new names should for the most part lie; if rules could be devised as to the forms which would give us a clear, easy, significant English terminology, which would advance within limits *pari passu* with scientific nomenclature; THE GARDEN would add much to its present and prospective usefulness by taking up the subject.—
RHO.

BIRD AND PLANT NOMENCLATURE.

I WAS glad to see Mr. Tymons' sensible and pointed letter on plant nomenclature in this week's GARDEN, for though I thought it had been pretty well discussed some years ago, yet superstitions die hard. There is a capital instance of the confusion which results from incorrect nomenclature in Professor Owen's notes on birds in THE GARDEN; and if it were not for the Latin names (of which, however, many are obsolete or incorrect) I should not always have known what birds were alluded to. Professor Owen calls the lesser redpole (*F. linaria*) the linnet, whilst he calls the real linnet (*F. cannabina*) the greater redpole, a name certainly not in common use; but perhaps he does not mean the linnet after all, as he says it always breeds on the ground; and though I have seen many linnets' nests, not one was on the ground, nor have I heard of this being a usual occurrence elsewhere. But Latin names when used incorrectly may be as misleading as English ones, and I was not a little astonished to find the wren, the chiff-chaff, the redstart, the robin, and the wagtails all put down under the genus *Motacilla*, which by modern ornithologists is applied to the wagtails only. Considering that the above-named birds belong to three different families, it is strange to class them all in one genus whilst other and nearer allies are allowed a separate genus. I can only guess what bird is meant by the "garden warbler or lesser fauvette (*Motacilla passerina*)."

It cannot be the real garden warbler, as that is mentioned lower down under its right name. *Motacilla passerina* is not a correct name for any English bird, though I find it given as a doubtful synonym, never in general use, for the lesser white-throat (*Silvia curruca*). But this bird does not, like Prof. Owen's, imitate the notes of others, as far as I know, and I can find no mention of this habit either in Yarrell or Dresser. Lesser fauvette is not an English name for any bird, though fauvette is a French name for warblers in general, and has been sometimes used for the garden warbler in English books. The blackcap might be intended, as this fine songster does imitate other birds' notes, or it may be the white-throat or lesser white-throat, neither of which seem to be mentioned in these notes, though both should be found at Richmond. Ornithological nomenclature is a bad subject to meddle with, but as regards British birds I think it is now placed on a satisfactory footing, and as every boy knows the English names for the birds mentioned in these notes, I see no object in using the Latin ones except in writing for foreigners.

But with plant names it is different, as their number is ten times greater, and only the commonest plants have English names which everyone knows, whilst gardeners of the most humble pretensions know and use the Latin names.

What we want is to understand each other as accurately and quickly as possible, and the attempt to introduce a crowd of new fanciful names is not the way to attain this object, or to promote horticultural intercourse with other countries.

H. J. ELWES.

GARDEN NOVELTIES AND FASHIONS.

I WISH there was less of "follow my leader" and more independence of thought, and particularly of expression, amongst us gardeners; if that were so, fewer amongst us would have cause to regret having acted, to say the least, indiscreetly in purchasing novelties simply because they are said to be improvements, and that someone has tested them and declared them to be such. Granted that they may be, it does not follow that we are to resign our own judgment in the matter and grow these said novelties in full confidence that they will turn out the trumps they are said to be. The proverb runs "old birds are not to be caught by chaff," and I suppose it is that having been bitten more than once with the novelty fever, I am the more chary of novelties now, and anxious to warn younger hands against them, or at all events to be sceptical about them till they have had time to test them, or at any rate to think the matter over for themselves. I would not for a moment be understood as implying dishonesty to anyone who fathers these novelties and designates them, whether they be so or not, first rate; from their stand-point they doubtless are, but then our stand-points differ, as they ought and will, just in proportion as each of us brings to bear our own judgment on whatever novelty is in question. The first step to attain this independent state of mind is to pay no heed to orthodoxy in anything pertaining to the profession, as, for instance, when a man says that we only require two sorts of Grapes, viz., *Black Hamburgh* and *Muscat of Alexandria*, dare to tell him that that is an old story, but still fashionable, and therefore frequently repeated, because it is considered the correct thing; but it is a fallacy nevertheless, and it is time it was buried. Of course if I must grow only two kinds, I am willing to be fashionable, as these are the two very best, but I have heard this speech from people who grow at least a dozen kinds, and how they can reconcile the speech with their practice is more than I can imagine. Moreover, a general verdict does not always prove to be a correct one. I can prove the correctness of this assertion by again referring to Grapes. *Madresfield Court* a year or two after being sent out was almost unanimously condemned, first for its persistency in cracking, and next because it had been sent out as a late Grape, and yet it would not keep; happily, there are a few "sticklers" amongst us, and so this noble Grape was given special treatment and

grown as an early Grape, and the popular verdict now is on the right side, and I venture to prophesy that a similar favour awaits the much abused *Golden Queen*, of Pearson, and also Mrs. Pearson. This last variety I consider about the most valuable of all the new Grapes added to our collections in recent years, not even excepting *Madresfield Court*. Other instances might be quoted, but these are ample to illustrate my meaning, and I think also to show the importance of each and all of us, whilst paying a respectful deference to the opinions of others, not to neglect the cultivation of an opinion of our own.

W. W. H.

GARDEN FLORA.

PLATE CCCLXXXVI.

BEAUFORTIA SPLENDENS.

THE singularly beautiful flowers represented in the annexed plate show an arrangement of floral organs peculiar to a great many Australian plants—an arrangement which has won for them the appropriate name of *Bottle-brushes*. In the whole of the *Beaufortias*, *Callistemons*, *Metrosideros*, *Melaleucas*, and other plants not so well known in gardens the long and richly coloured stamens form the attractive portion of the flowers, which are arranged in a manner more or less similar to those shown in the accompanying plate. In *Acacias*, *Eucalypti*, and other long-stamened plants the beauty of the filaments is peculiarly striking. Australia is the home of some of the most remarkable of Flora's freaks as well as of many of the most beautiful, amongst which the *Bottle-brush* plants are especially striking. Some years ago the *Beaufortias* and *Metrosideros* were general favourites, and good well-flowered specimens of them were often seen at our great plant exhibitions. That was in days when hard-wooded plants were the test by which gardening skill was measured, a position now held by the *Orchid* family. The grace and beauty of the plant here represented should, however, recommend it to the notice of even the most enthusiastic *Orchid* lover, and although such a plant may not have such charms for him as some *Orchids*, yet there seems no reason why such a beautiful and easily grown shrub should be so little cultivated as it is at present.

I have seen specimens of *B. splendens* as symmetrical as a *Box* bush bearing dozens of its rich scarlet flowers, which were admired by all who saw them, and almost as much may be said respecting the rest of the Australian *Bottle-brush* plants. They have only to be well grown to prove of the greatest service as garden plants. In order to encourage a taste for such plants as these, would it not be well to have a class for them in our plant exhibition schedules? At most shows now-a-days *Azaleas*, *Pelargoniums*, and similar plants fill the stages—handsome enough plants, no doubt; but if floral exhibitions are intended to bring into notice the most interesting and useful of garden plants, the schedules must be arranged different from what they now are.

BEAUFORTIA SPLENDENS is a garden name given to *B. sparsa*. It was grown at Kew nearly a century ago under the latter name, the former name having been given some thirty years afterwards, when it was re-introduced and figured in Paxton's "*British Flower Garden*." Like all the Australian *Bottle-brushes*, it is a greenhouse plant, a free grower, and, when its wood is well ripened, a free flowerer. As will be seen, the blossoms are produced on the ends of the one-year-old growths, a fact to be remembered, as I have known some



growers unacquainted with this cut back their plants to induce them to break well, and in so doing of course sacrifice the flowering wood. The flowers in a cut state last in good condition for several days in water, though it will be seen that to cut this year's bloom, one must needs sacrifice the next crop. On well-grown plants the length of the inflorescence is from 4 inches to 5 inches. *B. decussata* resembles this species in habit and appearance. As the name implies, the leaves, instead of being irregularly arranged along the stem, as in *B. sparsa*, are placed decussately or cross-ways. The flowers, too, are not so thickly placed as in that species, though in the colour and length of the filaments there is little or no difference. It is an erect-growing, twiggy shrub, about 4 feet high, and makes a good specimen plant in about four years from cuttings. Of allied plants whose floral arrangement is similar to that of *Beaufortia* there are

METROSIDEROS SPECIOSA, which, as well as *M. lanceolata*, is often met with under the name *M. florida*, a totally different plant with globose heads of flowers produced on the ends of the ripened wood. *M. speciosa* is an erect growing plant with stiff ovate foliage, and its flowers are produced in the axils of the leaves along the ripened wood. The stamens are bright scarlet, and although not so long nor so numerous as in the plant here figured, they are nevertheless very ornamental. *M. lanceolata* is very similar to the last named kind, differing only in the shape of the leaves, which are longer than in *M. speciosa*, and, as the name signifies, lance shaped.

*CALLISTEMON*s have been represented in gardens by several very handsome species. Their floral characters have a remarkable similarity to those of the *Metrosideros*, differing from them only in length and colour. *C. rigidum* is a fine plant, of which a huge specimen is in the temperate house at Kew, and which produces large, brightly coloured whorls of flowers every year. *C. speciosum*, *C. lanceolatum*, and *C. salignum* are other cultivated kinds. Several *Melaleucas* were once grown, but as they appear to be lost altogether from gardens, they need not be dwelt upon here.

THE CULTIVATION of the plants just mentioned is within the power of everyone possessing a greenhouse. They require peat or a mixture of peat and loam with plenty of sand, and should be watered and syringed freely during the time when they are making their growth. In autumn they should be placed out of doors to ripen their wood, and during cold weather protection from frost is all they require to keep them in health. To induce these plants to grow into shapely specimens, the growths should have their tips pinched directly on reaching their full length. B.

Narcissus cernuus.—The name *cernuus* was not, I think, intended to apply exclusively to any particular white Daffodil. It means pendulous—nodding—and this feature applies to all the white Daffodils. The *cernuus* of Burbidge, plate 8, is certainly not that figured by "Veronica" (p. 377), which also differs materially from plate 924 of Curtis, "*Narcissus moschatos* (a), the white long-flowered Daffodil," which is there synonymous with *N. cernuus*. According to Burbidge, the difference between *moschatos* and *cernuus* appears to consist in the primrose-yellow tube of the former, and the variety supplied by Mr. Barr as *moschatos* has this coloured tube, whereas in *cernuus* the tube and perianth segments are greenish white. In all the plates, however, the

tube and perianth segments are about equal in length, but in "*Veronica's*" woodcut the tube is shown considerably longer. Mr. Barr exhibited the same flower at South Kensington the other day as *cernuus*, and he had *tortuosus* there also with perianth segments as long as the tube. When I named this to him the day following he at once said that *tortuosus* should have the corolla shorter than the tube, and the two sorts are thus mixed in his nomenclature. "*Veronica*" says that Mr. Barr knows this variety as the Irish *N. cernuus*, but it is clearly more like *N. tortuosus*. The perianth segments become twisted after the plant has been a day or two in flower, or in hot sunshine. WM. BROCKBANK.

SEASONABLE WORK.

FLOWER GARDEN.

FLOWERING TREES AND SHRUBS.—Notwithstanding the coldness of the weather, these are this year very floriferous, and by way of memoranda for future planting, the present is the time to decide the merits of each, both as to the position for which they are best suited and the colour of the blossom. The wild Cherries, the Almonds, and Laburnums are all excellent for planting as standards in large shrubberies for distant effect; and the double and single blossomed Gorse, Broom, both white and yellow flowered, Lilacs, Syringas, and Weigelas are suitable for forming groups, either alone or in combination, but Syringas and Weigelas look best when well backed up with evergreen shrubs. Horse and Spanish Chestnuts, False Acacias, and Hawthorns seem most at home perhaps when planted singly on the turf, but this is purely a matter of taste and the character of the ground formation to be planted, which obviously can only be satisfactorily decided on the spot. Be that as it may, every place having any pretensions to gardening should have a collection of flowering trees and shrubs; and now when they are in full beauty is the time to note and decide to what extent it may be desirable to use them.

ROCK GARDEN AND HARDY FERNERY.—Pick off seed vessels and decayed flowers from the earlier flowering plants, and keep the whole free from weeds. Couch Grass and Spargula are at this season very troublesome, and unless destroyed betimes quickly overrun the weaker growing plants. The dwarf Phloxes, Aubrietias, Myosotis, Omphalodes, and two or three varieties of Saxifrages are now finely in flower, but, handsome as they are, they should not be allowed to encroach on others, which, like weeds, they quickly do if permitted to grow unrestrictedly. Keep the walks free from weeds, but not too dressy; Moss-grown or heathy are the most appropriate. Formal walks or edgings do not harmonise well with the surrounding irregularities of a rock garden, but where these exist keep the edgings clipped and the walks hard and clean. Ferns from which the old fronds have not yet been removed should have that attention at once, and additional soil should be given to all that need it; transplanting, too, may yet be done. When there is not sufficient to well furnish the ground, plant at long distances, and fill the intervening spaces with the common Wood Mosses, Sedums, and Stonecrops. The common wild Hyacinths, Wood Anemones, Violets, Primroses, Snowdrops, and Daffodils are all in their season most effective as undergrowths for Ferns.

GENERAL WORK.—Lawns should be mown and Grass verges clipped. Apart from the untidy aspect of uncut edgings, it is desirable to cut these regularly to prevent seedling Grasses making weedy walks, and the same remark applies to Grass margins of shrubby clumps. Continue to plant out all the hardy section of bedding plants, also thin out hardy annuals sown in the open borders, and plant out those sown in warmth. Stake Sweet Peas and make another sowing. Place in sheltered positions, easy of protection, out of doors all the hardest kinds of bedding plants, such as Pelargoniums, Ageratums, Lobelias, Verbenas, &c., which

will allow of the potting on of recently struck plants of the same kinds, and also the tender sorts, such as Coleus, Amaranthus, Iresines, and seedling sub-tropicals, which, to do them justice, require plenty of space and warmth.

INDOOR PLANTS.

SHRUBBY CLERODENDRONS.—Old plants of these, such as *C. fallax*, *C. Kämpferi*, and *C. fragrans*, started early will now be pushing up their flower-stems, and should have their heads kept well up to the glass near the roof ventilators, as, although they like a brisk heat and a moist atmosphere, they do best where subjected to less shade and more under the influence of a considerable amount of air for a time daily than most things. For ordinary decoration *C. fallax* and *C. Kämpferi* are the most useful the first year of blooming after being raised from either seeds or cuttings; these, with their large, single, erect panicles of the brightest red flowers issuing from broad, massive foliage, have a telling effect interspersed amongst Caladiums and other fine-foliaged subjects. Keep the undersides of the leaves regularly syringed to preserve them from insects, especially thrips and red spider.

THUNBERGIA HARRISI.—Plants of this that have been blooming throughout the winter should now be cut back; they are free rooters, soon exhausting the soil. If planted out, as much of the top soil as can be got away without too great a disturbance of the roots should be removed and replaced with new material; if in pots, they ought to be partially shaken out and repotted, giving them more room. This *Thunbergia* does not require the warmest stove treatment, as if kept too close and hot it is apt to run over much into growth at the expense of flower, and it is not suitable for training as a specimen; it both does and looks much better when trained to the roof. Its pale lilac or mauve flowers, in form and size not unlike those of the major variety of *Achimenes patens*, produced freely during winter and spring, do much to embellish any house in which they may be grown, but they are not the best for cutting, as they soon flag when severed from the plant.

APHELANDRAS.—Large plants of the useful autumn-blooming *A. cristata* kept cool through the winter and started some time back should, if not already done, be now partially shaken out, replacing the old effete soil with good loam to which has been added a moderate quantity of rotten manure and sand. Large plants require large pots, or the bloom will be comparatively meagre. A moderate heat is sufficient with plenty of air and a liberal supply of water when growth has fairly started. *A. elegans* is a handsome free-flowering kind that needs comparatively little room, and should be found wherever stove plants are cultivated. Small plants of it should now be pushed on by giving them larger pots and encouraging free growth. Like most of the genus, it is an erect grower naturally, and can only be induced to branch out sparingly by stopping, yet the points should be once at least nipped out. *A. Roezli* is a small-habited species, and will bloom freely in little pots. Than this few more effective plants have been introduced of late years, its brilliant orange-scarlet spikes being often produced by examples in 4-inch or 5-inch pots. It is most useful for standing on the side stages of an ordinary stove.

SHADING.—Position and other local circumstances go to determine how soon in the year it becomes necessary to shade stove plants. A hip-roofed or lean-to house facing the south naturally requires the use of shade sooner than a span-roofed structure standing with its ends north and south, a position in which the bars and rafters do much to break the sun's rays when most powerful; no more shade should on any account ever be used than is absolutely necessary to prevent the foliage of the plants from being injured. Soft foliage, the result of indifferent cultivation, is much more susceptible of injury from direct exposure to the sun than that of the same plants would be if well managed. All sorts of makeshifts are often used

for shading, from the colouring laid on the glass down to flour-paste and whitewash; all these are objectionable, and the further the obscuring material is from white the more is it undesirable. Where a high standard of cultivation is aimed at, nothing but blinds on rollers will suffice, the material used being no thicker than will break the sun's rays without excluding them.

FRUIT.

VINES.—Take advantage of every ray of sunshine in the management of late houses by closing about 3.30 with moisture, when the fire-heat may be kept shut off until the temperature falls to within 5° of the night heat, which need not exceed 60° for the present. If inside borders are well drained they may be copiously watered without fear of injury; indeed, a large percentage of inside borders never get half enough water; the roots go out in search of that which is denied to them at home, and many people imagine it is the position of the border and not their own bad treatment which drives them downwards and outwards, often into deep subsoils too crude and cold for anything less hardy than a common Oak. Another mistake which many people make is the giving their late Vines too much root room, particularly in low damp situations where everything but the moisture-laden atmosphere is unfavourable to good Grape growing. In such situations we have always found that internal borders 6 feet wide, and external borders 9 feet wide, will give a maximum of good Grapes at a minimum of cost, simply because they are full of active roots which can be fed without watering half the garden, and being warm the Grapes invariably set, swell, and colour well. Another advantage is the alternate system of taking out and renovating the borders with new soil without having to sacrifice a crop, when too much vigour is unfavourable to the proper ripening of the wood, and as the latter means unripe Grapes, growers of late kinds who complained so much last winter will do well to look to their borders, and if they are wide, deep, rich, and cold, steel forks must be brought into use before they will again be successful in the Grape room.

Early houses in which the Grapes are ripening may have more air on fine days, but draughts must be avoided, and if the inside borders are sufficiently moist the usual damping down may be continued, as spring Grapes require more moisture than can be given to late ones. Let laterals grow without a check if they seem inclined to start, and keep a sharp eye on the old foliage, as spider is almost sure to be present, and injury to the primary leaves at this early season is very often the cause of early Vines breaking prematurely in the autumn, and covering their unfortunate owners with glory by ripening up new Grapes in January. With many the usual remedy for spider is flowers of sulphur, but, independently of the fact that Frontignans and other thin-skinned kinds are often rusted and ruined by its use, timely sponging of the upper and undersides of the leaves with soapy water is undoubtedly the most effectual, as it is the most economical mode of dealing with this troublesome pest. Another troublesome marauder is red spider, as it thoroughly enjoys the dry warmth and security which it finds on a bunch of Grapes, but it must be destroyed, otherwise the delicate bloom will be disturbed before it is properly set.

PEACHES AND NECTARINES.—Assuming that the final thinning of the fruit in the early house has been brought to a close, and the shoots have been properly regulated, give every Peach the full benefit of sun and light by elevating it above the foliage and pinch the points out of the strongest growths where their vigour is likely to detract from the size of the fruit when ripe. Feed well with warm liquid and syringe freely with soft water twice a day until the fruit begins to ripen, the first time before the ventilators are opened, and again after they are closed, when with sun heat the temperature may run up to 75°, and gradually descend to 60° for the night when mild, and 56° when cold, and sharp firing is needed to

admit of a little front air. Ply the syringe well in succession houses in which the fruit is stoning, mulch the borders with good rotten manure to keep in surface moisture, and feed with warm diluted liquid at every watering, or guano water where the growths are weak and the foliage is deficient in size and substance. Open the ventilators early on fine mornings, and increase the air as the temperature rises to 70°, reduce in a similar way, and close about 4 p.m. with a good syringing. Continue to disbud the shoots and thin the fruit in late succession houses, leaving a small percentage to be taken off at the final thinning. Heel in the young growths as they advance, lay in no more wood than is actually required for the production of the next year's crop of fruit. Fumigate on the first appearance of green fly, and encourage a short-jointed, vigorous growth by the free admission of air and timely closing to save fire heat.

PINES.—Early started Queens now swelling freely may be kept at a temperature of 70° by night and 80° through the day, with a rise of 10° more after shutting up with sun-heat and moisture. With increased light and sunshine the syringe may be used more freely, care being taken that an excess of moisture does not accumulate in the axils of the leaves, and so produce a crop of troublesome suckers. The plants will now require careful attention in the way of feeding as often as water can be given to the roots. As a rule, Pine plants receive more water than is good for them, particularly where they are loosely potted in large pots, and bottom-heat is obtained from fomenting materials only. Where fire-heat is used there is less danger, but in all cases a moderately moist growing state of the soil should be the aim. Good diluted liquid from the tank is not easily surpassed for general watering, and it is rendered more valuable when used alternately with soot or guano water. All stimulants should be weak rather than strong, perfectly clear, and a few degrees warmer than the house when used.

SUCCESSIONS.—If, owing to the severity of the past spring, the general stock of summer fruiterers show a greater inclination to grow than throw up fruit, increase the temperature, reduce atmospheric moisture, and keep them moderately supplied with water for a time. The majority of the plants will make a growth before they fruit, and unless there is likely to be a scarcity of ripe Pines at any particular time, it is best to let well-ripened plants take the usual course. Look over the earliest potted stock now rooting freely. Give more light and air. Keep the atmosphere moist, and syringe overhead after closing on bright days.

STRAWBERRIES.—If possible, remove all pot plants from houses in which Peaches, Grapes, or other subjects liable to be permanently injured by red spider are growing. Good pits heated with hot water, in which the plants can have full exposure to light, answer best. Syringe copiously twice a day at all times when not in flower. Feed well with good liquid until the fruit begins to colour, when clear water will be most suitable, and remove to an airy, temperate house a few days before wanted for use. The finest late kinds will now be well advanced, and as these will, under judicious management, lead up to early crops in the open air, insure quality by thinning off the weak blossoms before they open. A good batch of President, Paxton, or other favourite kind plunged in a cold pit, where the lights can be thrown off on fine days, will give pounds of fruit at a most acceptable time where December-started plants give ounces.

MELONS.—Having removed all surplus fruit from the early pot Melons, support those left on small pieces of board suspended from the trellis. Top-dress with strong loam and rotten manure, and water freely with warm liquid or guano water. Carefully preserve all old leaves from the base upwards. Syringe copiously after closing for the day, and run up to 90° with sun-heat. Plants growing on hills train regularly, stop when the vines have covered two-thirds of the trellis, and impregnate all female flowers as they open. Aim at a bottom-heat of 80°, and keep the roots on the dry

side until the fruits begin to swell, when more moisture and additional top-dressing may be given.

PITS AND FRAMES.—Plants in pits and frames will require constant care and attention to linings and covering, otherwise they will receive a check and become a prey to insects. Keep the young Vines and foliage thin, and remove all male and female blossoms until sufficient for a full "set" has been secured. Impregnate on fine days, and allow the surface of the bed to become dry during the process. Collect all waste material from Seakale beds, add a little fresh manure, and when in a fermenting state renovate beds from which Carrots and Potatoes have been removed. Form the hills at once, have strong, healthy plants ready, and turn them out as soon as the soil becomes warm. Make frequent sowings for future use, and throw away pot-bound plants before they become infested with spider.

ORCHARD HOUSE.—The fruit in the forcing house will now be stoning and apparently at a stand, as there will be but little outward difference for five or six weeks; but when this trying process is complete the change will be rapid, and more heat may be given if absolutely necessary. If time is not an object a temperature ranging from 55° to 58° at night, and 65° to 68° by day—with, of course, a few more degrees after closing—with sun will give the finest Peaches without distressing the trees. Guard against over-cropping as a very serious evil, always leaving the finest and best-placed fruit to ripen. Stop all strong growths to increase the size, and remove laterals to let in light and air. If the house is quite closed at night it should be well syringed and opened about seven in the morning, gradually reduced after two o'clock, and finally shut about half-past three, with another good syringing. A plentiful supply of moisture will now be needed, but an excess, particularly by night or with a low temperature, will soon destroy the flavour of the fruit. The water used for syringing should be free from lime, and the liquid given to the roots clear, generous, and a few degrees warmer than the mean of the house.

SUCCESSIONS.—As soon as the fruit is safe syringe twice a day when fine, and see that the roots are regularly supplied with water. Disbud and shorten back to a good shoot above the requisite number of fruit, and pinch the points out of strong growths before they have time to derange the balance of the sap. Give Cherries, Plums, and Pears the most airy part of the house. Syringe well, ventilate freely, and fumigate with Tobacco paper on the first appearance of green fly. Strawberries on shelves will take an abundance of water to prevent the balls from shrinking away from the sides of the pots. Avoid the use of saucers, syringe copiously, thin the fruit when set, and feed with good liquid manure. Keep a sharp look-out for grubs, which may be expected to appear on Plums and Cherries, and hand-pick before they have time to perforate the fruit.

HARDY FRUITS.—If retarded growth is the forerunner of a good crop of fruit, the present season should give satisfaction. Stone fruit prospects in this locality are not, however, so promising as was at one time anticipated. The blossom buds on Apricots were extremely thin, and Peaches which made a bad start last spring, although now well furnished with good wood, are not over-stocked with flower-buds. Still, if perfect, these may be sufficient to admit of a little thinning. Cherries are abundantly furnished, and Plums may be a moderate crop, but I do not anticipate a glut from trees in late, damp situations. The most important work in this department will have been for some time the protection of blossoms and embryo fruit from frost by the application of the most available kind of shelter. In early gardens safe from frost young growths may have felt the effects of the scathing east winds if they are not already well stocked with red spider. Where this is the case timely attention to the preparation and application of insecticides is of importance, but it must be borne in mind that at this early season weak applications can only be applied with safety. For general use

the old-fashioned wash of soft soap, sulphur, and tobacco water is not to be despised, as it is safe, easily applied, and within the reach of all. Look well to newly planted and root-pruned trees. It is not necessary to saturate the ground with cold water, but a good moist mulching and an occasional dash with the syringe will help them through this trying spring. Look over old Strawberry beds, remove troublesome weeds, which often get established in the stools, and at the same time work in the winter mulching as a protection and stimulant to the young surface roots now starting into growth. New beds may now be made where plants have been kept for that purpose. Make them deep, rich, and solid, use fresh virgin loam for planting with, mulch and water.

CUCUMBERS.—As few plants give a better return than the Cucumber, it is too often the practice to allow the plants to exhaust themselves, and so become a prey to insects at a time when good fruit for private use is of the greatest value. Where old plants can be dispensed with, a heavy flush may be taken prior to taking them away; but if it is necessary to retain them, light cropping is of the greatest importance. Established plants will now take more water at the root, heavier syringing, and the compost used for top-dressing may be heavier than that used through the winter; keep the foliage thin and clear of insects by the application of the usual remedies, and lower the trellis a few inches to prevent it from touching the glass now growth is becoming luxuriant. Ventilate without producing a draught, close at 80° to 85°, run up to 95°, and avoid shading. Continue treatment recommended for frames, renovate linings alternately, cover with dry mats, earth up with rich turfy loam, and keep the young growths thin and free from insects by good cultivation and the maintenance of a steady heat. Make a good sowing of Smith's Frame for planting after forced vegetables. Prepare beds for ridge kinds and plant under cap glasses.

KITCHEN GARDEN.

BRUSSELS SPROUTS should now in most places be ready for pricking out. Get a load or two of old Mushroom manure, spread it on the surface of any out-of-the-way corner (1 inch deep is ample), and finish off with another inch deep of fine soil. Burnt refuse is the best of all mixtures for young plants, say four barrow-loads of soil to one of refuse; on this prick out the young plants 4 inches apart, and when planting out finally force the spade under the bottom of the bed, and each plant will come up with a ball. Set your line across the site to be planted, and take out one side spit, and at every 3 feet apart lay in your plant, pressing the soil firmly round it. Nothing more is needed except keeping the ground free from weeds. Spring Broccoli should now be sown in most parts of the country. We sow in drills 1 ft. apart, and plant out the plants from the seed beds to their permanent quarters, the site being that occupied by early Potatoes. When the Potatoes are all lifted we give the land a rough rake over with an implement called the agitator, set the line across the site, and make the holes with a crowbar; one man drops in the plants while another fills the holes with water. The work of planting is then complete. Of all winter Broccoli we have ever seen we pronounce Snow's (when true) to be the very best. The first to make its appearance with us this season is one sent for trial called Hosking's Broccoli, a most useful addition, growing compact and dwarf, followed by those two really fine varieties Leamington and Watts', both too well known to require further remark. For the latest we find Burghley Champion and Cattell's Eclipse to be the very best. We have the two latter now coming into use. Keep plenty of Lettuces tied up for blanching Black-seeded hardy Cos is the thing to grow for the winter. In these Lettuces one finds something crisp and good, but French Cos Lettuces grown under cloches are soft, like tissue paper compared with brown paper as regards thickness and substance of leaf. They are really handsome Lettuces, but never did the old proverb, "Beauty is but

skin deep," apply better than in the case of these French Lettuces.

PROPAGATING.

ALL soft-wooded subjects, such as Bouvardias, Fuchsias, and Heliotropes, kept during winter in a semi-dormant condition should now have increased heat and moisture. In repotting, remove as much of the old soil as can be done without injury, and use only pots large enough to hold the roots without inconvenience. Soil of a moderately light texture tends to encourage quick root growth. Avoid using any stimulating manure for plants that are required for propagating, as although fine-looking cuttings may be the result, they will turn black and absolutely refuse to root, that is if strong manure be used. Another point needing attention is to make the cuttings wholly of young growth; on no account leave a base or heel of old wood; indeed, where every cutting is an object the better way is, in taking them, to cut them off above the bottom joint, thereby leaving one eye of the new growth on the plant. As the base of the cutting need not be a joint, it may be cut off immediately above the bottom joint, and the bare portion of stem below the bottom leaves will serve as the part to be buried in the ground without removing any more of the foliage. Soft succulent cuttings, such as are produced in spring, should never be put firmly in the soil; on the contrary, the cutting-pots must be lightly prepared, indeed so lightly that the cuttings can be stuck in without a dibber. This remark applies only to places in which they can be kept close, as if cuttings have to stand in a house and take their chance with ordinary subjects they require to be put in more firmly. Any light soil makes a good rooting medium; even pure sand or Cocoa-nut refuse may be used, but in these it is necessary to pot off the cuttings as soon as rooted. In raising Cannas from seed it is at best a risky practice to cut or file the seeds to hasten germination; if soaked in warm water for a few days the same end is attained without any fear of damaging the germ, unless the water is allowed to evaporate and leave the seeds dry just as they are starting. This may easily happen, as if placed in pans and set on hot-water pipes evaporation is very rapid. New varieties of Chrysanthemums, Phloxes, and Pentstemons obtained in the spring in the form of small plants will, if placed in gentle heat, grow away at once, when the young growths may be taken off and treated as soft-wooded cuttings. Tuberous Begonias required for stock, if started now in the same way as Dahlias are done, will yield a good many cuttings, and where seedlings are raised no time should be lost in sowing the seed. Sow in light soil thinly, and do not cover except with a pane of glass. As soon as the seed germinates the glass must be removed, and the pots or pans kept in a light, but warm position to prevent damp.

CORREAS.—These pretty winter flowering shrubs make effective greenhouse plants even in a small state, and their propagation is not a difficult matter. Make cuttings of the young shoots when half ripened. As a rule four leaves will be enough to leave on the cutting, so in removing it from the plant cut immediately below the third pair, then cut off these two bottom leaves, and the cutting will be ready for insertion. Choose medium or weak shoots for cuttings rather than strong ones, which are far more liable to decay. If to be placed in a small frame within the propagating house, 4-inch pots will be a convenient size, but if bell-glasses are to be used of course the pots must be chosen to suit the size of the glasses. Fill the pots to within 1½ inches or 2 inches of the rim with broken crocks, the upper layer being crushed finely to prevent the soil from being washed down through the interstices. When this is done fill them to just below the rim with soil consisting of peat and sand sifted fine and pressed down firmly, then finish off with a thin layer of pure sand. Give each pot a watering through a fine rose, and let them stand an hour or two before using them. Then insert the cuttings as thickly as possible without over-crowding, bearing in mind that cuttings

which touch the sides of the pots generally root before those in the middle. When small pots are used this can be carried out, but where bell-glasses are employed the cuttings must not be brought near enough to the edge to interfere with the removal or replacing of the glasses. Put the cuttings in firmly, and when each pot is finished give a thorough watering to settle every cutting in its place. The most suitable temperature is one a few degrees higher than that in which the plants from which the cuttings have been taken have been grown—say that of an intermediate house, as if too great a change takes place in this respect the cuttings often speedily decay while a few degrees higher than they are accustomed to will hasten their rooting.

JAPANESE PRIVET AND GARRYA ELLIPTICA.—Cuttings of these should be taken towards the end of summer when the young shoots are about half ripened, and kept close in a cold frame till rooted. They should consist wholly of the current year's growth with just sufficient leaves removed for purposes of insertion, but no more. Get some 6-inch pots, drain them well, and fill them with sandy soil pressed down rather firmly, then insert about a dozen cuttings in each pot, give a thorough watering, and the operation is complete. In this way many of the cuttings will root during the autumn, and the others will do so very early in spring, when they may be potted or planted out, but the better plan is to pot them in small pots till established, then plant in the open ground. They may also be put in now, when they will root during the summer, but they will require keeping close and shaded till that takes place. If put in the open ground a sheltered spot should be chosen for them, and the cuttings should be made longer than for pots.

KITCHEN GARDEN.

CULTURE OF RUNNER BEANS.

I MAY safely premise that no vegetable more eminently combines the ornamental with the useful than the Scarlet Runner, and that few are so profitable and generally popular. At the same time I should like to see its culture still more extended among the proprietors of villa and suburban gardens if only for decorative purposes, such, for instance, as covering archways, porticoes, or wherever climbers are required, provided always the positions are warm and sunny. Scarlet Runners grow rapidly, require but little training, and their large and prominently disposed spikes of scarlet, white, or speckled blooms, as the case may be, are borne in profusion till cut down by frosts; while the blooms, provided liberal treatment is given, will be succeeded by clusters of pods, which are very acceptable in most establishments. A row may also be grown in connection with the flower garden, the running growth in this instance being stopped near the ground or at any height. For comparatively small establishments long rows of plants are not needed to maintain the supply of pods for the kitchen; on the contrary, a few isolated plants, say oppositely in pairs at intervals along the borders of the principal garden walks, will be sufficient; plants trained to tall, strong stakes will generally yield a surprising quantity of Beans, and, in addition, are highly ornamental. In fact, this is one of the best methods of growing Scarlet Runners, especially where space is limited, the single pillars not greatly interfering with the neighbouring crops, besides proving more productive than is the case where either the rows or plants are crowded. If rows are preferred, these in common with Peas may well be disposed next the pathways, thereby assuring them abundance of room and light without detriment to other crops adjoining, or rather on the garden side. Where the

DEMANDS OF LARGER ESTABLISHMENTS have to be anticipated and a different class of garden has to be dealt with, several rows of Beans have to be grown. Probably the majority of those in charge of these gardens require no advice upon the subject, but I may yet safely assert that

Runner Bean culture is far from being generally intelligently practised. As a rule the plants are grown too thickly, the result being light crops and, during dry seasons especially, of short duration. The ordinary method of sowing is in double rows, these being about 12 inches apart, and the seed frequently a less distance asunder, nearly every plant receiving a stake so disposed as to cross near the points, girding stakes connecting the whole. This I consider to be a mistake, the practice involving much unnecessary expenditure in the shape of labour and stakes. Our plan, which I believe to be much more profitable, is to grow them in single rows 6 feet apart, the seeds being sown 4 inches to 6 inches apart according to its quality, and eventually thinned out or made good by transplanting, so as to bring those retained about 12 inches asunder. To each plant a strong straight stake is given, these being when inserted from 6 feet to 7 feet high, and all are laced together with more stakes in a line 12 inches from the top—these serving to steady the whole. Between these rows we sometimes grow two rows of early Potatoes, but should the ground be too heavy for these, we grow two or more rows of early Cabbages or Cauliflowers. As I have previously observed in the case of Peas, Runner Beans may be

GROWN WITHOUT STAKES, and in some districts in the counties near the metropolis fields comprising many acres are devoted by nearly every grower to their culture. In their case I may add that the crops are to a certain extent speculative, their culture being necessarily expensive. For instance, I have known fields of Beans sold early in the season to speculating buyers—who relieve the grower of all further trouble connected with picking and marketing the Beans—at the rate of £22 per acre, and yet prove a capital investment, while perhaps the next season when Beans are very plentiful they scarcely realise enough to pay expenses. In small gardens, or where stakes are not available, the field plan may be advantageously adopted, and it is also the best for securing an extra early supply. The rows may be disposed 3 feet apart, and the plants eventually 12 inches to 15 inches asunder. Instead of encouraging the running growths, these should be kept closely stopped. If this precaution is neglected the Beans get smothered with growth, and in this state are both unsightly and unproductive. Stopping induces the early and continuous formation of large erect spikes of bloom, followed by great handfuls of pods. As the latter are naturally heavy, they rest on the ground, and in wet weather get rather dirty. For the markets they have to be washed in tubs of water, but in private gardens the washing may be avoided by giving the plants a mulching of fresh stable manure, this serving to keep the pods clean, as well as preserving moisture about the roots. Runner Beans require and deserve

LIBERAL TREATMENT, in the shape of trenched or deeply dug ground and abundance of good manure. Narrow, Celery-like trenches I do not recommend, ours being about 3 feet wide and two spits deep; in fact, prepared as recommended for Peas on p. 274 of the present volume of THE GARDEN. They require abundance of moisture at the roots, and an occasional or frequent supply of any liquid manure available will materially benefit them. Ours do not get much of the latter, but what little we are able to secure is given either during showery weather or subsequent to a soaking with clear, soft water. If watering is resorted to during dry weather, and this is absolutely necessary where the ground is shallow and resting perhaps on a gravelly subsoil, or where the ground has not been heavily manured and deeply dug, thorough soakings should be given, and that before the soil has become very dry. Dribblers are of no avail. It is also advisable to mulch heavily either with rough manure or Grass from the mowing machine. We usually sow the seed during the last week in April or early in May, and find a second sowing by way of succession unnecessary. Where no extra pains, however, are taken in preparing the grounds, or other cultural details are neglected, the earliest sown may fail early in the

season, and in anticipation of this it will be advisable to sow again early in June. The stakes employed may be of any length, or from 3 feet to 9 feet, but in every case they should be inserted early, and the running growth should be constantly stopped when the tops are reached, or otherwise they become top-heavy, and in this state do not crop so evenly or heavily as may be desirable. The pods ought to be kept regularly gathered whether required for consumption or not, as if allowed to hang and perfect the seeds the cropping capabilities of the plants are greatly impaired. If seed is required, instead of allowing each plant to perfect a few, it will be found a better plan to devote a few plants, according to the quantity required, entirely to the production of seed. The best variety, all things considered, is the old Dutch Scarlet Runner; this is more productive than the larger Champion Runner, and also realises higher prices in the markets. Sutton's Giant White produces abundance of long, handsome pods, and these, besides being of good quality, are particularly well adapted for exhibition purposes. I ought, perhaps, to mention that Beans transplant readily, and may be sown in boxes and planted out should frosts or slugs and other enemies interfere with those sown in the ordinary way.

GROWER AND EXHIBITOR.

LATE PEAS.

LIKE "J. C. F." (p. 363), I do not believe in early Peas for late sowing, as I have never yet found them to be better than others, and after Marrows no one cares for them. It is not long since I read an article on Peas, written by a well-known authority, in which he stated that if asked his opinion as to the best kind, he should say the Ne Plus Ultra, and if he were questioned as to the second best, his answer would be Ne Plus Utra, and the same again for the third, and really I do not think he would be far wrong. "J. C. F." evidently holds the same opinion. Well, Ne Plus Ultra deserves all "J. C. F." says of it, but I should like to say a word in favour of the British Queen, which, if not equal or superior to Ne Plus Ultra, will run it pretty closely. Although perhaps the Queen may not be quite so good in colour, the Peas are tender and marrowy and very fine in flavour. What, however, I like the Queen for is late cropping, and as it is well to have two strings to one's bow, it is advisable to have two sorts of Peas for autumn. I always depend on the last named and Ne Plus Ultra for gathering at that time, as it often happens that the one escapes mildew better than the other, or lasts longer in bearing. The Queen is a robust branching kind, and sets its flowers and swells its pods very late in the season, and we generally have Peas from it here till they are killed or spoiled by the frosts. To have this or any other sort really late, or even in quantity during the summer, they must have good ground and special cultivation, or dry, hot weather soon puts an end to their bearing. The way in which we manage, and it is a plan I can specially recommend, is to sow the rows at wide intervals and grow Celery between them. By doing this both crops are benefited, as the Peas get plenty of light and air, and the Celery enjoys for a time the partial shade which it needs. By following this course the Peas are sown in the old Celery trenches, or in others prepared by digging into them manure to a good depth and re-filling them to within an inch or two of the surface. By leaving them a little lower than the surrounding surface, water or liquid manure can be given more advantageously. The distance at which we have the rows of Peas apart is 10 feet, and during the summer they are kept mulched, to which I attach great importance; the mulching shades the ground about the roots, thus keeping it uniformly cool and moist, and preventing cracking after water is given—a thing sure to occur without the covering. J. SHEPPARD.

Dwarf green curled Borecole.—We send you a sample of this useful vegetable. For twenty-eight days last month we had continuous frosts, varying from 7° to 25°. As a consequence, vege-

tation suffered dreadfully, most green material being cut off. These Kales were standing in an open quarter (intended for seed), and being so very dwarf and hardy, they have passed the ordeal wonderfully. In this respect, as well as their fine curl, we think them a very good type.—J. BACKHOUSE & SON. [Very good greens.]

Mushrooms out of doors.—I forward you a sample of Mushrooms grown out of doors at Aswarby. Our first bed was made up on January 23, spawned on the 26th, and soiled on the 29th of that month. We commenced gathering from the bed on March 15. Our second bed was made up on March 6, spawned on the 12th, and soiled on the 16th; we commenced gathering from it on April 23. Our beds are covered with good litter from the "crew" yards. This has been and still continues to be the finest Mushroom season both inside and outside of which I have any record. Many of the Mushrooms gathered weigh from a quarter to 1 lb.—RICHARD NISBET, Aswarby, Sleaford, Lincoln. [Large and succulent, well-flavoured Mushrooms, very different from the leathery, dusty things often sold in the market at this season.]

INDOOR GARDEN.

PRIMULA SIEBOLDI.

ONCE a year, and then only in a small way, do we hear anything about those lovely Japan Primroses which so fitly bear the name of Siebold. That not more is heard of them, or in praise of them, is doubtless due to the fact that so few grow, or know how to grow them. It would be incorrect to class these Primulas as hardy in the sense that they may be planted out in the open border and left to shift for themselves. They are so far hardy that ordinary frosts do not injure them, but they are harmed by excessive moisture, and outdoors want both a dry position and some shelter. But their chief charm, blooming, as they do, at a time when frosts and harsh east winds are apt to prevail, is when employed as greenhouse plants; and as such in pots, producing some half-dozen or more trusses of bloom, it is not easy to beat them for elegance or beauty. The stems are brittle, and the flowers somewhat fragile, but under glass and without heat graceful, and indeed lovely. I fear all who have obtained the home-raised kinds have failed to treat them so as to secure the best results. Briefly, I would say that, whilst the crowns should not be so crowded in the pots as to prevent full development, yet excessive root room is not desirable. I grow all my stock during the summer either in pans or 6-inch pots, where the rhizomes and foliage find ample room for development. Upon this free development depends the blooming capacity of the crowns the next season. After the best of the bloom is over in May all the plants are placed in a cold frame, where they are sheltered from hot suns and heavy rains; strong winds, too, are objectionable, and are not difficult to guard against. Granted these conditions, with careful attention in watering, and their culture for the summer is complete. Early in winter the pots are brought under cover, the roots turned out, and all the rhizomes picked out and broken up, the strongest being put on one side for potting singly in 3-inch pots, and the rest are repotted into 8-inch pots, to grow into stock for the following year. Of course, many of these latter bloom; but all those selected for potting singly will bloom freely. The roots like the early contact with the sides of the pots, which they soon feel when in such small ones, and invariably the growth so treated is stronger and the bloom finer and better coloured than is the case when the rhizomes are repotted at once into large pots. The great advantages which follow from the plan of potting the best crowns singly are, first, that for furnishing or ordinary decorative purposes they may be used anywhere and in many ways; and secondly, if required for exhibition, half-a-dozen of the best put into a 7-inch pot give a beautiful, even clump at once. All these single plants are, ere the summer comes, shifted into 8-inch pots for summer growth. The following are all good kinds, viz., laciniata, fringed,

dark red; rosea laciniata, fringed, pink; alba grandiflora, fine pure white; Ophelia, drooping lilac; Hermia, delicate mauve; and Mauve Beauty, tinted white. These are all free growers, though there are others equally beautiful. A. D.

TWO NEW DIEFFENBACHIAS.

As with Crotons, Dracænas, and Marantas, so with Dieffenbachias, there seems to be an inexhaustible supply of them, for each year brings us new kinds—some good, others inferior. The two new sorts, of which the annexed are illustrations, are both distinct and handsome, and both will ine-

blended so harmoniously as to render the foliage very rich and attractive. Like all their congeners, these two are lovers of warmth and moisture, and are of easy culture in an ordinary stove, and, being fast growers, soon become fine specimens.

DOUBLE IVY-LEAVED PELARGONIUMS.

Few plants are more popular than these, and few more useful. Besides being well fitted for growing into specimens of a pyramidal form, they make pretty bush plants in 6-inch pots if supported by a few sticks, and are in that form well adapted for the greenhouse, where they will flower

All the varieties just named have the true trailing habit of the old kinds rather than the stout sturdy growth of many recently introduced sorts. Others with the same habit as the old kinds are M. Dubus, bright carmine-pink; Rosina, pale pink; Mdle. Jeanne Wouters, deep rose; Robert Fortune, pale red; M. Pasteur, bright magenta; Comtesse Horace de Choiseul, bright pink, shaded towards the edges with magenta; Sidonie, deep mauve; and Gloire d'Orleans, crimson-magenta, the last one of the best. Strong stiffer growing varieties include Comte Horace de Choiseul, salmon-rose; Albert Crousse, light salmon; Mdme. Crousse, pale pink; Eurydice, rosy mauve; Mdme.



Dieffenbachia reginae.

vitably be prized by those who have a taste for beautiful foliaged plants. *D. reginae* is one of the newest additions. It was introduced from South America by Mr. Bull, of Chelsea, who is now distributing it. It has oblong elliptic leaves, rounded at the base, and almost wholly covered with greenish white, mottled with blotches of pale green, and a few streaky markings of a deeper shade, rendering the plant very effective. Another new Dieffenbachia named *Rex* is among the new plants offered this season by Mr. Bull, and is likewise handsome. *D. magnifica* has been introduced from Venezuela by the Compagnie Continentale d'Horticulture, in whose nursery at Ghent we saw it a short time since and were impressed by its beauty. The annexed engraving gives a good idea of the habit of the plant and the marking of the foliage, which is as large as that of any of the other species. The colour of the leaves is a clear green, spotted and mottled with pure white and various shades of green,

throughout the summer and well on into the autumn. The stronger varieties, again, if treated as greenhouse climbers in a sunny spot, especially where used to cover the end of a house, both grow and flower well. For balconies or vases, too, their procumbent habit thoroughly fits them. It is now some seven or eight years since Koenig Albert, the first double kind, made its appearance. It has violet-mauve coloured flowers, and is still one of the best of that tint, but now there is a great range of colour among them. A good pure white is still, however, a desideratum, for though I have flowered *Gazelle*, *Finette*, *Madame E. Gallé*, and *Sarah Bernhardt*, none of them completely fulfilled my expectations as to purity of colour. The best I take to be *Madame E. Gallé*, a good and free kind, but with a slight blush tint in the blossoms. *Jeanne d'Arc*, sent out last autumn by Lemoine, I have not yet flowered, but, judging by the description given of it, it should be a good pure white.

Jules Menoreau, deep rose; *Mdme. Lemoine* rather brighter than the preceding, and moreover shaded with magenta; *M. Barrall*, deep blush; and *Anna Pfitzer*, salmon-pink. Although all named in the foregoing list are well worth growing, for a dozen I would select the following, viz., *Albert Crousse*, *Comte Horace de Choiseul*, *Comtesse Horace de Choiseul*, *Eurydice*, *Gloire d'Orleans*, *Mdme. Crousse*, *Mdme. Lemoine*, *Mdme. E. Gallé*, *Mdme. Jules Menoreau*, *Mdle. Jeanne Wouters*, *M. Dubus*, and *M. Barrall*. H. P.

Impatiens Sultani.—At present this Balsam is but little known, but when more widely distributed it will doubtless become popular. It is extremely floriferous, and its bright, rosy magenta-coloured blossoms supply a tint wanted amongst stove plants. My plants of this Balsam in an ordinary stove have flowered continuously from early autumn to the present time. Even rooted

cuttings produce blooms when only a few inches high. If kept too wet during winter the fleshy stem is sometimes apt to decay; but even if that happens the shoots can be utilised as cuttings.—H. P.

Clianthus puniceus.—This is a great favourite at Farnborough Grange. Plants of it from last year's cuttings have made growths from 2 feet to 3 feet long, and are literally loaded with bloom, the arching sprays of peculiarly shaped coral-red flowers associating well with plants of a more stiff and formal type.—C. S.

Begonia glaucophylla.—I saw the other day at Farnborough Grange a fine plant of this growing in a basket suspended from the roof of one of the plant houses. Its beautiful panicles of cinnamon-scarlet flowers, contrasting pleasingly with its fine dark glaucous foliage, entitle it to a foremost place among plants suitable for baskets either in conservatories or drawing-rooms.—C. S.

The watering of plants is a most important matter, and one which is too often overlooked. They should never be allowed to become too dry, and on the other hand if water is poured promiscuously into the pots without first ascertaining whether they require it or not, the results will be most unsatisfactory. To the inexperienced this will seem rather a difficult matter, yet it is one which must be surmounted; so many plants require more than ordinary care to grow them well, that the strictest rules must be observed. Plants should never be watered until they really require it, but this is such a delicate subject, that no very correct explanation can be offered concerning it. Careful watering does not mean that it should be given in dribblets, but enough should be given at a time to thoroughly moisten the whole of the soil. It should then be withheld until the soil has become dry again, never, however, allowing it to be so much so as to cause the plants to flag, conditions which can only be arrived at by careful attention and experience.—T. B., *Arbroath*.

Effects of hot water on plants.—I read in some of the papers lately about a Frenchman restoring the vigour of weakly pot plants by watering them with water at 140°. It was not with the idea of proving the value of this plan, which I doubted at the time, but to prove the reputed effects of hot water on insects, that I lately made the following experiment, which has had a rather singular and unexpected result, so far confirming the Frenchman's experience. Some six or seven weeks ago I dipped a narrow-leaved Croton in water at about 130° for about a minute or more, and afterwards set it in its place and waited the result. In twenty-four hours or less every leaf, embryo bud, and insect was quite dead. I expected the leaves to go, but not the numerous small buds that were showing on the stems. However, all were killed, and the plant itself seemed killed to the root for three weeks, when it began to push freely from the old wood all over, but the new leaves were not the leaves of *C. angustifolius*, but of the broad-leaved variegated Croton, only much greener and healthier than that variety usually is. The old dead leaves of *C. angustifolius* were still on the plant, white and bleached, and in this condition several of my neighbours saw it and were much struck at the metamorphosis. The true leaves of *C. angustifolius* are now coming again at the points of the shoots.—J. S. W.

Confervæ (C. E. F.).—I find, on further examination, that the papery substance you found on the tops of Rushes is composed of fibres of *Conferva crispata*. When alive each filament is hair-like and composed of a single row of cells placed end to end. When this plant is dried the walls or skin of the cells collapse and become flattened, but the partitions between them are more rigid, so that a dried filament, when magnified, presents much the same appearance as the top of a twisted paper spill when it has been pinched in and out. A mass of this plant remaining at the bottom of a pool which no longer contains water becomes flattened as it dries and withers, and the filaments, assuming the form just mentioned, are not easily

separated, and become matted together into the substance you forwarded.—G. S. S.

NOTES AND READINGS.

COLOURED SPRING FLOWERS.—Those who desire a scarlet or scarlet-crimson spring flower of the shade of *Vesuvius Pelargonium* and quite as vivid should plant the *Anemone fulgens*, which has been flowering freely in cold regions for some time back. It is a beautiful subject for rockeries or spring gardens. May I ask what has been the experience of those who have had this plant planted permanently out for some years? I regard *Narcissus Horsfieldi* as one of the best and prettiest of its class—compact habited, a free flowerer, with an orange cup and petals paler than the "pale Primrose," affording a rather striking and pleasing contrast. For a telling group of clear yellow, *N. maximus* (single) beats almost any other variety. Once the single varieties of the Daffodils become more familiar to gardeners, the double, and falsely so-called "incomparabilis," will dwindle in their estimation. The Daffodil presents us with the highest type of a beautiful single flower. For a variety of rich colours we must go to Dean's single Primroses, which will soon be wanted by the million, or I am mistaken. What a field the florist has missed here. They quite surpass the *Auricula* in all its aspects, and all are good—big, broad flowers, some nearly covering a crown-piece, hardy, early, profuse of flower, and long lasting. For a pure blue untainted by purple or red we have nothing so generally useful and pretty as the common Grape Hyacinth, nothing more hardy or sure. Its compact masses of miniature spikes are most effective. For a clear porcelain blue we have the lovely Forget-me-not, which is indispensable. The small and sweet *Myosotis rupicola* seems a doubtful grower notwithstanding its antecedents, but all the varieties are good, and the white form of *sylvatica* is very handsome and useful. For a dark crimson the common double Daisy must not be forgotten; it is as accommodating as it is pretty and telling in masses. Pale yellow and white flowers prevail in spring, but no difficulty need be found in securing plenty of colour in the spring garden by judicious selection and planting.

TWO BUNCHES OF GRAPES TO A LATERAL.—No one will "exclaim with horror," I imagine, as has been suggested in a contemporary, at the idea of leaving two bunches of Grapes on one lateral, because the thing is quite common, and on the very methodically trained Vines at Thomery it is the rule; but for all that we do not think many English Grape growers will adopt the practice. If leaving two bunches on one lateral necessitates smaller bunches and cutting the shoulders off those that are left, it looks very like robbing Peter to pay Paul. You cannot take more out of a Vine than is in it, and it matters little how the bunches are distributed; but most people think more of one four-pound bunch to one lateral than two two-pound ones from the same, because the first can only be had by higher culture. The "winging" of Grape bunches is no new idea. The late Mr. Tillery practised it, and was twitted about it by certain writers at the time.

PACKING GRAPES.—The same writer, who, by the way, knows better, advances as a plea for small bunches of Grapes that they pack and travel much better than large ones, and in consequence realise more money in the market. "Awkward" bunches four pounds weight and upwards are objectionable on that account, it is stated. When one remembers the grand bunches Mr. Meredith used to send in perfection everywhere, and beat everybody in prices, not to speak of the thousands of pounds weight sent from private gardens constantly, the above excuse for moderate bunches must amuse growers. Every man has a right to grow such examples as suits his purpose best, but it is hardly wise to assign reasons which gardeners know are not valid. Gardeners must be novices indeed if they

cannot pack large bunches, however awkwardly formed, above four pounds weight to carry by rail any distance in perfect condition. There are gardeners who send big bunches of Grapes in quantities from the borders of Devonshire to the Isle of Skye by rail, road, and boat, arriving at their destination without a bruise. Large bunches are just as well formed as small ones.

WHAT IS A CROP OF GRAPES?—Still quoting the same writer, whose accuracy is usually unimpeachable, we discover that what is described as an "amazing, astonishing, murderous" crop of Grapes is something under one pound to every two square feet of space, but which cannot surely be regarded as suicidal practice. We arrive at this result by the disenchanting process of multiplication of the areas given. No one can estimate a crop of Grapes by looking in at the door, nor yet by a nearer look. A valuer would not estimate things in that way, and it would really be better in many cases if crops of this kind were looked at with a valuer's eyes; it would be less misleading.

FLORISTS AND THEIR FOIBLES.—We read as follows in a contemporary:—

We are on the eve of the National *Auricula* and *Polyanthus* Show, and the season of these ancient and favourite florists' spring flowers is upon us, so that the minds of many who are novices in the florist's art will be exercised to find out to their own satisfaction wherein lie those points of excellence which make up the favoured flowers. None of these points are more difficult to appreciate than is the one that relates to the needful thrum centres, because those who care for a flower only for the general beauty it displays, or perchance the perfume it emits, entirely fail to understand why the florist should insist so strangely upon the value of thrum over pin eyes. But the florist proper has, in the course of his study of the properties of flowers, gone far beyond the popular estimate, and found beauties and charms where the common spectator or grower sees only generalities.

Truly ordinary admirers and lovers of God's gifts in the shape of flowers will "be exercised to find out" the points of excellence which make up the favoured flowers of the florist. To ordinary mortals what a blessing it is that the beauty of Nature's flowers is usually stamped on the face of them for bees and butterflies and men to see, for, according to the most recent revelations on this subject, it would appear that although human beings do possess highly sensitive nasal and visual organs as well as lofty and intelligent perceptions, Nature intended the bees, &c., to have precedence. What a world of beauty must be lost to those "who care for a flower only for the general beauty it displays and the perfume it emits," and cannot perceive the transcendental claims of the "needful thrum centres," nor the "value of thrum over pin eyes." We feel abased when we contemplate our appalling ignorance in this respect. "The colouring of a florist's *Polyanthus* is as clear and precisely marked as if it were done by a skilled artist." Think of that! Nature must be taking lessons at the Royal Academy. It is confessed, however, that she still persists in preferring "pins" to "thrums," notwithstanding all the florist has done to direct her in the right path. It is worthy of note also that the society which pursues these great ends is worthily styled "The National," because its members number very nearly half a dozen individuals. In the list of prize takers, Mr. A. follows Mr. B. in one class, and precedes him in another. In the next class this order is reversed, and so on to the end of the "nation." Alas, that such a nation should be doomed soon to become as extinct as the *Pterichthys Milleri* of the old Red Sandstone. Our florists of the future will be the Veitchs, Cannells, Wares, Brockbanks, Wolley Dods, and others who are not fettered by rules and antiquated notions.

EARLY PRUNING AND LATE FROSTS.—The past month of March will be a red-letter month in the gardener's calendar. The destruction among Roses has been great, and the autumn-pruned plants have been the main sufferers. The winter

having been mild, buds grew, and the shoots are now dead; no buds are left on plants that are alive, but if adventitious buds push later the bushes will probably be saved. On the other hand, plants that were not pruned till after the frost had their terminal buds killed, but those at the base of the shoots being dormant escaped, and are now pushing freely. Early or autumn pruning of tender shrubs has its advantages, but a pruned plant is always the first to suffer from frost when it is severe, and Roses are particularly sensitive. The question of early or late pruning is one, therefore, which every one must settle for himself once he understands the peculiarities of the climate he has to deal with.

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RED COLOUR IN STEMS AND FOLIAGE.—In a late number of *THE GARDEN* the opinion is expressed that varieties having red colouring among their chlorophyll are harder than those which have none. It has been long known to gardeners that red Celery is hardiest, and hence it is oftenest planted for a late crop; it does not perish from frost or rot so soon as white Celery. Red-leaved Chinese Primroses, too, are hardiest and most easily raised, and this is the marked characteristic of many reddish-leaved plants, but whether it is the rule or not is another matter. The best and hardiest Christmas Rose we are acquainted with is a variety very common in Yorkshire, coming into flower at or near Christmas, and continuing till the end of February; it has leaves and flowers as like the St. Brigid's variety, as figured in *THE GARDEN*, as can be—large and pure white flowers, and clear, narrow, green leaves, and stalks with no red in them whatever. It is common in cottage gardens, and is found in the most exposed and lofty situations. The red granule theory does not apply, moreover, to Grapes, either as regards red leaves or red or black fruit, for the white kinds are equally vigorous and hardy with the black. Red Roses are not the hardiest. General Jacquemont is hardy, but not so hardy as the Gloire nor the white Ayrshire Roses, which stand our hardest winters when other varieties die. Red-leaved garnishing Kales, which have abundance of red blood in their veins, are not harder than the clear green curled German Kale, nor do they as a rule grow either so tall or strong when red predominates. What is the red colouring matter? Is it chlorophyll in another form only?

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"TEMPERED" WATER.—A contrivance, now being brought out by Warner & Sons for "the even tempering of water" for drinking and other purposes seems worthy of notice here. Water in pumps, pipes, or cisterns near the surface of the ground, it is well known, is always nearly of the same temperature as the air, whatever that may be at the time. For drinking purposes it is too warm in summer and too cold in winter. For watering garden plants we do not complain of its temperature in summer, but during winter and spring the water in outdoor tanks and pipes is very often much too cold to be applied to the roots of plants, and injury is frequently done by its careless application. The new invention is designed to obviate this state of things. It consists in principle of a tube, the bottom end of which is sunk deep enough in the earth to be beyond the influence of surface cold or heat, and preserves the water at the natural temperature of the earth, perhaps at 50° or higher. The tube is filled from a reservoir on the surface; the pressure of the water in which, it appears, forces the bottom water up the pipe to the top, where it is drawn off, hence the tube is always full and the water ready for use. How far the contrivance can be made available for garden purposes we have yet to learn.

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THE SCOTTISH HORTICULTURAL ASSOCIATION.—One of your contemporaries is responsible for the following account of this enterprising association: "The chairman, having started a discussion as to the meagre reports of the proceedings of the Society given in the Edinburgh papers, suggested that the conductors of these should be approached in the matter; several members urged

that the horticultural journals were even more blameworthy in this respect, and one of the speakers submitted that in the event of the Society's business not getting proper recognition in the acknowledged organ of the gardeners, it should be "boycotted," a statement which was loudly applauded." Eventually the matter was left in the hands of the Council." One cannot believe that any considerable number of the members applauded such a resolution, and I question now that the matter has been turned over to the Council if any more will be heard of it. The result of such a step would probably be that the association would "boycott" itself. The association may depend upon it that it is neither the desire nor the interest of any of the papers to overlook its doings and transactions worth recording; and it will probably not have escaped the notice of members that only one paper has taken notice of their bumptious resolution. While saying this, however, I have no doubt that many readers would be pleased to have a better record of Scottish horticulture, whether furnished by the Scottish association or any other body, but if the interest in general horticulture in Scotland is to be measured by the circulation of gardening papers in that country, we are constrained to believe that it is hardly equal to that shown by some single English counties. The very best thing which the Scottish Horticultural Association can do is to promote the cause of horticulture in Scotland by widening the scope of its interests and promoting the cause it has at heart, like the rest of us.

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FREE GARDENING IN SCOTLAND.—To many English readers the term "free gardener" will be about as intelligible as "free kirk." I rejoice to see, however, that free gardening is assuming a new and better phase in the north than hitherto. Reports have been sent to me concerning the progress and doings of the association in Fife, Edinburgh, and Glasgow that seem to denote a revival of this ancient order under new and better auspices. At one time—not so long ago—the principal advantages of being a "brother gardener" consisted in the privilege of wearing a blue apron and of abusing and maltreating anyone else who attempted to don that badge without having gone through the preliminary barbarous rites in the nearest barn or other out-house which happened to be consecrated a lodge for the occasion. The brotherhood has now, however, apparently resolved itself into a friendly benefit society, and seems to be enrolling members at a rate which speaks well for its success, no fewer than 8000 members having been enrolled in Glasgow in recent years, "a number," the report says, "which was being increased at the rate of 1500 annually." We learn that there were free gardeners in Scotland when James VI. reigned, that the origin of the order is lost in antiquity, and that at the present time the order is more prosperous than ever, and boasts of 50,000 in Great Britain.

PEREGRINE.

Some plants at York.—Of *Chorispora Bungeana* we have over half-a-dozen good plants, three of which have flowered. *Hesperochiron californicus*, a plant which Mr. Baker tells me is from the Yosemite district, is very gay. Two plants of *Saxifraga cordifolia purpurascens* are blooming well. *Corydalis Ledebouriana* and *Primula pucilliformis* and *Celmisia* are also well worthy of mention. I hope the last named one may flower. *Myosotidium nobile* has three flower-spikes which show the conical bud-heads; and we have also a true *Cistus ladaniferus* on which about forty flower buds are formed, so there is likely to be quite a treat in store for us. Two curious Primroses (*acaulis*) have come under my notice, and might be worth mentioning, as they serve to indicate the origin of corolla, &c. One of them was found wild in a wood by Mr. Draper, gardener to Marquis of Londonderry. Its corolla is formed of simple leaf lobes and the ovary is attenuated remarkably. One often sees Primroses with phylloidal calyx, but a case like this is rare. The other instance is that in which two flowers had merged

into one, with two pistils and ovaries, ten stamens and divisions of the corolla, the tube having a central partition where the coalition occurred.—P. S.

RECENT PLANT PORTRAITS.

THE March number of Regel's *Gartenflora* contains

VIOLA PEDATA VAR. **ATROPURPUREA**.—A very pretty variety, the two upper petals of the flowers of which are deep purple and the three lower ones bluish white.

SAXIFRAGA RETUSA.—A small mossy growing Saxifrage, with pale pink flowers sometimes borne single and sometimes two on a stalk, but apparently never more than that number.

MAMMILLARIA SANGUINEA.—A curious pear-shaped Cactus covered with bunches of small spines and producing a crown of rosy purple flowers round its top.

The April number of *Revue de l'Horticulture Belge* figures

HELIOTROPE DORE ALBERT DELAUX. —A very pretty variety with evenly golden variegated foliage and fine large piped purple flowers borne freely in medium sized trusses.

The April number of *l'Illustration Horticole* contains

DIEFFENBACHIA MAGNIFICA (double plate No. 482).—A very handsome foliaged plant with large light green leaves profusely and evenly marbled with white. A native of Venezuela.

CAMELLIA MADAME LEMONNIER (plate 483).—A fine large flowered variety of very vigorous habit of growth, with fully double white flowers faintly flushed with rose colour. Raised by the well-known amateur florist at Lille, after whose wife it is named. From a seed produced by the beautiful striped variety *Lavinia Maggi*.

VANDA HOOKERIANA (plate 484).—An extremely beautiful Orchid, resembling the well-known *V. teres* in appearance and habit of growth, but with more pointed extremities to its leaves; the flowers are smaller, but more handsomely marked than those of the older variety.

The February number of *La Belgique Horticole* figures

VRIESIA BARILLETTI.—New species from the Equator; one-third the natural size. A curious variety, with small yellow flowers.

SCHLUMBERGERA MORRENIANA.—A triple plate, showing entire plant, and also bloom spike in a more advanced state and with one expanded flower. This plant is also known as *Massangea Morreniana*, but the first name is considered to be its more correct appellation. It is a native of South America, and only a single plant of this handsome *Bromeliad* is known to be in cultivation in European gardens, belonging to M. Ferdinand Massange de Louvrex, who flowered it for the first time in October, 1882. It is a very handsome variety, with bright red flower-stem of great size and substance, attaining a height of between 4 feet and 5 feet, and crowned with a large bunch of delicate primrose-coloured flowers.

VAN HOUTTE'S Flore des Serres et Jardins de l'Europe.—The concluding number of the 23rd volume of this work contains coloured portraits of the following plants of a much more interesting character than those in the preceding numbers of this volume.

ANTHURIUM ANDEGAVENSE (double plate No. 2454-5).—This is described at length on page 368 of current volume of *THE GARDEN* with other interesting and beautiful hybrids of this brilliant and interesting family.

CYPPELLA CERULEA (plate 2456).—A most beautiful, but unfortunately fugacious Irid, also known under the name of *Marica*, and already figured in the *Botanical Register*, the *Botanical Cabinet* (Loddiges'), Hooker's *Exotic Flora*, and Reichenbach's *Flora Exotica*. It opens its large and handsome bright blue flowers, which have a broad white stripe down the centre of each petal and a rosy brownish centre, in the early morning, and they close and fade shortly after noon, but quickly succeed one another on healthy, vigorous plants. It requires the temperature of a cool stove.

ONCIDIUM CUCULATUM (plate 2457).—A pretty Orchid with medium-sized flowers borne alternately on a spike, the three upper petals of which are brown with green tips and lip, and remainder of the flower white, beautifully and distinctly spotted with rosy purple.

LYSIONOTUS TERNIFOLIUS (double plate Nos. 2458-9).—A most beautiful and interesting Gesneriad from the East Indies, and belonging to the family of Cyrtandraceae. It has also been described by various botanical authorities under the following different names: *Chirita ternifolia*, *Lysionotus serratus*, *Chirita polycarpa*, *Incarvillea dubia*, and *Calosacme polycarpa*. This delicately beautiful plant was introduced by chance to M. Van Houtte's establishment in the soil surrounding some other plants sent from the English colony of Belise, and produces bunches of tubular flowers borne on pendulous stems with four flowers at the end of each, and closely resembling in shape those of some of the Bignonias, the ground colour being white, most delicately veined and shaded with violet, with slight yellow veinings down the throat. The flowers seem to be produced in great abundance, and if of easy cultivation it may be considered a most desirable acquisition.

SANCHEZIA LONGIFLORA (plate 2460).—A reproduction of plate 5588 of *Botanical Magazine*.

DENDBOBIUM FARMERI VAR. ALBIFLORUM (plate 2461).—An Indian Orchid with rather insignificant white flowers.

DOUBLE-FLOWERED TUBEROUS BEGONIAS (double plate 2461-2).—A fine group of six varieties of these beautiful plants, all of them seedlings raised by M. Van Houtte. The four following varieties are not yet sent out, viz., *Mdme. Valerie Guequier*, *Princess Stephanie*, *Mdlle. Alice Guillot*, and *Princess Clementine*, a fine pure white. The other two, *Mdlle. Jeanne Pecquereau*, double yellow, and *Mdlle. Bertha Frœbel*, were sent out in the autumn of 1880. No. 3 on the above list seems to be one of the very finest varieties that have been yet obtained; it is of immense size and substance, and of a pleasing shade of rose colour.

NERINE PUDICA (plate 2464) is a reproduction of plate 5901 of the *Botanical Magazine*.

ONCIDIUM PHYMATOCHILUM (plate 2465).—A rather prettily-marked, but small-flowered Orchid from Rio Janeiro, apparently drawn from a very poor and insufficiently-developed specimen.

RHODOENDRON DALHOUSIE VAR. VICTORIANUM (double plate 2466-7).—A most beautiful hybrid form of this beautiful greenhouse shrub, raised by M. V. Cuvelier, and having *R. Dalhousiae* and *R. Nuttalli* for its parents; it most resembles the latter in appearance of flower, but is smaller in size, and is said to possess all the great freedom of blooming of its other parent, so should be a decided acquisition to any collection of these lovely plants.

ROSE LENA TURNER (plate 2468).—A beautiful Hybrid Perpetual Rose raised by M. Verdier.

ODONTOGLOSSUM KRAMERI (plate 2469).—A reproduction of plate No. 5778 of *Botanical Magazine*, and not of plate 5578, as stated in acknowledgment of the loan in accompanying letterpress. A very pretty Orchid.

CAMELLIA MADAME L. VAN HOUTTE (double plate 2470-1).—A very ordinary double pink-flowered variety.

ERANTHEMUM COOPERI (plate 2472).—A reproduction of plate 5467 of *Botanical Magazine*.

LELIA GRANDIS (plate 2473).—A handsome Brazilian Orchid with conspicuous flowers, of which the five guard petals are a golden brown and central tube pure white, prettily veined. It has also been described under the name of *Bletia grandis*.

ARUM DIOSCORIDIS (double plate 2474-5).—A truly hideous plant, hardly differing from the common wild *Arum* of the fields, and the reason for figuring which it is really hard to understand.

BOLBOPHYLLUM LEMNISECTUM (plate 2476).—A curious, but dull-coloured and insignificant little

Orchid from Moulmein, growing on the stem of a tree, and the flower-stems of which spring from singular green warty excrescences instead of the usual pseudo-bulbs.

AZALEA INDICA BARON N. DE ROTHSCHILD (double plate 2477-8).—A very handsome double purple self-coloured variety of these beautiful cool greenhouse shrubs, raised by M. Van Houtte.

CATLEYA LUTEOLA (plate 2479).—A rather insignificant yellow-flowered epiphytal Orchid from Brazil.

POIRE BEURRE WAMBERCHIES (plate 2480).—A very late ripening variety of Pear seldom ready

invited to seats.—MARSHALL P. WILDER (President), *Boston, Mass.*

HEATING HOTHOUSES BY STEAM.

THIS is an important subject, and should be looked at without prejudice from the different points of view bearing upon it; but it is not new, as most likely many are aware. There are now at Cloughton Hall, near Preston, Lancashire, a range of five good-sized houses, built, so far as I can make out, towards the close of the last century, that were first heated by steam, but which was replaced by



Dieffenbachia magnifica (see p. 407).

for use before the month of May, and lasting in good condition till mid-June.

The April number of *Revue de l'Horticulture Belge* figures

ANTHURIUM GUSTAVI.—A handsome foliaged plant, said to have the largest leaves of any of its family, of a pleasing shade of green, distinctly veined with pale yellow. W. E. G.

American Pomological Society.—The nineteenth session of this association will be held in Philadelphia, commencing Wednesday, September 12, at 10 a.m., and continuing three days, at the time of the fifty-fourth exhibition of the Pennsylvania Horticultural Society, Horticultural Hall, Broad, near Locust. All horticultural and kindred associations in the United States and British provinces are invited to send delegates, and all persons interested in the cultivation of fruits are

flues on account of the constant attention needed to regulate the steam to the height necessary to keep the heat wanted. At that time there were doubtless few places where enough glass existed to admit of steam heat being economical; but the case may be different now when glass erections for garden purposes frequently exist that may be reckoned by acres, as well in private places as with those who grow for market, and it seems strange that steam is not tried in some or other of these large establishments. Where enough in this way has to be done to make it worth while keeping a man continually in charge of the apparatus there can be little doubt that so far as the cost of fuel goes steam would be cheaper than hot water; but whether the saving effected under this head would leave an appreciable gain when the extra labour in attention was taken into account, coupled with the extra cost in the fitting of steam pipes and a boiler capable of generating steam,

would have to be proved. Beyond this other matters would have to be kept in view, such as the continuity through the summer season of enough houses that required more or less heat to make it worthwhile keeping up the steam, which, needless to say, would, in this country in most establishments, be indispensable, for it is only for a very few weeks, if at all, that fire in large places can be done wholly without—very different from the conditions existent in the neighbourhood of New York. These matters which have an important bearing on the subject will be seen by those who are acquainted with the heating of garden structures. Every hot-water apparatus that has any pretensions to completeness is provided with valves so as to be capable of having the heat in each house regulated, just as would happen if steam was used.—T. B.

— I am pleased to see attention directed to steam heating. Some years ago, when on the Continent, I took charge of a large establishment where the arrangements for heating by steam were of a very complete description, and I doubt whether steam heating has ever been carried out on so large a scale in any other European garden. When we think of the vast areas of glass, such as, for instance, at Mr. Ladds, at Bexley Heath, Messrs. Veitch, Chelsea, Messrs. Low, Clapton, and other places, one can scarcely help believing that in such cases steam would probably be the easiest as well as the most satisfactory means of warming them. The heating apparatus in the establishment on the Continent to which I have just alluded warmed two large iron structures, each some 50 feet high, connected by a corridor which ran the whole length of the mansion. These houses were laid out in a natural style, the one nearest the boiler being planted with Palms and Musas, Ferns, Ficuses, and other tropical plants, and I may remark, parenthetically, that it was in this house that Musa Ensete first ripened good seeds in Europe; the leaves measured 30 feet in length, and the stem 2 yards in circumference. The other was a cool house, containing Camellias principally, also planted out, some of them 12 feet or more in height. The paths in all cases were composed of open ironwork, and the pipes being underneath it, none of them were sufficiently visible to offend the eye. If I remember rightly, they were inch pipes made of copper, and about a dozen of them together, the steam being let into them by means of a large pipe from the boiler, or rather boilers, as there were two of them fixed side by side. Few of the readers of THE GARDEN need be told that steam must first be "got up" before it can be employed. As a fact, there is a great difference between heating by steam and by hot water. By the latter method the water begins to circulate as soon as it reaches the boiling point, but with steam power a longer period must elapse before the temperature of the house can be raised, as a sufficient body of steam must be formed to enable it to force its way through the pipes when let into them, cleansing them of the condensed steam which they may contain. Nothing is lost, however, by this more tardy circulation, as when steam is got up to the right pressure the pipes are heated from one end to the other almost instantaneously. It used to take us about four hours to

GET UP STEAM when everything was cold; in an ordinary way one hour would suffice, and after the pipes were cleansed (I do not know the proper technical term), the furthermost ones were hot in ten minutes from letting in the steam. When I became familiarised with the details of management, I found this lapse of time useful. It allowed me to regulate the temperature with greater certainty and ease, and I was enabled to keep the cool house more at rest than I could otherwise have done. It was in this way I managed when the weather was uncertain; instead of heating the pipes early in the evening to make sure, as is often done, whereby cool houses are frequently over-heated and the inmates unduly excited, I just got up steam in the afternoon, kept the valve close, and let the fire out again. Here I had a reserve of force when I needed it; and if I found late in the evening that frost was setting in, I put

on the steam before retiring for the night, and all was safe. Then, again, if I found that either house was too warm, I had merely to close the valve for a time, or for the night, or give it a half or quarter turn, in this manner regulating the heating power with very great nicety. With steam one seems to feel a sense of power which he does not experience in the case of hot water. Properly managed, there is the ability to increase the heat very considerably at a moment's notice or shut it off altogether. It is true that by the aid of valves one may turn on or shut off hot water at pleasure, but the flow from the boiler itself cannot be stopped; the water must continue to circulate, if only in a limited area; whereas with steam the whole of the houses can be shut off and the steam bottled up, as one might say, for future use. It is handy to be able to do this when after a cold night in early spring, or indeed anywhere during the spring months, the sun suddenly shines and there is every prospect of a fine day. And often have I been obliged to rake out the fire in the morning when the sun has come out in a sudden burst, so as to guard against over-heating by a too sudden rise of temperature, but with steam power by closing the valve the pipes are quickly cooled down, whilst the confined steam keeps the water and boilers warm through the day, so that but little fire is required to get up the requisite power later on.

THE PRIMARY COST is very much against steam heating, as boilers and their fittings are more expensive than those required for hot water, and the best fuel is necessary. Coke will not do, and although when I got good English or Charleroi coal I never had any difficulty in getting the heat I needed, it was far different when I had only cheap Belgian material. I do not know whether steam heating is now much in favour with the Parisian market growers. At one time it was so, and I remember being much interested with what I saw in M. Savoie's establishment, the whole of the houses and frames there being heated by steam, one boiler, and that apparently by no means a large one, sufficing for the entire establishment.—JOHN CORNHILL, *Byfleet*.

TREES AND SHRUBS.

TREE PLANTING IN IRELAND.

A MEETING of the Statistical and Local Inquiry Society for Ireland was held in the Leinster Hall, Dublin, the other evening. Sir John Lentaigne presided. Mr. Fletcher Moore read a paper on the "Reafforesting of Ireland—its Advantages and Disadvantages," of which the following is an abstract: Reafforesting, for practical purposes, he said, means the planting of those waste spaces of inferior land which are unsuited for tillage, and yet are fit to grow trees. It is probable, however, that in selecting these places one would receive many different suggestions. The artist would likely choose some rocky eminence, and say: Plant there, to give effect to the landscape. The timber merchant would say: Timber will not grow there; you must plant here in this sheltered corner near the road, or the railway, or the sea, whence trees can be easily removed when ready. Whilst the agriculturist would certainly say: No, but plant that barren ground in narrow strips, and so I will have the intervening ground either for tilling or for grazing, and I will have the surrounding plantation to give a shelter to my cattle or crops. And in this latter view, in my opinion, lies the true principle of planting, as to how and where it should be placed. By adopting the first view, the hardest and poorest quality of timber trees only could be grown, and even then they would be too far from the road to be profitably removed when they attained any size; but by taking the third course and planting for shelter as well as profit, a part of the initial expense might well be placed against the shelter it would bring, and the practically new climate it would make through that shelter. Nor is this improvement of local climate caused by shelter imaginary; it is real. I know well a mountain farm in Wicklow on which, by judicious planting in belts, the place has be-

come quite different in its local climate from the surrounding mountains, and the plantations are highly valuable for their shelter, though practically valueless as timber, owing to their distance from a demand. Having gone thus far as to the advantages, there still remain two great questions which may be called the disadvantages: Firstly, will planting pay? and secondly, how can it be carried out? Now, as to expense: before a tree is planted it will be absolutely necessary to fence in the intended site. It is, of course, impossible to put down any fixed sum as the cost per acre of fencing a plantation when we do not know either its size or its shape; but from my experience I would say that a moderate-sized plantation, under the most favourable conditions, could not be set down for fencing at less than £8 per statute acre, small and narrow plantations costing very much more. As to the cost of planting, we will require at least 4000 trees per statute acre, planting them a little over 3 feet apart. And here I would urge the greatest care in selection of the young trees, not only to get them strong and flourishing, but also to have them of a quality and description to suit the soil and the purpose for which they may be intended. If shelter be required, Scotch Fir or Black Austrian are, perhaps, the best. If for ornament, Austrian, Silver, and Spruce. (I omit the more expensive kinds, as being more suitable for demesnes than for waste lands.) If for profit, then Larch, and that only; for it is now the only timber, except, perhaps, Oak for Oak bark, that can be called valuable in its earlier stages; but we must bear in mind all the time that if the intention be to replant where trees have grown recently, then the class of tree should be changed from the former crop, or great disappointment may ensue. Thus, Larch after Larch would not succeed well. In Scotland they plant very small trees, and even, I believe, seeds; but this will not be found advisable in this country, as the rank vegetation would most probably choke them. The cost of these trees will be found at present to be about 25s. per thousand for good Larch; for Scotch and Spruce, 21s. to 23s.; and for Austrian and Silver, £2 to £3. In some places planting is done in a very cheap manner with a planting pickaxe, which makes a slanting hole in the ground, into which the roots of the young trees are thrust sideways, and with little ceremony. The more laborious and expensive way of digging a separate hole for each tree is, however, far preferable and cheaper in the end; for I have seen the tree which had been accommodated with the hole beating out its axe-planted neighbour, which always seemed to have been growing its roots off to one side only, and to have kept a curve in its base from its original bad treatment. The digging of these holes and planting the trees may be set down at 18s. per thousand at least. So we have for trees, say £4 10s.; for planting, say £3 10s.; and fencing, say £8; or say £16 per acre statute for initial expenses. We have, then, to pay a man for the first two years to tighten in wind-shaken trees, and perhaps to replace some dead ones, and then for twelve years there are poor rates, county cess, and income tax to be paid, though there is no income to pay them out of; and, besides all these, we must debit the planting with the rent; for, no matter how poor the land is, if it be fit to grow trees it will possess some value for grazing purposes. About the twelfth year some of the young poles may be cut out for sale; these, when of Larch, were some years since bought for the English Hop fields at from 1s. 6d. to 2s. 6d. each, but this demand has apparently ceased, and there is now only the small local demand for light Larch poles at a very low price, whilst Spruce and Scotch of that age are quite unsaleable. Finally, we may sum up the question whether we shall reafforest or not by saying: If you want shelter, then plant for shelter. If you want to add to the beauty of the scenery, or to give employment to labourers, then plant for that. But as to planting trees as a speculation, and waiting for twenty-five years to get some profit, one feels inclined to say, "Don't."

Mr. Johnathan Pim said he was quite confident that the advantages that would be afforded by re-

afforesting were not exaggerated. The planting of trees would, he believed, have a most important effect on the general welfare of the country. The climate would be improved. It would have an effect on the floods of rivers if the high lands from which they flowed were planted. Trees husbanded the water that fell from the hills. There was a great deal of land in Ireland which was of very little value for grazing, and was of no value whatever for tillage, and such land would, he believed, be well suited for planting. He did not, however, think that planting would be a pecuniary success unless it was done in large spaces. The question was well worthy of the attention of the Government. In some years hence timber would be much more valuable than at present, owing to the reckless and extravagant way in which it was used.

Mr. Thomas Connolly said that the man who planted a forest on the hill side was a benefactor to his country, for he did a work which added to the wealth and ornamentation of the country. He mentioned that when he was a boy the late Earl of Dungarvan planted a quantity of timber, which was now worth about £50,000. He spoke of his knowledge of forest timber in America, and said it was wonderful where trees took hold—on sides of hills and mountains, where, in many instances, there was but little soil.

Mr. William F. Black said that years since he planted from 150 acres to 200 acres with Larch and other timber, and he could speak of the practical result, that he had now a large number of trees, for which he got 10s. a ton.

The chairman spoke in favour of Dr. Lyons' proposal, and, after some observations from Mr. Moore, the meeting adjourned.

Pruning overgrown Rhododendrons.

—It is not possible to prune the best hybrid Rhododendrons back to the old hard wood without making some sacrifice, especially if the pruning must be done all at once. In any case, the loss of one season's flowering is unavoidable. If I had to deal with plants that had got overgrown, I should leave the pruning until they had gone out of flower; I should then cut back some of the branches that required it—that is, I should thin them out, cutting back a portion of them this year, and the remainder next. The branches left to be operated upon next year would flower in the ordinary way, and the loss of blossoms would not be so serious as if all the pruning was done at one time. A good deal must, however, depend upon how much pruning is required; if there are many branches to be cut off, and if the wood is old and hard through age, it will be better to do all the pruning at once, and the best time to do it is early in February, as early pruning will give a longer season of growth for the young shoots. If there are a good few rather large branches to be shortened back, they will break into growth more regularly if cut away altogether than if the time is extended over two seasons, because the branches left the first year would in all probability use up all the strength from the roots, and the cut-back branches would probably die. But in dealing with the young growth of Rhododendrons the case is different; in that stage they do not object to a little pruning, although they are better without it. A young shoot shortened back, either before or after flowering, will break into growth the same year, and if the pruning is done in February, the growth so made may flower the following season; but it must not be expected to do so if the pruning does not take place till after the flowering season is over.—J. C. C.

Sikkim Rhododendrons (*E. Scudall*).—The specimen I send is *R. Nuttallianum*, one of the finest of all, and distinct from any other Himalayan species.

Oster growing—I would recommend "R. G., Month" (p. 200) to procure a small pamphlet on the Oster by Mr. W. Sealing; published by Simpkin Marshall. Mr. Sealing gives the average cost of planting Osters per acre as under: Digging and preparing, 48; 35,000 cuttings at 10s. per 1000, £17 10s.; planting at 1s. per thousand, £1 15s. Total, 65 5s. He uses sets 10 inches long, and pushes them quite into the ground. JOHN MATTHEWSON, Addington.

Philesia buxifolia proved hardy at Chester, and stood in a bog bed for many years, where it flowered and appeared to be quite at home, till removed in making alterations, when I lost sight of it. It is stated (p. 380) that *Lapageria rosea* was introduced into this country by Messrs. Veitch. I am inclined to question this. Loudon gives 1847 as the date of its introduction. I believe the first plants came to the Walton Nursery, Liverpool, where for some years in succession roots of it were received among imported seeds of *Araucaria imbricata*, and it was some time before they could be made out, as they laid two and three years in a dormant state. I well remember purchasing a plant of *Araucaria* in 1836, and a plant of *Tropæolum Jarratti*, which at that time was only obtainable at the Walton Nursery. I was informed at the time I bought the plant that it was then flowering at Eaton Hall, Cheshire, the first plant having been sent to the late Mr. Collinson, then gardener there.—T. SHORTT.

ORCHIDS.

Cypripedium ciliolare superbum.

From Messrs. Sander & Co., St. Albans, we have received flowers of this handsome variety, which differs from the ordinary form of *C. ciliolare* in having larger flowers with broader segments, but most of all in the colour, which is much richer than usual. The broad dorsal sepal is white, lined with bronzy green and flushed with purple. The lateral sepals, too, are broad, much suffused with purple, and copiously studded with black spots. The pouch of the labellum is a dull vinous purple. Altogether it is a handsome flower, and, being but recently introduced, possesses the additional charm of novelty. *C. ciliolare* is a near ally of the older and better-known *C. Argus*, but there is a well-marked difference between both as regards the form and colour of the several parts of the flower and the foliage, which is more conspicuously tessellated in *C. Argus* than in the newer species.

Hardy Orchids.—Enclosed are the first blossoms from my Orchid bed. The early purple Orchis (*O. mascula*) is unusually strong and floriferous this season, and when seen in patches, as grown here, with from a dozen to twenty flowers in a group the effect is charming. This Orchid is wonderfully improved by cultivation, and when thoroughly established on good garden soil becomes stronger and more handsome each year. Other Orchids in flower at present are *O. pallens*, with lovely sulphur-yellow flowers and large elliptical leaves; *Ophrys exaltata*, a rare Italian species, having large reddish brown and yellow flowers; and *Orchis longicornu*, an attractive and very desirable species. The latter is a native of Barbary, but perfectly hardy here, having stood unharmed through the winter with the simple protection of a flower-pot during frosty weather. The flowers are very conspicuous, arranged in a rather dense mass near the top of the stem, and with a long flat spur or horn from which the name is derived.—A. D. WEBSTER, *Llandegai, Bangor*. [Some excellent spikes of hardy Orchises accompanied this note, showing clearly that Mr. Webster knows well how to cultivate them.]

Odontoglossum vexillarium.—Of this lovely Orchid, the undisputed queen of the genus, Mr. Bull has at the present time a marvellous display in his nursery at Chelsea, the loveliness of which without seeing it no one could form an idea. The plants, all fine specimens carrying crowds of spikes, may be counted by the score, or indeed by the hundred, and, as may be imagined, they form, when in full bloom, as they are now, a rare floral display such as probably could not be seen elsewhere. Each plant is a picture in itself, being in perfect health, with spotless foliage, and carrying numerous long elegant spikes of flowers which in some varieties are a deep rich rose tint; others are almost white, and every intermediate shade may be found, while some even have two colours, white and rose. All are beautiful, but the deepest tinted forms have most admirers. There is a great diversity as regards the size of the flowers

and the number borne on each spike, but this character of course varies with the size and strength of the plant. The cultivation of this Orchid is certainly understood at Mr. Bull's, for it could not be possible to have the plants in a more perfect state. The collection of this Orchid is alone worth a long journey to see apart from the other Orchids which here form so important a feature. The housefuls of Cattleyas and Dendrobies are very fine just now, particularly the cool Orchids, such as *Odontoglossum crispum* and *Pescatorei*, *Masdevallias*, and others, which are now at their brightest. Two *Oncidiums* are worthy of special notice. These are *O. concolor* and *O. Marshallianum*, both of which are numerous represented here, as they hang under the roof throwing out their long elegant spikes they look like swarms of golden butterflies. Both are indeed lovely plants, and the most select collection of Orchids is incomplete without them.

Epidendrum bicornutum.—Among the numbers of Orchids in bloom in the Kew collection this is one of the most beautiful, and by far the most noteworthy. Almost every season we have to note with what success this reputedly difficult Orchid is grown at Kew, and this year forms no exception. At present there are several fine plants of it in flower bearing several erect spikes from the tops of the bulbs, each of which carries from three to ten lovely white blossoms, which remain a long time in perfection. The flowers are nearly 2 inches across, having broad, overlapping segments of thick, wax-like texture, and pure white, exquisitely spotted and freckled with purple. It is without exception one of the loveliest Orchids in cultivation, but the fact that many do not succeed with it no doubt deters many from acquiring it; hence it is not a common plant, though there have been large importations sold of it. Being a native of Trinidad, it requires a warm, moist, and close atmosphere, particularly while developing its growths; but it is not often that it makes so large growths in this country as it does abroad. It is, indeed, a plant that well repays any special care and attention. At Kew it is grown in the usual Orchid compost in pots, but we have seen it succeed well attached to suspended blocks of wood.

Epidendrum rhizophorum.—Herewith I send some flowers of this Orchid, also a photograph of the plant from which they were cut. I have often wondered why this plant is not more frequently grown than it is, seeing it is so extremely floriferous, and that the blossoms are so bright in colour. When its portrait was taken (last year) the plant had eighty-six racemes on it; it measured 3 feet by 3 feet, and was in flower quite nine months. At the present time it has about the same number of racemes; it has been in flower about two months, and promises to continue so throughout the summer. Not only is it a grand plant for show purposes, but for cutting; the individual flowers can be turned to good account for filling small glasses and for button-hole bouquets.—R. GILL, *Tremough, Penryn, Cornwall*. [The specimens sent are exceptionally fine, as many as thirty flowers being in one cluster. The colour is a brilliant orange-scarlet, brighter than that of *Epidendrum vitellinum*, the yellow colour on the labellum tending to intensify the red. It is a very showy Orchid, and, as Mr. Gill remarks, ought to be more generally grown than it is. The photograph represents a truly wonderful plant, which when seen in full beauty must present a rare floral sight. Mr. Gill evidently knows how this Orchid should be managed.]

The Orchid houses at the Royal Exotic Nursery, Chelsea, are just now in their height of floral gaiety, and the hosts of Orchids of all kinds form a beautiful exhibition in themselves. The Cattleya house contains crowds of *C. Mendelli* in great variety and numerous other species, besides such lovely things as the forms of *Lælia purpurata* and elegans. The Dendrobium house, though not so gay with bloom as it was a few weeks ago, still contains sufficient bloom to make it extremely attractive, and amongst the numerous kinds we made special note of the lovely *D. primulinum giganteum*, one of the finest plants

in the whole genus. The *Odontoglossum* houses were never more attractive than they are now, containing, as they do, a perfect thicket of flower-spikes of such as *O. crispum*, *cirrhosum*, *triumphans*, *Pescatorei*, *gloriosum*, *Halli*, *luteo-purpureum*, besides numerous rarer species, such as the true *O. O. navium majus*, which is indeed a lovely plant, having short crowded spikes of flowers similar to those of *O. cirrhosum*, but more finely spotted. The *Vandas*, too, are a fine feature, particularly *V. tricolor*, which is represented by such as *Dalkeith*, *Paterson's*, and other splendid varieties. The housefuls of *Phalænopsis* and *Lycaste Skinneri* are still bright with bloom, and so is the *Cypripedium* collection, which contains a large number of the handsome hybrids raised at this nursery. The following hybrids may be seen in flower: *C. superciliale*, *porphyreum*, *calurum*, *selligerum*, and the major variety, *vernixium*, *Harrisonianum*, *calanthum*, *Domini*, and *Sedeni*. Besides these, there are several of the finest species in bloom, such as *C. Stonei*, *Veitchi*, *Lowe*, *Spicerianum*, *Argus*, and *Warneri*.

Masdevallia Shuttleworthi.—In order to fully realise the beauty of this little gem among Orchids, one needs to see it in such numbers as we saw it the other day at Messrs. Shuttleworth & Carder's nursery, Park Road, Clapham, where in one of the houses is a row of about a score plants, on which we counted no fewer than sixty blossoms and buds, a proof of the extreme floriferous tendency of this *Masdevallia*. This line of plants seen from one end, every one bristling with spikes, was a pretty sight, as the flowers are not only attractive in colour, but quaint in form. Mr. Shuttleworth, who first discovered this little Orchid, evidently knows exactly its requirements, for we have rarely seen the plants in a healthier condition. He grows it in shallow pans suspended close under the roof of a house containing *Odontoglossum crispum*. He gives abundance of water while the plant is in active growth and developing leaves and flowers, and it is almost a perpetual flowerer. The great drawbacks to the plant are the fogs in winter and early spring, and it seems to be very susceptible to injury by them. Among other *Masdevallias* we noted here in bloom were some exceptionally fine forms of *M. Harryana* and *Lindeni*, and particularly of *M. Veitchi*, and one plant seems to be identical with that called *grandiflora* or major, as the flowers are considerably larger than usual and the colours brighter. A rarity is *M. Roezli*, also in bloom. It is one of the *Chimæroid* group, having large triangular flowers, almost black, and a white slipper-like labellum. The housefuls of *Odontoglossum crispum* and other species here contain numerous uncommon varieties, such as *O. mulus*, *Wilkeanum*, *prionopetalum*, *crispum roseum*, and a form similar to both *O. Ruckerianum* and *Andersonianum*, but seemingly between the two. The flowers have the flushings of purple in the former and the spottings of the latter, but the spikes are shorter and more crowded. It is an extremely handsome variety.

QUESTIONS.

The Gooseberry trees in my garden have had most of their fruit buds picked out this spring. I have heard that twining worsted amongst the branches will keep the birds off. Can any of your readers say if this is effectual? and at what time it should be done?—T. H.

Intermediate house temperature and plants.—I should be obliged for a few hints on the management of an intermediate house, especially with regard to the temperature to be maintained in summer and winter. A brief list of the names of the most suitable and choice flowering plants, not Orchids, would also be valued.—IXION.

Spent Hops as manure.—We are badly off in India for manure. There are no artificial manures available, and import is too expensive to be thought of; therefore, it is most desirable that we should avail ourselves of any and every substance at hand. There is a brewery near me with a very large quantity of spent Hops. What I wish to know is whether their use as a manure is detrimental, or the reverse; and also in what state, whether decomposed or fresh, and in what proportion, as compared with ordinary farmyard manure, it is proper to use the same.—JOHN W. BARIN, *Vergemont, Nainital, India.*

SINGLE-HANDED LAWN MOWERS.

At the International Exhibition held at the Botanic Gardens, Manchester, in 1881, an impartial and exhaustive trial took place with several good machines on dry and wet, also on short and long Grass. After several very severe trials on different days, the real contest lay between the machines named below, several others having been eliminated after the first trial. The points of merit from which they were judged were as follows:—

	Invincible. 14-inch cutter.	Anglo-American 14-inch cutter.	Excelsior. 14-inch cutter.	President. 14-inch cutter.
1st.—Simplicity and strength in construction.	3	2	2	2
2nd.—Lightness of draught.	3	4	2	1
3rd.—Smoothness of cut.	4	3	2	1
4th.—Adaptability for cutting either long or short Grass.	3	4	1	2
5th.—Suitability for cutting close to flower beds with the least injury to plants.	4	2	3	3
6th.—Comparative noiselessness in working.	3	3	2	2
7th.—Cost (equal) —£5 10s. each.	0	0	0	0
No. of points:—	20	18	12	11

I do not think that these public trials should be taken altogether as the most satisfactory tests of the real value of a machine, as, after all, the efficiency of a machine, irrespective of the principle on which it is made, depends to a great extent upon the quality of those working parts where the greatest friction occurs, and that can only be proved by frequent use. These contests are, however, of some value, as they afford convenient means for comparison, where everyone has an opportunity of judging for himself before purchasing—means which could not easily be otherwise obtained.

T. CHALLIS.

Fallacies about lawn mowers.—Allow me to offer "An Old Lawn Mower" (p. 370) a challenge. I am not agent for any maker of machines; I do not sell machines, and what I propose shall be done at my own expense. I will take to "An Old Lawn Mower's" place one 14-inch and one 16-inch Excelsior lawn mower, and will myself cut any native Grass on his lawn or pleasure grounds, or even meadow, which does not exceed 5 inches in height above the edge of the wiper plate, sole plate, or knife plate, or whatever it is called, or say 6 inches upright from the soil, if the soil is firm and not like a bog; and if "An Old Lawn Mower" prefers it he can use the machine himself; the only penalty or expense that he will incur is that he shall write an accurate report of the trial to THE GARDEN, whether it be a failure or success. I will also undertake that the machine shall, on any ordinary lawn, cut as close, as well, and far easier than any other standard English machine of the old form which has more than six knives or cutters on the wiper, and that any ordinary lad of fifteen years of age shall use a 14-inch machine for any reasonable time without undue fatigue more than that caused by the exertion of fast walking. Will "An Old Lawn Mower" accept the challenge? If so, let him signify his acceptance to me at the address as under. The only reservation I make is that, as my time is limited I cannot come to him if he resides more than 250 miles from London, or so far from a main line station that I cannot catch a train to London the same night as the trial.—W. J. MAY, *Walton-on-Thames.*

THAT terrible, old, and half rotten shed by which one enters the Royal Horticultural Society's garden at South Kensington is still standing, but its effect on gardening cannot be wholesome, looking at it in what way we may.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

May 8.—Royal Horticultural Society.—Meeting of Fruit and Floral Committee at South Kensington at 11, and Spring Show; and Meeting at Linnean Society's Rooms at 8 p.m.
9.—Bath Spring Show.
11.—Manchester Great Whitsun Show opens.

RECREATION GROUND FOR NEWCASTLE-ON-TYNE.—Sir William Armstrong has extended his gift of his Jesmond Park estate to the public by the addition of a recreation ground of fourteen acres, including the classic ruins of St. Jesu Mount, from which Jesmond, the most picturesque suburb of Newcastle, is named.

AN EXHIBITION OF ROSES in pots is now on view and will remain so until the 10th inst. in the Royal Botanic Society's garden, Regent's Park, where there are some hundreds of plants all admirably grown and flowered, representing a good selection as regards varieties. The plants are from Messrs. W. Paul & Sons' nurseries, Waltham Cross.

FLOWERS OF IRISES.—Dr. Foster writes: "I shall be deeply indebted to anyone who can send me blooms of *I. susiana* or *I. iberica* to illustrate my paper on Tuesday next. I have some of my own, and friends have kindly promised me others, but I am anxious to have more, especially to show varieties. Any blooms addressed to me, care of Dr. Murie, Linnean Society, Burlington House, W., so as to reach there not later than Tuesday afternoon, May 8, will be duly taken care of and acknowledged."

PUBLIC PARK AT DOVER.—The public park, which has been laid out at a cost of several thousand pounds, was this week formally presented to the town. The ceremony took place at the grounds, where the key was handed over to the Mayor. The park occupies an extensive site on some twenty acres or more in one of the most prominent and beautiful situations in the town. The land is Government property, but has been granted the lessees at a nominal rent, the project being warmly supported by Lord Granville. The park will be publicly opened by the Duke and Duchess of Connaught in July.

COMBINATION FERN POT AND FLOWER BOWL.—We send a specimen of this for opinion. When fitted up with a Fern, which is planted in the Minton porous lining and placed in the centre cavity, and cut flowers well arranged round the bowl, the effect as a low table decoration is very good. We make these new pieces in various colours and sizes, and they can be obtained from any respectable dealer.—STEVENS & WILLIAMS, *Brierley Hill, Staffordshire.* [A good idea, but not well carried out. Manufacturers do not seem to be aware of the value of simple form, and of avoiding the use of coloured glass. Common glass is what we want—good in form. The basin, which is set on feet, seems too high from the table for the small flowers that could be put in the outer rim. Try a simple model with the centre and basin both resting on the table, thus avoiding the use of the elaborate legs. A good size larger is also desirable.—ED.]

GRAVEYARD GARDENS.—The defenders of public property against the encroachments of private bill legislation, who have on the whole been so successful of late, met with a sad check in the House of Commons the other evening. Few worse precedents could possibly have been set than that which is afforded by the decision of the House to allow the London and North-Western Railway Company to take one half of a disused cemetery in the centre of St. Pancras—not more than one-tenth of which the railway actually wants, and every inch of which the neighbourhood wants—in order to provide £15,000 for "parochial, ecclesiastical, and other purposes" of St. James's, Piccadilly. It is true that the majority against Mr. Holland's motion was a very small one—only 11 in a House of 350—and that there is still a hope that the House of Lords will expunge the ob-

noxious clause of the Bill. But the vote will remain as fresh evidence of the constant danger to which the public are exposed from these piecemeal encroachments, and a fresh warning to incessant vigilance. The simple fact in this case is that an acre and a half of open ground is to be taken away from us for ever, and that unnecessarily; whereas a garden of three acres would have been a boon to the public, and especially so in the densely inhabited quarter in which it is situated. Every little space where the wind can freely circulate, and air charged with human breath and all the vapours emanating from human habitations can, in however small a degree, be purified by contact with leaves and grass, is of vital importance to the health of London; therefore the loss of the space just referred to must be looked upon as a loss of more importance than at first sight it might appear to be.

ROYAL HORTICULTURAL SOCIETY.—The first evening meeting of this society for 1883 will be held, by permission of the Linnean Society, in their rooms, Burlington House, Piccadilly, on Tuesday, May 8, at 8 p.m., when the chair will be taken by the Right Hon. Lord Aberdeen. Communications from Dr. M. Foster, F.R.S., on "Iris susiana and its allies, their nature and culture;" Dr. Hogg, on "Australian Apples;" Mr. E. G. Loder, on "Hardy Cacti, their habitats and culture;" Herr Max Leichtlin, on "Some novelties in the garden at Baden-Baden;" and Mr. W. Goldring, on "Cypripediums," will be read. Two-guinea Fellows may personally introduce one and four-guinea Fellows two visitors as guests.

BARR'S BLACKING BOTTLES AT THE BOTANIC.

TO THE EDITOR OF THE GARDEN.

SIR,—Give me a little space to air a grievance. I entered the Royal Botanic Society's corridor on the 25th inst., at the spring flower show held on that day, and the first thing that met my eye on the right hand was a number of beautiful Narcissi, with varieties of the order, stuck together in separate receptacles without any attempt at classification or arrangement, as if they were for sale at Covent Garden Market, the exhibitors being Barr and Son. Will it be believed? Oh, horror! these receptacles were several dozens of blacking bottles—yes, blacking bottles, pure and simple. *Credat Judæis!* I looked a second time, and again, to make sure my eyes did not deceive me. There was not a bit of Moss, nor Sphagnum, nor anything else that would have hidden the nakedness of the unsightly articles of earthenware. How easy it would have been to have plunged these bottles into a bed of either one or the other, and so have avoided offending the eyes of the visitors to the garden. This is not the first time Messrs. Barr's collection has been exhibited in somewhat the same style, but I trust it may be the last.

J. C. F.

Upper Grosvenor Street.

CATALOGUES RECEIVED.

C. Dimmick & Son's (Ryde) New and Choice Plants.
Wm. Clibran & Son's (Aldricham) Plant Catalogue.
Wood & Ingram's (Huntingdon) Select Plant Catalogue.
R. Veitch & Son's (Exeter) General Spring Catalogue.
S. Brown's (Weston-super-Mare) Bedding Plants.
F. C. Heinenmann's (Erfurt) Flower and Vegetable Seeds.
W. Potten's (Sissinghurst) Select List of Pelargoniums.

BOOKS RECEIVED.

"How to Reduce Poor Rates, Increase Rents, and Secure Employment, together with Practical Instruction, Plenty, and Comfort for our Population," by Francis Fuller. H. Emery, 3, St. Andrew's Terrace, West Brighton.

"Hardy Perennials and Old-fashioned Flowers." L. Upcott Gill, 170, Strand.

De l'Action du Froid sur les Végétaux Pendant l'Hiver 1879-80 : ses effets dans les Jardins, les Pépinières, les Parcs, les Forêts, et les Vignes, avec la Nomenclature des Arbres et des Arbustes qui ont succombé ou résisté à la Gelée, par M. Charles Baltet. Extrait du Tome 127 Mémoires de la Société Nationale d'Agriculture de France. Paris: G. Masson, Editeur, 129, Boulevard Saint-Germain.

SOCIETIES.

EXHIBITION OF HORTICULTURAL BUILDINGS.

AN exhibition of horticultural buildings, heating apparatuses, and other garden appliances has been opened at the Agricultural Hall, and will remain open till May 16. The show is not a large one, but a few well-known firms are among the exhibitors. Messrs. Messenger and Co., of Loughborough, exhibit a strong, well-made conservatory heated with one of their Loughborough boilers, also garden frames or ground vineries, the sides of which are of thick clouded glass instead of wood, a great advantage during spring and summer. Wood sides could be substituted in a few minutes if it were desired to place the frame on a hot bed. Mr. B. W. Warhurst, Highgate Road, exhibits heating apparatuses from oil and gas stoves, capable only of keeping the frost out of a small greenhouse, to the great Ben's boiler, capable of heating over 1000 feet of piping. The same exhibitor also exhibits a useful contrivance named the greenhouse cabinet, which consists of a polished cupboard, in which are placed ten tools, useful in the greenhouse and garden, including syringes, &c. Messrs. Dodds and Robb, of the City Road, exhibit a well-made, portable span-roofed greenhouse for £20, and other exhibitors have smaller houses as low as £6. Messrs. Deards, of Harlow, show a lofty house glazed without putty, and furnished with zinc bars, so that paint is not required. Messrs. Wrench & Sons, of Ipswich, also show a span-roofed house and various other garden appliances, such as mowing machines, lawn tennis requisites, &c. Messrs. Hooper & Co., of Covent Garden, have a summer house, garden seats, stools, and fancy flower-pots and vases filled with dried grasses. Messrs. Thomas & Co., of Edgware Road, show wirearches, baskets, Peaguards, &c.; and rustic summer houses, seats, &c., were shown by Mr. Henry Lovegrove, Slough, Mr. Trotman and Mr. Inman, of Manchester. Useful implements, such as Potato-parers, Cucumber-slicers, &c., may also be found in quantity, whilst anyone interested in house furnishing may probably spend an hour in inspecting the furniture trades' show, now also being held in the hall.

At the Vienna spring show a small collection of hardy plants from Herr Max Leichtlin's garden at Baden-Baden was very interesting. Amongst others I noticed the Bayonet plant of Australia, a singular production, with sharply pointed sword-like leaves; the double-flowered variety of *Primula acaulis*, *P. floribunda*, *P. rosea grandiflora*, *Aubrietia Leichtlinii* and *A. Hendersonii*, *Trillium discolor*, with beautiful spotted leaves, and some cut flowers of *Tecophylæa cyanocrocus*, the last very conspicuous. From the Imperial Gardens, Vienna, which are noted for Bromeliads, came a huge specimen of *Vriesia fenestralis*, *Echmea Marie Regineæ*, *Androlepis Skinneri*, and *Echmea Veitchii*. Amongst the collection of Orchids sent from Baron Rothschild's gardens were fine flowering specimens of *Houlletia Brocklehurstiana*, *Dendrobium macrophyllum*, *Odontoglossum Roezli majus*, *Cyrtopodium Andersoni*, and *Cypripedium superbiens* (Veitchi). In a group of market plants small flowering examples of *Kalmia glauca* and *Rhododendron suavisimum* were noteworthy.—LOUIS KROPATSCH, *Laxenburg*.

The Sadler family fund.—Will you allow me to call the attention of our hardy plant fraternity to the fund now being collected for the family of the late Mr. Sadler? The Edinburgh Botanic Garden rockwork and hardy plant ground was, as is well known, one of the early successes in alpine plant growing. This was a hobby of the late Mr. McNab, and well carried on by his successor, Mr. Sadler. Hardy plant growers have benefited by his work. Mr. Sadler died at the early age of forty-five, before he had time to make provision for his large family, who are left very poorly off. A relative, the scientific head of the Edinburgh Botanic Garden, called my attention to the fund. I have found friends disposed to

contribute, and now ask the favour of the large circulation of your columns to make the fact that a fund is being raised more generally known. Dr. William Craig, F.R.S.E., 7, Lothian Road, Edinburgh, is the receiver of subscriptions.—GEORGE F. WILSON.

Nursery sick fund.—The secretary sends us the details of a sick fund established amongst the numerous employes at the Cranston Nurseries, Hereford. Persons interested in such things may obtain a set of the rules on application to the secretary, Mr. J. T. Mayo. For many years past it has been the custom in these nurseries to make collections for some of the workpeople when ill, but the promoters of this fund consider it a better means of encouraging their workfellows to assist themselves should sickness overtake them.

Tar on pipes.—Having been three years ago in the same predicament as your correspondent (p. 342) from having greenhouse pipes coated with tar varnish, I wish to inform him that two paintings with Carson's "Detergent" removed the tar after all other means had failed. It is needful to remove all the tar, as in one house where all the piping could not be reached to be entirely cleansed, the plants to this day show that they feel its unwholesome influence. Lampblack and oil should be used on the pipes when free from tar.—J. J. W. P.

OBITUARY.

The late George Rollisson.—We had hoped there was no truth in the rumour current last week of GEORGE ROLLISSON'S death, but the sad facts have now been published with details too complete. In common with all who knew him, we feel great regret that the life of one who had in all probability so many years before him, and was so full of intelligence and vigour, should have ended before he had attained the prime of life. The sad reverses of the family had no doubt preyed on his mind. After the break-up of the firm he faced his fate manfully, and, as we have reason to know, accepted his duties at Kelsey Manor with good heart and energy. He has more than once told us of the kindness and consideration with which he was treated there and how happy he was in his work. Among all the younger generation of the nursery trade round London some years ago there was not a more manly or promising young man or one more likely to do credit to his house and family. We repeat it is with real regret we have to speak of this last incident in a sad chapter. Of the rest it is not for us to judge.

Royal Botanic Society (G.).—You should apply to the secretary, from whom you will probably get what you want.

Laced Polyanthus.—Flowers of an excellent strain of gold-laced Polyanthus reach us from Mr. B. S. Williams' nursery, Upper Holloway. The flowers are of fine symmetrical shape, the lacing well defined, and the centre bright and perfect.

Colouring hot-water pipes.—"Ixion" (p. 365) wishes to know of an effectual means of doing this. It cannot be better done than by giving the pipes two or three coats of stone-coloured paint. This answers perfectly, and has a better appearance than black, or perhaps any other colour.—P. G.

Lælia majalis.—We have now in flower here several plants of this beautiful Orchid. One, a very fine variety, measures 6½ inches across; the lip measures 2 inches in diameter.—HY. CLINKBERRY, junr., *Forty Hill, Enfield*. (We should like to know what treatment our correspondent gives this Orchid.)

Names of plants.—C. M.—1, *Erica aristata* (two-flowered specimen); 2, *E. suaveolens*. Sticky Heaths should not be packed in cotton wool, nor should the flowers be crushed, or it is almost impossible to name them.—*Anon.*—1, *Dendrobium luteolum*; 2, apparently *D. crepidatum*, but too damaged to name correctly.—*M. S.*—*Doronicum caucasicum* (yellow); *Cochlearia danica*.—*J. Veatp.*—1, *Adiantum Sancte-Catherinæ*; 2, *Selaginella Mertensii*; 3, apparently *S. stenophylla*; 4, *S. viticulosa*.—*A. M. Z.*—*Polytrichum commune*.—*N. A.*—*Chlorophyton orchidastrium*.—*J. Rogers*.—*Boronia eltiior* (pink); *Fabiana imbricata* (white).

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"This is an Art
Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

FLORISTS AND THEIR FOIBLES.

TO THE EDITOR OF THE GARDEN.

SIR,—I was much pained by reading in THE GARDEN (p. 410), under the above heading, an unprovoked attack on lovers of florist's flowers in general, and of Auriculas in particular. What have we done to provoke your correspondent "Peregrine's" contemptuous anger? Taking the lowest ground, we are a harmless fraternity, treading on no man's corns, riding our gentle hobby along the broad horticultural highway, thankful for the aptitude for so much pure and innocent enjoyment. But, stay; I am going on too fast. Doubtless your correspondent will refuse the epithet innocent to our pursuit. We must plead guilty to being not satisfied in all cases with "that beauty of Nature's flowers which is usually stamped on the face of them for bees and butterflies and man to see." We are not bees or butterflies, nor do we regard flowers from the same standpoint as they do. A bee or a butterfly is quite satisfied with a common Pansy, for instance. The florists, recognising latent capabilities of beauty, have patiently worked for and attained a high standard of perfection. Looking on the wildling and on the florist's Pansy, will "Peregrine" undertake to say that he is on the side of the butterflies and bees, which are well content with the former? If he will not, then he speaks claptrap; but if he will, we can only say he is pretty likely to be alone in his taste. Take another instance. "Ordinary mortals, bees, and butterflies," according to "Peregrine," are on one side, while the miserable florists are on the other. Is this so? I suppose that any "ordinary mortal" would admire a faultlessly double Rose, which is one of the florist's triumphs; but I equally suppose that any tee of his acquaintance would confidentially tell "Peregrine" that it was a monstrous mistake to convert into petals those delightfully floury anthers from which he drew such stores of pollen. This pretty simplicity is simply nonsense. The Author of our being has implanted in ordinary mortals a sense of the beautiful. It has yet to be proved whether the lower animals have any sense of beauty other than in connection with ordinary purposes. Butterflies and bees are attracted by the colours and scents of flowers, not for the gratification of an æsthetic instinct, but for the mere purpose of seeking food. Thus we may, I think, dismiss them as witnesses in "Peregrine's" favour and against the florists. The mark which florists have left in the world of gardening is one which "Peregrine" cannot ignore. Every man who takes up the culture of a plant with the intention of working up to some preconceived standard is to all intents and purposes a florist; aye, as much so as any Auricula enthusiast; they pursue the same end by the same means. I know not how the National Auricula Society can have provoked "Peregrine's" high displeasure; but the Society can, I feel sure, well afford to bear the remarks of one so unfair as to say that "its members number very nearly half-a-dozen individuals." After stating this fact (?), he is safe to prophesy the speedy extinction of such a weakly society. Your correspondent then goes on to tell us what the florist

of the future will be like. I presume he means to indicate that the future florist will be exclusively what is called a "plantsman," in contradistinction to what is ordinarily known as a florist; but, alas! for his knowledge of what he is writing about. Among those whom he selects for honourable mention as the very opposite to the despised Auricula lover is Mr. Brockbank, the owner of one of the largest collections of Auriculas, an exhibitor at London and Manchester, and, oh, horror! a successful raiser of new varieties of the florist's Polyanthus. Because Mr. Brockbank, like myself, is a lover of hardy plants, he is not in consequence likely to thank "Peregrine" for assuming that he is not a florist. Scarcely less happy is "Peregrine" in his mention of Messrs. Veitch and Cannell to mention but one plant respectively for each. Surely the men who are doing for Amaryllises and zonal Pelargoniums what they are doing are florists in the old-fashioned acceptance of the word, pursuing the same ends by the same means, namely, a fixed standard of excellence, and the selection of those individuals which help to attain that standard.

I know not whether "Peregrine" is a lover of plants. I have been such all my life; but as he is not a florist also, I shall conclude by saying that I forgive him all the harsh things he says of us in consideration of his unhappy lot as one to whom is denied the inexpressible delight of gazing with thankful soul on a frame of Auriculas, a bed of florist's Tulips, a stand of florist's Dahlias, a box of florist's Pansies, or a collection of Carnations and Picotees.

Cloghran, Co. Dublin. FREDERICK TYMONS.

CHRYSANTHEMUMS FOR CUT FLOWERS.

AS we require a good many cut flowers of Chrysanthemums, we have lately been preparing, as is our usual custom, to provide for a supply from the open air. I have long since learnt that, owing to the frequent occurrence of early November frosts, we cannot depend upon securing these autumn flowers without some means of protecting them. We have therefore given up altogether their cultivation in the open borders, and have taken to plant them against every available space on south walls. In this position we find them to do exceedingly well with a little protection when there are signs of frost sufficient to injure them. The plan of sheltering them which we adopt is a very simple one. We merely get a mat and nail it to the wall over the plant in the evening and take it away in the morning, and as frost of sufficient severity to injure Chrysanthemums seldom lasts more than a few days in November, it is really not a serious business to protect a few plants in the manner just described. We had an early taste of winter last year, but with the protection of a mat for a few nights our plants came safely through it and gave us a crop of flowers up to the middle of December. To secure the best results it is necessary to make a judicious selection of sorts. Amongst large-flowered kinds our selection includes Mrs. G. Rundle, G. Glenny, Mrs. Dixon, Prince of Wales, Mr. Gladstone, and Purple Prince. But the most satisfactory of any are the pompon varieties, nearly all of which may be used with every prospect of their doing well. Our selection includes President, Lilac Gem, White Trevenna, Jersey Beauty, Brilliant, Mrs. Hutt, lilac and white Cedo Nulli, Mustapha, and Rose d'Amour. In order to grow Chrysanthemums successfully continuously in the same position, there must necessarily be an annual transplanting and an addition of some kind to the soil to prevent it from becoming exhausted. In our case we lift all the plants early in May and divide them, saving about one-third of the youngest part to plant again, and throwing the other away. Where the plants have been grown for several years on the same spot,

we remove all the old soil from the wall in the form of a trench 1 foot wide and 1 foot deep, and replace it with fresh material. In cases where they have only been planted one year in the same place we put a bit of rotten manure on the surface and mix it up with the soil. The plants are then put in close to the wall, and except that in very dry weather we give them an occasional soaking of water, they need no further attention till August, when they will have grown sufficiently to require some support to keep them close to the wall. This is effected by means of a couple of nails driven into the wall and a bit of tar-cord tied to each and stretched in front of the plant. This operation will require to be repeated as the growth extends up the wall, for it should be remembered the nearer they are to the wall the less effect frost has upon them. I may add that it is a good plan to thin out some of the stems early in summer where crowded, the result being larger flowers.

J. C. C.

PLANTS IN FLOWER.

NEVIUSIA ALABAMENSIS.—This new shrub is again in flower on a wall at Kew, and, as last year, the blossoms are tinted with green to such an extent that, judging by the plant in question, it certainly cannot be considered to be a desirable acquisition, and not likely to become popular. As regards beauty, it is surpassed by many others, such as some of the Spiræas, which in manner of growth it somewhat resembles.

AZALEA RHOMBEA.—In the arboretum at Kew this Azalea is now in flower, being by far the earliest to expand its blossoms, and therefore valuable in this respect. Their colour is a purplish mauve, nearly approaching that of Rhodora canadensis, which it succeeds; but, unlike the very small flowers of the Rhodora, those of this Azalea are moderately large. It appears to be but little known.

DISCARIA LONGISPINA.—This is a loose-growing shrub which requires the support and shelter of a wall, otherwise, like its allies the Colletias, it is often severely injured during winter. The slender branches are plentifully furnished with spines, and but sparingly with small, serrated leaves, but this latter is compensated for to a great extent by the bright green colour of the bark and spines. The flowers are white and bell-shaped, bearing some resemblance to those of the Andromedas. It is now in flower at Kew.

RHODODENDRON NUTTALLI.—A plant of this fine Rhododendron in the temperate house at Kew is now bearing half a dozen trusses of flowers in different stages of development, each truss or cluster consisting of from eight to ten large blossoms. The flowers when first expanded are of a greenish yellow colour, but gradually become whiter, till at last, except a flush here and there of pink and the cream-coloured throat, they are almost pure white. The large wax-like blooms of this species, which in colour contrast well with the many bright hued kinds, stamp it as one on no account to be omitted in a collection of Himalayan Rhododendrons.

RIBES SUBVESTITUM.—A very distinct species of Ribes, and one that forms a stout, free-growing shrub, the branches of which, especially in a young state, are thickly beset with spines. The flowers somewhat resemble small Fuchsia blooms, the sepals being chocolate tipped with green, and the petals white marked with pink at the base. Though not brightly coloured, they are borne in great profusion, and, combined with the peculiarly spiny branches, render it a desirable spring flowering shrub. It is a native of California, and is also known under the name of Ribes Lobbi. It is now in flower in the Ribes collection at Kew.

HARDY FLOWERS from Mr. G. Paul's nursery, at Broxbourne, comprise an exceptionally fine variety of Saxifraga cordifolia named purpurea. It has large dense clusters of flowers as deep a rose-purple as that of S. purpurascens, also sent from the same establishment. Associated with these

were likewise *Viola Munbyana*, a pretty purple species with flowers as large as those of a bedding *Viola*, and in bloom almost throughout the year. *Triteleia uniflora* lilacina with porcelain-blue blossoms, produced continuously from March throughout the summer; *Fritillaria pyrenaica*, with bell-shaped drooping flowers of a brownish red colour; *Geum miniatum*, a perpetual flowering variety with orange-red flowers; *Doronicum austriacum*, a handsome composite with large bright yellow flower-heads like a huge Daisy; and *Vesicaria utriculata*, an *Alyssum*-like crucifer with dense heads of yellow flowers. A beautiful gathering of Primroses and Polyanthus also accompanies these; the most noteworthy among the Primroses are *platypetala* fl.-pl., with large double plum-purple flowers; the old, double crimson, still one of the finest doubles; and the handsome *Croussi* fl.-pl., with double rosette-like flowers of a rich carmine-crimson.

PIPTANTHUS NEPALENSIS.—Against a warm, sunny wall at Kew this strong, free-growing shrub is now in flower. It has trifoliate leaves and large, yellow, pea-shaped blossoms borne in erect and somewhat crowded spikes at the point of the branches. Being earlier in flowering than the *Laburnum*, it is very desirable, but except in the south of England it requires the shelter of a wall; in the open it is often cut down to the ground, even in the neighbourhood of London. It is easily propagated either by means of seeds or cuttings, and it flourishes in any ordinary soil, provided it is not too wet. When that is the case, the wood does not yet sufficiently ripened to survive the winter.

A GATHERING OF *NARCISSI* from Mr. George Paul's new hardy plant nursery, at Broxbourne, includes some very beautiful things, and also such rarities as *N. Graellsii*, a creamy yellow variety of *N. Bulbocodium*; *N. triandrus pulchellus*, with Cyclamen-shaped flowers of a sulphur yellow colour, borne in clusters of half a dozen on a stem; *triandrus albus*, similar to the last, but almost a pure white; *triandrus pallidus*, pale yellow; *N. Bulbocodium serotinus*, the latest flowered variety of all the Hoop Petticoats; and *N. Bulbocodium minor*, the smallest of the series, having a distinct wavy-edged corona. There is also a fine lot of beautiful hybrid kinds, such as *Leedsii superbus*, with white sepals and sulphur crown, and *Leedsii amabilis*, with a long, yellow-edged crown and white sepals; also *Horsfieldii*, *cernuus pulcher*, *moschatus*, and *cernuus*, four of the finest trumpet varieties. We are glad to find nurserymen becoming growers of these fine Daffodils, as it is a sign that their culture is beginning to spread.

RECENT PLANT PORTRAITS.

D. DALACANTHUS MACROPHYLLUS (Bot. Mag., t. 6686).—A tall herb; native of the drier forests of the upper part of the Malay Peninsula, flowering there in the dry season. It is also known under the name of *Eranthemum macrophyllum*, and flowers freely in the Palm house at Kew during the winter months. Its flowers are borne on bunches of branching spikes, and are of a delicate lilac colour with a purple lip.

GREVILLEA ANNULIFERA (Bot. Mag., t. 6687).—A rigid, wiry-leaved shrub from Australia, where it is found in the sub-tropical region along the banks of the Murchison River. Its flowers are of a pale sulphur-yellow colour, and are produced in branched bunches on the ends of the shoots. The plant here figured was raised from seed sent by Baron Mueller in 1880, and flowered in the Royal Gardens in July of last year.

SAXIFRAGA LINGULATA var. *COCHLEARIS* (Bot. Mag., t. 6688).—A small white flowered variety of the type indigenous to the alpine regions of the mountains north of Nice and Mentone from the Col de Tenda to Mont Mularé. Sent by Mr. James Atkins, of Painswick, with whom it flowered last June.

UTRICULARIA BIFIDA (Bot. Mag., t. 6689).—A very singular little plant, forming under cultivation mossy matted tufts of leaves in a pot of

sodden sandy soil, above which the wiry rigid stems with yellow flowers, something like those of a miniature *Linaria*, rise in profusion. A native of India, China, Ceylon, Japan, Borneo, and the Philippine Islands. It has also been described by various botanists under the following synonyms, *U. biflora*, *U. diantha*, *U. Wallichiana*, *U. brevicaulis*, and *U. antirrhinoides*.

SPIRANTHES EUPHLEBIA (Bot. Mag., t. 6690).—A singular plant, indigenous to Brazil, whence it was imported by Messrs. Shuttleworth & Carder, who sent it to the Royal Gardens, where it bloomed last November. The habit of growth resembles that of an *Orchis*, and the flowers, of a dull white, veined with brown, are more curious than ornamental.

RODGERSIA PODOPHYLLA (Bot. Mag., t. 6691).—A herbaceous plant from Japan, with foliage resembling one of the *Spiræas*, and producing spikes of small white flowers not unlike those of the common *Meadow Sweet*. It is said to be nearly allied to the family of *Saxifraga*, and to come between that and the *Astilbes*. It is named after Commodore Rodgers of the American Navy, who discovered it on the shores of Japan. The plant now figured was raised by Messrs. Veitch from seed sent them by their collector, Mr. Maries, and flowered in June last year. The flower-stems are from 2 feet to 3 feet high.

ESCHYNANTHUS PULCHER (*Revue Horticole*, May 1).—A beautiful plant for the decoration of a hanging basket from the roof of a cool stove, with pendulous branches, at the end of each of which are produced from one to four handsome tubular scarlet flowers with a golden blotch on the throat. Also known under the name of *Æ. Boscianus*. W. E. G.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 396.)

DAVALLIA MARGINALIS.—This Australian species is distinct in appearance from any other *Davallia* in cultivation, and deserves a place in all good collections, inasmuch that it makes a very pretty object when grown in a basket. The fronds, which are pinnate, of a light, cheerful green colour, and borne on reddish, slender stalks, are produced on thick underground rhizomes of a rather scaly nature; they are gracefully arched, and produced in quantities. Although deciduous, it is a very interesting species for the cool house.

D. MOOREANA.—A well-known species from Borneo, and whose merits are fully appreciated by all Fern growers, as is amply demonstrated by the fact that huge specimens are to be seen in all flower shows, for which purpose it is admirably adapted. It is a plant of rapid growth, possessing the great advantage, at least from the decorator's point of view, of making a large specimen in a comparatively very small pot. Its beautifully arched quadripinnate fronds grow from 3 feet to 4 feet in length, and from 18 inches to 30 inches in breadth. They are produced on underground rhizomes of moderate thickness, and borne upon slender and pale-coloured stalks. They are of a delightfully pale green colour, and with small, bluntly oblique, numerous pinnæ. They are extremely brittle, and on that account the plant is not used so extensively as it otherwise would be for general decorations. It is, nevertheless, one of the most beautiful Ferns in cultivation, and one of the easiest to manage. Stove.

D. ORNATA.—A robust-growing species from Singapore, producing from a stout and woolly rhizome bold and beautifully arching tripinnate fronds often reaching 3 feet in length, and measuring from 20 inches to 24 inches across at their base; they are of a bright green colour, shining, and of a leathery texture, with very large and sometimes undulated pinnæ. The rhizomes being very flexible, this handsome species is particularly recommended for covering pillars covered with peat or Tree Fern stumps, on which it succeeds admirably. Stove.

D. PARVULA.—This pretty evergreen species, which is found in great abundance in Borneo and Singapore, where some trees have their trunks literally covered with it, is one of the most exquisite gems in cultivation, and although it grows only a few inches high, it is a general favourite amongst lovers of plants, which are attractive either by some peculiar conformation or simply on account of the neatness of their habit. The rhizomes are very slender, covered with bright brown scales; they bear numerous small, flabellate, finely-cut, dark green fronds of a very leathery texture. To be grown in perfection that species requires only a very shallow pan, great care being taken to keep the whole of the rhizomes above ground. Stove.

D. PENTAPHYLLA.—Also a very distinct dwarf-growing kind from the Malay Islands. Its rhizomes, of medium thickness, are covered with a quantity of small brown scales, very bright in colour. They produce pinnate fronds from 10 inches to 12 inches long, with pinnæ of a deep metallic colour, when young turning with age to a dark shining hue and of a leathery texture. It is of easy culture and makes a very handsome basket. It is besides well adapted for growing in the Fern case. Its prettily coloured fronds seldom reach more than 9 inches in length. Stove.

D. POLYANTHA (*divaricata*).—A splendid robust-growing species from Java, having very thick knotty rhizomes, producing very handsome fronds which are four times divided, from 3 feet to 5 feet in length, of a deep red colour when young, gradually changing to a deep shining green; the various hues which are nearly always observable on the plant have a beautiful and very pleasing appearance. The place which suits it best is a projecting rock in the warm fernery where it can show itself in all its beauty. It is also a very shallow rooting species requiring but a few inches of depth of soil to develop itself to perfection. Stove.

D. PULCHELLA.—This very handsome kind, which is probably nothing but a form of *D. canariense*, comes also from the Azores. The rhizomes, in their thickness as well as their mode of growth, bear a great analogy to those of *D. canariense*, but the fronds, which they produce more sparingly, are much more triangular in outline and borne on shorter stalks; it is, in fact, a much more compact-growing plant, the beauty of which lies principally in the minuteness of the pinnules, which are reduced to mere segments, and are of a delightful green. It makes an exceedingly pretty plant when grown in a shallow pan. Greenhouse.

D. PYXIDATA.—A very curious and distinct species from Australia, with rhizomes very flexuose and of a medium size, which possess the singular peculiarity of growing upwards, their points always standing up, and in that respect totally differing from all other *Davallias*. The fronds which are produced on these strange looking dark brown scaled rhizomes are almost perfectly triangular in their outline, and of a very coriaceous texture; they are tripinnate, with pinnules more rounded than in most other kinds, and borne on short erect stalks. The whole of the plant has a very pleasing appearance, as it is of a lively green, although deprived of the rich gloss which is generally found and so much admired on nearly all the other strong-growing kinds. Although of a rather rigid habit, this species is well adapted for baskets on account of the flexibility of its rhizomes. Greenhouse.

D. TENUIFOLIA.—A species very widely distributed over China, Japan, and the East Indies, and which presents many variations as to the length and breadth of its fronds, which usually measure from 8 inches to 15 inches in length, and are erect in habit, ovate-lanceolate in shape, and bipinnatifid, with cuneate pinnæ of a lively green colour. It is totally deprived of rhizomes, all the fronds starting from one central crown; and it, being an evergreen species, makes a splendid specimen for exhibition. Greenhouse. PELLEA.

INDOOR GARDEN.

SELECT PELARGONIUMS.

For general purposes the most valuable class of large-flowered Pelargoniums is undoubtedly that which has recently obtained the name of the decorative section, in which are included all that have not the symmetrical shape and regular marking of the show flowers. Another class called Regal Pelargoniums has flowers in which there is an unusual number of petals; of these, Captain Raikes may be cited as an example, but it is difficult—almost impossible, indeed—to say where one set ends and the other begins. Of the large numbers put into commerce every year, many are never heard of after one or two seasons. The following, though sent out within the last three or four years, are still but little known. They have been selected from a great number of varieties, many of them Continental ones, and have been chosen in consequence of some thoroughly distinctive features which stamp them as really different from others in cultivation. Several of them have at some time or other received certificates from the different societies. Among them is Belle de Jour, which attracted a good deal of attention when exhibited. The flowers of this variety, which are pure white and semi-double, are borne in erect, open trusses, so that each individual bloom stands out nearly free of its neighbours; another peculiarity is the flowers do not all expand at the same time, but keep up a kind of succession. Its blossoms, being white and semi-double, will be useful in a cut state, but as a plant it lacks sturdiness; in this respect it resembles an old variety with semi-double flowers (Album plenum) now nearly gone out of cultivation. Two other semi-double kinds, Jeanne d'Arc and Madame Boncharlat, are quite free from this drawback. They are dwarf, but free in growth, and exceedingly floriferous. In colour both are bluish, and resemble each other so closely, that if one is in a collection the other is not required.

Quite a number of free-flowering varieties, in which the blooms are either wholly white or so faintly marked that the colouring is scarcely perceptible, are of Continental origin. Amongst these the best are Lucie Lemoine, Mad. Harmant, and Mad. Charles Koenig; Mad. Marie Knecht is also a good kind. Mad. Thibaut is a very handsome variety, the ground colour being white, blotched with rose in the centre of each petal; its habit, too, is all that can be desired. Volonté Nationale to some extent resembles it, but it is of rather a darker tint. In both of these the edges of the petals are prettily crisped. Another kind with crisped petals, though in a less degree, is Edward Perkins, orange-scarlet with a maroon-coloured spot on the upper petals. In habit and freedom of flowering this is a first-class variety, while its glowing colour stamps it as a promising market kind.

The best of the white crisped flowers of the Duchess of Bedford type I consider to be Maid of Kent, in all respects a good kind. Princess of Wales has a rosy lake colour reticulated with white, and may frequently be seen with a beautiful purplish shade in the centre. The individual blooms are very large, and contain an unusual number of petals, but at times they come what is called washy instead of possessing their ordinary colour; the plant too frequently becomes diseased, points greatly against this variety. Brongniart is a very effective kind, the whole of the five petals being nearly equal in size and each pure white, with a large rosy purple blotch in the centre. Mrs. Potten has a large circular white flower with a velvety crimson blotch. Poiteau, rich purple, with dark spots, has very round flowers and a good habit. Gaston Malet has also very large flowers, which are rosy purple and white in habit; it is dwarf, and upon the whole a fine decorative kind. In Dr. Joseph Nagy the ground colour is white, but a deep maroon blotch extends over half of the petals, giving the flower a very distinct appearance.

Among the brightly coloured flowers, Mountain of Light, one of Turner's show varieties, bears the palm, but its habit is not good. Two striped kinds

sent out by M. Lemoine last season, viz., Oreste et Pylade and Romeo et Juliette, flowered with me, but not sufficiently well to enable me to fully determine the merits of the two. The last appears to have much the better habit, and has also the best marked flower, which is deep rose, striped more or less with carmine. In some blooms the markings are regularly arranged in stripes, while others are nearly self-coloured, in this way resembling an older variety called Queen of Stripes, of which some flowers come beautifully marked, but the bulk only self-coloured. H. P.

DIETES HUTTONI.

THE subject of the accompanying illustration is a very interesting member of its genus, which includes the so-called Iris Robinsoniana, a right royal representative of the family of Iridaceous



Di. t. s. Huttoni. (Flower natural size, plant showing habit of growth.)

plants. The leaves differ from those of every other member of Dietes or Iris, so far as I remember, in not being equitant. They grow to a length of about 3 feet, with a width of three-quarters of an inch, are nearly erect, but curve towards the top and are dark green in colour. The flower-stems are not so long; they are clothed with leafy bracts from base to summit, where several golden flowers are produced in succession. They measure about 2 inches across, and are dark coloured where the black lines occur in the figure. D. Huttoni was sent to Kew from the eastern province of Cape Colony by Mr. Hutton, whose name it bears. It is somewhat allied to D. bicolor, and, as the nearest approach, serves to connect this genus with that of Iris, from which it is scarcely separable by any good botanical character. The flowers are sweetly scented.

In cultivation the several species yield without difficulty to pot culture. They like a rich soil of a loamy character, with a good supply of water while growing. When not growing freely, care must be taken that they do not want water. Red spider is perhaps the greatest enemy with which they have to contend, but owing to their glabrous nature there is no difficulty in removing it. Last

year at Glasnevin I saw a fine clump of D. Huttoni on a narrow border in front of one of the houses where apparently it is quite hardy, but as a rule it must be understood that the species of Dietes are greenhouse plants.

DIETES Mr. Baker has included as a section of the Irises, from which it differs in the flowers having no tubes; it differs from Morea, to which the species have been referred, in being rhizomatous. The species with which we have now to deal are as follows:—

D. COMPRESSA, known more commonly as Morea or Dietes iridoides.—A strong-growing plant with erect sword-shaped leaves of dark green colour and white-yellow blotched flowers, but there are at least two and perhaps three forms quite different in habit which find refuge under this head, and cannot be referred to either of the other species. There is one besides the above with much stronger rhizomes, and another with a more decidedly fan-like arrangement of the leaves, which seems, at least so far, not to have a creeping rhizome at all. This kind I have, and am anxious to get the other two, in order to discover the exact value of the differences which appear to me considerable so far as growth is concerned. Native of the Cape of Good Hope.

D. CATENULATA.—This is a very pretty species, which, so far as I know, is not now in cultivation. It is allied to the last, though perfectly distinct, with white-yellow blotched flowers, distinguished by the absence of hairs from the outer segments of the corolla, their place being supplied by two rows of papillae. The stigmas are blue; the plant is glaucous. A native of the Mauritius.

D. BICOLOR.—This is a beautiful kind, with narrow grassy leaves and full yellow flowers blotched with deep maroon, quite unlike everything else. It is the only one besides D. Huttoni with yellow flowers. A native of the Cape.

D. ROBINSONIANA, though introduced about ten years ago, has not yet flowered. It grows about 6 feet high; in habit it greatly resembles the New Zealand Flax, and bears pure white flowers 4 inches across, relieved, however, with yellow blotches. It is sometimes called "Wedding Flower," a name by no means inappropriate. It is a native of Lord Howe's Island. All the species just named are growing in the Cambridge Botanic Garden, except when stated to the contrary. R. I. LYNCH.

ANTHURIUM WAROCQUEANUM.

SUCH a plant as that mentioned in THE GARDEN (p. 323) may be cut down with safety, provided there are plenty of healthy roots in the Sphagnum around the stem and a good close place in which to put it after that operation is complete. In such cases the aim should be to keep on the safe side as much as possible; therefore should the bulk of Sphagnum and roots be small, some more Moss may be added, and further roots encouraged before removing the head from the parent stem. When that operation is carried out, the plant should be put in a pot just large enough to hold the roots without undue crowding and placed in the shadiest and moistest part of the propagating house. Should there be a close case therein sufficiently large, the plant will be greatly benefited if placed in it for a little time and plunged in a gentle bottom-heat till the roots start, but if placed in the house without that additional protection, it should be dewed over several times a day with the syringe, and besides the shading on the house, shade it also with some sheets of paper when the sun is bright, otherwise some of the old leaves will be apt to turn yellow. I shortened a plant in the way herein described last summer, and by careful management did not lose a single leaf. Choose a dull and cloudy rather than a bright and airy day for such work as that just alluded to. T.

Eranthemum Regnieri.—This was exhibited by M. Regnier, nurseryman, of Fontenay-sous-Bois (Seine), at a recent meeting of the French National Horticultural Society, where it obtained

a first-class certificate. The flowers are produced in large panicles, and are light violet in colour. It was imported from Cochinchina, but is said to be a native of Java. This is likely to prove a useful winter flowering plant, and a good companion to its congener, *E. pulchellum*.—J. CORNHILL.

Nicotiana affinis indoors.—Two years ago some seeds of this were procured from Colonel Stuart Wortley, and the result is this year a grand plant $4\frac{1}{2}$ feet in height, having twelve spikes, each bearing about fourteen lovely white flowers, the scent from which in the evening is most delicious. All lovers of flowers should procure some seeds of this plant.—W. M. M.

Fuchsia Phenomenal.—To lovers of large flowers this Fuchsia will at once commend itself, from the very large size of its blooms, which in that respect are quite equal to Champion of the World, at present the largest flowered sort with which I am acquainted. The last named kind is a very free grower, and the flower-stalks are unusually long, conditions that fit it for covering pillars or growing into large specimens, but in the form of small or medium sized plants it is never very effective, as its huge blossoms are but sparingly produced. Phenomenal is not so tall in habit, and when grown in 6-inch pots flowers much more freely than Champion, but even then it is too vigorous to do well in the $4\frac{1}{2}$ -inch pot in which Fuchsias are so largely grown for market. The flower-stalk is of ordinary length, the tube short, and the sepals much reflexed, thus showing off the corolla, which is bluish purple, to good advantage. This variety is of Continental origin.—H. P.

Lapageria shoots dying (J. W.).—I have known the young shoots of Lapagerias to die off through the effects of the sun in the spring coming with full, unobstructed force upon them where the plants have been excited into growth during winter in a house with some fire heat. Where this has been the case the young growth cannot stand the full force of the sun. If the plant in question was turned out last January, especially if planted on the sunny side of the conservatory and has made growth freely, particularly if a little extra heat has been used, the young shoots should be shaded from the sun. In all cases Lapagerias ought to be planted at the shady side of the house in which they are grown; if on a roof they do best on the north side where the sun does not strike them fully. Under any conditions I should advise a little shade being tried until the growth gets better matured. If air was admitted, so as to come directly in contact with the plant during such cold cutting winds as we have had, it is quite possible that may have something to do with the mischief; if the sun came upon them in the way already named, it would aggravate the evil.—T. B.

Passiflora princeps.—There are many kinds of Passion flowers, but this is one of the best. It grows with me in a low span-roofed house, the temperature of which is from 60° to 65°. It is now in an 18-inch pot in fibry loam. In January last I cut it back within 3 feet of the pot, which it requires whenever it gets too thick, and in less than four months it had completely covered the roof, which is 15 feet by 12 feet. It then stopped growing and began to produce beautiful long drooping clusters of scarlet and white flowers, measuring from $1\frac{1}{2}$ feet to 2 feet in length. It seems to flower at almost every joint; I have counted as many as thirty-nine clusters hanging on the plant at once. It commenced to flower with me early in April, and has continued ever since, and very gay it is at the present time. It is a plant that requires but very little attention after it has made its growth in the spring. I never syringe it, and yet it keeps in perfect health and quite free from insects. It is easily propagated; almost any piece indeed inserted in sandy loam will take root, but still it is best to make the young wood into cuttings in spring, insert them and place them in the same temperature as that in which the plant is growing. We find the flowers of this plant valuable for table decoration. *Eduilis*

is also a very serviceable plant, not only on account of the beauty of its flowers, but for its edible fruit.—A. B. C.

GARDEN IN THE HOUSE.

WINDOW GARDENING.*

THE requirements for the successful management of window plants are neither numerous nor difficult; yet more disappointments and failures result than in any other branch of amateur gardening. One of the first requirements is a genuine love for plants, without which the many necessary little attentions are sure to be omitted, and the plants will suffer accordingly. It may be stated as a guiding rule that the greater the care, the greater the success. The majority of plants require all the light it is possible to give them, with as much sunshine as the position and structure of the window will admit. As a rule those plants exposed to the morning sunshine thrive better than those having exposure to the afternoon beams only—this applies particularly to flowering plants. Plants grown for the beauty or elegance of their leaves, as, for example, Palms, Ferns, and Begonias, will thrive in windows which either are not exposed at all to direct sunshine, or for only a short time each day. But the light should be admitted directly to the windows, and not shaded by overhanging roofs. Plants require nutritious soil. The best general soil is turf from a rich pasture, cut about $2\frac{1}{2}$ inches thick, laid closely together until it has somewhat decayed, then broken up and mixed with about one-third very rotten manure or leaf soil. The leaf soil can generally be found in flaky-like forms beneath Oak, Chestnut, or other large trees where standing thickly together. Where such soil cannot be obtained, a good substitute may be found in the rich soil easily obtained from hedge banks and in corners of most fields by the sides of the fence. Those living in cities can always obtain suitable soil from florists.

THE WATERING OF PLANTS is of the greatest importance, and this must be done rightly. Nine-tenths of the failures in window gardening can be attributed to improper watering, either too much or too little—in many cases too much. You cannot water any plant by rule of thumb. We frequently hear, "I cannot think how it is my window plants do not do well, for I water them every day." This is likely to be the cause of their not doing well. Whenever you water a plant, always give sufficient to soak the whole mass of soil thoroughly; then do not water it again until it shows signs of dryness on the surface. It may not be for two or three days, or even longer, but no matter; do not water it until you are sure of its being in a slightly dry condition. On the other hand, some plants require water twice a day, especially when the pots are full of roots, and the plants are growing vigorously and flowering profusely. The leaves of plants must be kept clean and free from dust; those with bright, shining leaves and of good size can be wiped clean with a sponge or other soft material. Others with smaller leaves can only be cleaned by being showered overhead either with a sprinkler or syringe, and it should be done once or twice a week. Do not allow plants to stand in water except such as are aquatic. If the water touches the bottom of the pots a good plan is to have a smaller saucer turned upside down for the plant to stand upon within the other saucer, or even small blocks of hard wood or any other material that will hold the bottom of the pot above the water-line, otherwise remember to empty out the water that drains into the saucers. Plants delight in good living, and when the pots become crowded with roots they should be stimulated, but not until then, unless they have been a long time in the same pots, and it is impossible to renew the soil or give larger pots. We are particular in calling attention to this matter of stimulating window plants, from the fact that a theory is now being extensively circulated, to the effect

that plants grown in pots do not require any stimulants, or at the most very few. Our experience is that you can no more grow a plant successfully in a pot in poor or worn-out soil than you can take a crop of corn or any other crop from the same soil ten years in succession without enriching. For stimulants, use 1 ounce of Peruvian guano to 3 gallons of water. Soapsuds or water with ammonia in it that has been used for washing hands are all good; or the top of the soil in each pot may be removed to the depth of from half an inch to 1 inch, a sprinkling of fine bone meal (which can be had at all florists' stores) applied, and then covered up with fresh soil. Besides there are a good many preparations of concentrated manures that are good and easily applied. Plants in warm rooms should be watered with water as warm as the temperature of the room or a little warmer.

INSECT PESTS are a great annoyance, and often cause considerable trouble from the fact that they do harm before being discovered. It is quite safe to subject all plants to an occasional bath of tobacco water, in strength about the colour of strong tea or weak coffee; this can be easily made from the refuse stems from cigar makers or a small package of the common smoking tobacco, by placing it in a pall and pouring over it boiling water, allowing it to stand all night, and then immersing the head of the plant entirely, and holding it so for a few seconds. This will destroy both green fly and red spider; other insects, such as the white cotton-like mealy bug, must be picked off with a sharp-pointed stick, and the very tight-sticking scale-like insects will have to be removed in the same way. In immersing plants, with one hand press tightly on the top of the pot and turn it upside down before holding it over the vessel; this will allow all loose soil to escape and thus keep the liquid clean.

POTTING THE PLANTS.—All plants should have either new pots, or old pots washed perfectly clean inside and out. Broken pieces of pots must be used for drainage by first placing one of good size, with the hollow side downwards, over the hole, then filling in with other pieces to about one-third of the depth; over this place a little rough soil, then put the plant in its place, fill in compactly all round, press tightly so as to have the soil within half an inch of the top in pots of small size, and in larger pots allow an inch for water room, and all plants newly potted should be well soaked so as to be sure the whole is saturated. We have not named any particular time to pot or repot plants, but it is desirable to change the soil at least once a year, and in cases where the pots are already large enough, there is no difficulty in washing away the old soil so as to use the same sized pots again; where plants are potted but once a year, the end of February or beginning of March is the best time; but as plants fill the pots with roots they can be moved into pots a size or two larger at any time.

PLANTS SUITABLE FOR WINDOWS.—To obtain the best results we must divide our collection into two sections—the first to embrace such as will do well in rooms where the temperature exceeds 65° Fahr., and the second where the temperature does not exceed 65° nor fall lower than 40°. This must be understood to mean where the heat is artificial and not sun heat; and we may say a slight variation for a few hours at a time will not be injurious should the temperature rise or fall. First on our list stand Begonias. These embrace several distinct characteristics. The shrubby flowering species, generally with bright, clean leaves, give general satisfaction, and if properly watered and placed where they can have a little sun, flower persistently the whole of the winter; such as *Saundersoni*, *hybrida multiflora*, *Weltoniensis*, *semperflorens*, the brilliant *B. rubra* and *insignis* should be included in a limited collection. These do not include nearly all of this section, but are easily managed. Another class of Begonias are the *Rex* type, with beautifully marked leaves of all shades of green and silvery white. These require a rather shady position and a moist

* Paper read at the March meeting of the New York Horticultural Society by Mr. John Thorpe.

atmosphere; in fact, they must have a good degree of moisture atmospherically or they are unsatisfactory. They are impatient if subjected to too much water at the roots or too much dust. Caladiums, with many-coloured, spotted, striped, and mottled leaves, are very handsome plants for summer, and can be started in small pots in March in the warmest corner, repotted as they grow into pots of 4 inches or 5 inches in diameter, and by the time other plants have to be removed out of doors these will be fine objects all summer. Coleus and Achyranthes are valuable plants for warm rooms, and strong tops of them can be easily rooted. Crotons have not as yet been employed for window plants to the extent they deserve. Their richly marked leaves, elegant forms, and variable shapes are always attractive. They delight in rich soil, a high temperature, and moderate light; they should be frequently cleansed, either by sprinkling, bathing, or sponging; they may either be kept inside all summer, or after June 1 they may be plunged in some shady, warm corner outside until the beginning of September. Any straggling shoots should be pinched or cut off from time to time, thus producing a bushy growth. The varieties interruptum, irregulare, variegatum, and pictum are the best. Dracenas are elegant plants and easily managed. The varieties terminalis, Guilfoylei, Cooperi, and amabilis are grown in great numbers for window plants, and if treated as advised for Crotons they will give the same satisfactory results. Ferns succeed in the shadiest windows; they require but little attention, and are always graceful and cheering. They must be kept well supplied with water, and occasionally bathed or syringed. This is about all the cultivation required. A few beautiful varieties are Adiantum cuneatum, Farleyense, gracillimum and trapeziforme, Davallia tenuifolia, Lomaria gibba, Microlepia hirta cristata, Nephrolepis davallioides furcans and Pteris cretica albolineata, not forgetting a few varieties of Selaginellas or Lycopodiums. The Ficus elastica or India-rubber tree is well known, and might almost be called the indestructible plant. With its bold and leathery leaves, its free and noble carriage, it bids defiance to dust and smoke alike, provided always it has plenty to drink, with occasionally stimulants added. These remarks also apply to Aspidistra lurida, one the best of all room plants. Palms, the aristocracy among fine foliaged plants, are mostly very easy to manage, requiring a good deal of water and not necessarily very large pots; they thrive well in a partially shaded window. A few fine kinds are Areca lutescens, Caryota urens, Cocos Weddelliana, Latania borbonica, and Oedoxa regia. They can be used for various purposes of table decoration.

THE SECOND SECTION contains a more extended list of flowering plants and not so large a list of fine foliage plants. Beginning with Abutilons, we have a class of elegant free-flowering winter-blooming plants, embracing white, yellow, orange, and deep red. They will thrive in a partially shaded window, and adapt themselves to any mode of training. They can be trimmed into either standard or any other form, and will flower continuously. Azaleas are very beautiful, easily managed, but rather impatient if subjected to a dry atmosphere or allowed to get dry; in fact, they should never be allowed to get dry at the roots either winter or summer. A frequent bath, immersing plant and pot, is a safeguard against drought and otherwise beneficial. A partially shaded window and a shady spot out of doors in summer will give them about all they require. As to varieties, there are no poor ones, and most florists have a good selection. This brings us to another very popular flower—the Camellia—one of the very easiest plants to manage, but unfortunately generally a rather unsatisfactory window plant, from the fact of its being so very conservative. It does not show any abuse at the moment, and not even for months; but, alas! it breaks down, and its apparent fine large buds drop off one by one until none are left. This, in nine cases out of ten, is from the plant being allowed to suffer for want of water in the summer time. Those curious enough to open one of the fallen buds will find generally the outside of the

flower quite fresh, but the centre always discoloured and dead. With well-drained pots it is almost impossible to give Camellias too much water in summer, and the same treatment and position as advised for Azaleas will exactly suit Camellias. Calla Lily (Richardia athiopica) is another very popular window plant, and yet not very generally successfully managed. Those having plants of it will do well to keep them growing in a light, sunny window; if they have not flowered, do not lose patience and set them in the background; bear with them until the 1st of May; then find some shaded, damp corner in the garden; in this plunge your plant over the rim of the pot; about twice a week during the summer carry along with you a watering-can of soapy water and give your Calla a dose of it. Towards the middle of September lift them, and if the pot appears too small for the plant, get a pot one or two sizes larger; turn it out, and place it in the larger pot without breaking the roots; then stand it in the lightest sunny window. As it begins to grow give it plenty of water and often some stimulants, and by Christmas, if these directions are followed, you are sure to have flowers. After the flower-buds are in sight, you can place the plant in a very warm position without injury. Carnations are always favourites, and should be very satisfactory plants; they can always be had established in pots in the autumn. They delight in a rich soil, a rather low temperature, and plenty of sun. Those desiring to grow their own plants should plant small ones in the open ground in May in a sunny position, occasionally cutting off their tops to make them bushy, until the end of July, after which they should be allowed to grow. At the beginning of September lift them carefully with balls of earth and place them in pots well drained; put them in some shady place, and after they begin to grow, and before frost, remove them into the house. A few Chrysanthemums should be planted at the same time as the Carnations, and subjected to precisely the same treatment, or a few can be plunged in pots and watered as often as required. Those who have a window should have some of these, the most beautiful of all autumn flowers. Daphne indica, two varieties, are easily managed, and perhaps the most deliciously perfumed winter-flowering plants we have, requiring about the same treatment as Azaleas. Fuchsias can be made to flower quite early in the spring. They require good drainage, a light, porous soil, a somewhat sunny position in winter, slight shade in summer, and a rather moist atmosphere. Geraniums (these are really Pelargoniums, but we seem to have got so used to the name Geranium, it is a hard matter to believe any other) are for a light, sunny window, where the temperature can be kept about 55° to 60°, the best of all winter-flowering plants, and all growers should have among their collection both double and single varieties, especially some of the finer forms of the single kinds. They are so easily managed and so continuously in flower, it would seem there ought to be no dearth of flowers where there are half a dozen kinds. Some window gardeners expect to have their windows gay all winter and their flower gardens gay all summer with the same plants. This cannot be done; those plants intended for winter flowering should be nicely rooted plants in May, then potted into small pots and plunged in the open ground, the flowers to be kept picked off all summer. About the middle of August they should be potted into good soil in well-drained pots of 4 inches or 5 inches in diameter, placed in some spot where they will have a little sun morning or evening, but not plunged as before. After the beginning of September take them inside, and place them in the sunniest window you have, water well, and carefully turn the plants round from time to time to keep them in good shape; as the pots get full of roots, give a little stimulant at least once a week, and there will be no dearth of flowers. If old plants are kept over, they should not be allowed to flower during the summer, but treated as advised for young plants.

MISCELLANEOUS PLANTS.—Those desirous of a few more Ferns for a cool room should add to

the list already given—Cyrtonium Fortunei, Lastrea aristata variegata, Nephrolepis tuberosa, Pteris argyrea and tremula. Other Palms could be added also for growing in a cold window, as Areca rubra, the three Chamarops, excelsa, Fortunei, and humilis; Corypha australis, and Seafortia elegans. Chinese Primulas, Cyclamens, and Cinerarias are good plants, easily obtained, and requiring about the same treatment as that recommended for Geraniums after being brought into the house. These do not exhaust half the window plants available. There are a few others which should be included in our list, such as Ivy, German Ivy, Lygodium scandens, and Smilax as climbers. And for basket and bracket plants use Othonna crassifolia, the different Tradescantias, Creeping Jenny, and several other kinds that will present themselves to the enthusiastic window gardener. The disposition and training of the various plants may be left to the cultivator, but it is best always to consult the general habit of the plant, and not to force it into a shape and position that prevent healthy growth and development. As with the training so with the grouping or arrangement of plants in baskets, stands or jardinières, it can be left to individual taste. Where it is not desirable to disturb plants by repotting, they can be placed inside larger pots and the interstices filled up with either Moss or fine soil. On all favourable opportunities air should be admitted for a few minutes or longer each day; but as window plants are not expected to have all their requirements as if grown in a structure expressly for that purpose, we must do the best we can under the circumstances. I have made no mention of bulbous plants, but I may add that many of these are also very beautiful.

DALKEITH PARK,

ONE of the seats of the Duke of Buccleuch, lies about six miles south-east of Edinburgh, the palace, as it is called, being a large building with walls in some places 9 feet thick, and overlooking the vale of the north Esk. The chief feature of the place is its glorious forest-like park, or rather park-like forest. There is this about Dalkeith which must commend its noble owner to the thanks of the community, viz., its gardens are open to visitors every day but Sunday without let or hindrance, and the house and park are also open every Wednesday and Saturday in the absence of the family. Mile after mile of rugged picturesque walks may be traversed—now by the river roaring over its rocky bed, and repeatedly crossed by massive stone and rustic bridges; now on the greensward, and then on carriage drives under patriarchal Oaks. Through the forest glades herds of deer roam and dart across the path, whilst the underwood swarms with pheasants and woodland songsters; the wild duck coming here from further north to breed is already mated, and can be seen wherever there is water. Everywhere sylvan beauty reigns. The forests of Oak have quite an ancestral history. Here the Duchess Anne planted Oaks 200 years ago on the principle of “aye be stickin’ in a tree,” whilst a hundred years later Duke Henry still planted and replaced those missing from the previous century. As for the more antiquated monarchs of the wood, they are prehistoric; four or five centuries have rolled over their tangled heads. One ancient Oak measured 20 feet in circumference at more than 5 feet up the bole; near it was a strange alliance between youth and age; in a crevice of an Oak was a Strawberry plant in full bloom (April 14), the seed having been deposited there by some thrush or blackbird. Such a way does Nature sometimes adopt when she wishes to transport or transplant her productions. Oaks, however, are not the only giants in the park; three Cedars are each over 80 feet high, and one of them has a circumference of 18 feet for 20 feet of its height. Of Limes some are upwards of 130 feet high; there is also a Beech 132 feet, and a Wych Elm 130 feet from base to summit. There is here the finest specimen in Scotland of the Maiden-hair tree (Salisburia adiantifolia); it is 45 feet high. Near it stands the conservatory, an elaborately carved

stone building erected by Burns, the famous Scottish architect. One noteworthy feature is a grove of Limes a quarter of a mile long, containing over 300 trees, and as these average 100 feet high, meeting overhead, this "aisle of Nature's Gothic" (the Monk's Walk, as it is called) is something to be remembered. Coming to

THE GARDENS by way of winding walks, margined with Narcissi, Daffodils, and Snowdrops, which have been glorious amongst the close turf under the trees, there is a freak of Nature, or art perhaps, worth recording. The lowermost branch of a fine Holly tree has been bent until a branchlet, penetrating the ground, has rooted and grown into a stem as thick as one's arm. It tapers from the ground upwards and bears branches which grow upwards. This prop belonging to the depending branch is some distance from the main stem.

ROSE GROWERS who visit the gardens in July and August may have a glorious promenade under an arcade of Roses 100 yards in length, terminated by a true Rose bower; whilst indoors the Duchesse de Vallombrosa, Comtesse d'Oxford, Victor Verdier, and a host of others already offer floral tributes. "Old Gloire" is a sheet of bloom overhead, flanked by Maréchal Niel, one of the hardiest of Tea Roses. The "black fortnight" in March has not been so disastrous in Scotland as in Yorkshire; while in the latter district there were 20° of frost on March 9, only 8° of frost were noted as the lowest in March at the Royal Botanic Gardens, Edinburgh, on the 15th, Teas and Hybrid Perpetual Roses being reported as only slightly injured. Frequently we came across a long border, a hundred yards or so in extent, or a large bed, filled with seedling Polyanthus, and it is surprising how effective are their varied blooms when massed; all hues may be found here, from deepest purple to paper white. A house 100 feet long is staged sharply up to 12 feet high, and this is a dense mass of Rhododendrons and Azaleas in bloom, whilst a novel break up of monotony is obtained by interspersing in this shrub bank Arum Lilies, which protrude their white spathes here and there through the bushes with charming effect. Bananas are a great feature here; they range up to 15 feet high, and have stems almost as thick as a man's body, not one being over twelve months old; they have quite a tropical effect planted out in soil covered with the pretty *Gymnostachyum Verschaffelti*. The fine Orchids that are here are grown well; noticeable amongst them were masses of *Dendrobium fimbriatum*, *D. chrysotoxum*, *Phalænopsis amabilis*, *Cattleya Skinneri*, *Cypripedium Dayanum*, *Oncidium Phillipsii*, and *Vanda suavis*, these being all in bloom; *Vanda teres*, a fine specimen which blooms regularly here, is bound upon Spaghnum to a charred sapling. In another house an iron tank is devoted to the

CAPE PONDWEED AND ARUM LILIES, close by being a fine plant of *Ouvirandra fenestralis*, with its curious perforated leaves. Camellias are associated with gorgeous masses of Tulips, Narcissi, and Hyacinths. The next house is devoted entirely to Heaths, and deserves more time than a casual visitor can bestow on it, but further on is a pleasing utilitarian bit of colour—a white wall covered with the green leaves and some showy crimson fruit of Tomatoes. For the growth of Ferns, virgin cork is freely used, nailed to walls on which the *Ficus repens* creeps picturesquely. There is here a pinery 80 yards long with fruit in various stages of development and a *Stephanotis floribunda* trained along its roof, and in a low sunk house saturated with moisture *Droseras* are flourishing. Amongst others I noticed the curious *D. pinnata*, a kind that sends out a smooth stem from 9 inches to 1 foot long, and then dichotomises, the forks being covered with the hairs and secretion peculiar to this tribe. In the same house are *Gardenias*, *Francisceas*, and a fine specimen of *Anthurium Andreanum* bearing seven fine flowers, the spathes of which measure 6 inches by 5 inches. The display of flowers was confined to the last house visited—a long low one full of *Cinerarias* in all shades of purple, blue, and mauve, varied by golden Paris Daisy, and the scent of *Mignonette*, which filled

the place, completing and perfecting the trinity of colour, form, and odour.

R. A. H. G.

Horsforth, Leeds.

SPRING FLOWERS IN CALIFORNIA.

APRIL in California! What a dream of delight the words recall to the fortunate traveller whose times and seasons have been so happily ordered as to bring him to the Granite State at this favoured season; for all these Western States are like different worlds, according as we see them in the green loveliness of their fresh spring-time, or when the long summer's drought has transformed the flowery pastures into broad plains of yellow sundried hay and withered plants, all smothered in stifling dust. I had, therefore, good cause to deem myself fortunate, when, owing to prolonged detention in the beautiful isles of the South Pacific, I landed at San Francisco on Easter morning, and received my first impressions of the New World from its exquisitely decorated churches, with their lavish display of flowers. Each church in the great city strove to outdo its neighbour in its profusion of Roses and pure white Lilies—chiefly the Calla Lily, which we call Arum. Throughout California the afternoon of Easter Day is the children's floral festival, and thousands of happy little ones march in procession, with gay banners and offerings of flowers, to take part in a joyous choral festival, and to present their gifts of lovely fragrant flowers—perhaps also of money—for the poor and suffering. After this glimpse of what Californian gardens can produce, we made various expeditions in the neighbourhood, and everywhere the prominent object was the wealth of wild flowers. We drove for miles through Lupine scrub—hardy, perennial Lupines, indigenous to California, and able to flourish on the driest sand. So their growth has been greatly encouraged on the desolate sand dunes on which the great city has sprung up; and these pioneer Lupines are doing a mighty work in reclaiming thousands of acres of the arid, shifting sands. Each bush bears countless spikes of blossom, pink, lilac, white, blue, pale lemon, or orange colour; and besides these shrub Lupines, all other varieties grow abundantly—small lemon-coloured flowers, large succulent blue Lupines, and all manner of dwarfs. Elsewhere we passed by patches of intensely blue Larkspur, and a scarlet flower called Painted Brush, and many other beautiful wild flowers. But, above all, our eyes rested in wonder on broad sheets of the most vivid orange, scattered here and there over the green pasture hills. We were told it was the California Poppy, and, on nearer inspection, recognised the familiar *Eschscholtzia* of our own gardens, which here, in its native land, attains a luxuriance unrivalled in exile. But not till we reached the flower-strewn slopes of the coast range could we fairly lay claim to having some idea of the glories of this great floral region. Here hills and meadows were all alike ablaze with bright-hued blossoms, scarlet and gold, pink white, and lemon colour, blue and purple, of every shade. Flames of vivid colour lighted up the forest glades, and brightened the darkest ravines or the greenest Grass slopes; scarlet and blue Larkspurs, Musk and other *Mimuluses*, blue *Nemophila* and scarlet Columbines, dwarf Sunflowers and *Fritillaria*, Heartsease and Forget-me-not, golden *Ranunculus* and dwarf blue Iris—these, and a multitude of flowers familiar to us in gardens, here overspread the land at their own sweet will. In one morning's ramble I collected upwards of a hundred different flowers, and I was told that in the course of a Californian spring and summer I might find no fewer than 600 species! It was a great delight to me to find the jovial round face of the familiar Sunflower, beaming a cheery welcome to its Californian birthplace; but we saw only a few blossoms. I was told, however, that there are tracts in the mountain districts to the south where, for miles and miles, successive ridges gleam like gold, owing to the myriads of these gigantic yellow Daisies, so closely packed that there is no green to be seen, only a sheet of saffron hue. The same glory overspreads Southern

Colorado, where purple Asters also abound, and both grow so freely that they even spring up from the turf sods with which the miners roof their huts, giving quite an æsthetic touch to the dingy camps.

Beautiful as were the plains in their robes of flower-embroidered verdure, I craved to reach the beautiful Sierra Nevada; and, hearing that the rapid melting of the snows had opened the roads to the far-famed Yosemite Valley, I resolved to start without delay. One afternoon on the railway and two long days of coaching brought us to the forest belt. The railway ran us along a small portion of the vast Wheat field which now extends well-nigh 600 miles from north to south. However dear to the farmer, it is not attractive to the lover of beautiful, uncultivated Nature, and I was glad to escape from its monotony and arrive at a region of gently undulating hills, all clothed with rich tall Grass of a peculiarly lovely light green, ideal pastures where happy cattle were luxuriating; and here, too, the beautiful Grass was but a groundwork whereon were showered masses of vivid crimson and purple, white, scarlet, and gold. Onward we toiled, uphill and down, winding round about among the foothills, which in places are densely clothed with chapparal (*i.e.*, brushwood, with a large proportion of flowering shrubs), and elsewhere are grassy and park-like, adorned with fine clumps of Buck-eye and live Oak—in other words, Californian Horse Chestnut and Ilex. And, far and near, the grassy slopes were tinged with rainbow hues where the bright sunlight played on banks of wild flowers. As we reached the higher levels, we found deep banks of snow lying in places; but even close by these some kindly blossoms had contrived to expand, and in the shelter of the great Pine forest I found some beautiful specimens of a plant altogether new to me—*Sarcodes sanguinea*, a strange, bright scarlet-crimson blossom, like a very fleshy Hyacinth. It is called the Snow flower, because it rises right out of the earth as soon as ever the snow melts, after the manner of our Snowdrop; but instead of being enfolded in smooth green leaves, each crimson bell is wrapped in a crimson leaflet, which uncurls as it rises above the earth, forming a sort of hyacinthine pyramid of blossom 8 inches in height. It has only 2 inches or 3 inches of thick stem, and really suggests little tongues of flame darting out of the newly-thawed earth, quite close to snowdrifts. When we reached the higher levels, and caught sight of a succession of grand mountain summits all robed in dazzling white, we fully realised our good fortune in having arrived while there was yet sufficient snow to let us see the Sierra Nevada* in its true character.—*Cornhill*.

Noble Pansies.—The thanks of those who love fine Pansies are due to Messrs. Vilmorin, of Paris, for seed they supply (*Pensées à grandes macules*), producing a large proportion of such flowers as those enclosed. A florist would doubtless call them "coarse" and "rough" with their waved edges and large size, but all who value flowers for their true beauty cannot fail to find them grand flowers. Some blooms in the same strain have the more "orthodox" qualities of moderate size, firm substance, flatness of flower, and regularity of blotching and colouring. These great Pansies, besides their garden beauty, are of high value for cutting; the growth is so luxuriant that one may cut whole sprays a foot long, with abundance of fine foliage, and make bouquets of Pansies for indoor decoration of noble size and unusual aspect, a pleasant contrast to the short-stalked bunches of Heartsease one usually sees. The packet of seed was sown in the middle of May, the seedlings transplanted two months later to well-prepared beds, and finally placed in the beginning of October in an open, but sheltered position.—*G. J., Surrey*.

* * The finest Pansies we have seen, we think. To call such flowers "coarse" is no sign of wisdom or taste! It is the formal stiff flowers, if such there be, that deserve like epithets. But our ex-

* Sierra Nevada, range of snow.

perience of the Pansy is that, off the exhibition bench, it never really conforms to the circular ideal.

GARDEN DESIGN.

DESIGN IN TOWN GARDENS.

It is the general impression that the laying out of

it need hardly be said, should always be a cardinal rule in designing town and other small gardens, and another important point is to know how to plant, how much to put in, and when to stop planting. If too much crowded, the place looks smaller than it really is; on the other hand, if too little is done in the way of planting, the smallness of the garden becomes too evident. Above all great care is required in the matter of selecting

few simple beds for gay flowers that would be effective from the windows. The border beyond is one of the best positions that could be chosen for showy hardy flowers, and it could be kept gay from March to October by a judicious selection. For example, the finest Daffodils and other Narcissi would make the border gay through March, April, and May. Intermingled with these should be a few plants of Pæony, the tender red foliage of which would contrast charmingly with the yellow and white Narcissi. A successional crop of bloom could be obtained from blue Delphiniums and Evening Primroses, both of which succeed admirably in London; and these again could be succeeded by Phloxes and Tritomas, which latter would carry the season on to autumn, after which open-air flowers are not looked for in London.

A glance at the plan will show how well every plant is placed, so as to be seen to the best advantage, and, what is important, all are not seen from any one point. For example, the round flower-beds at the angles of the lawn are screened by the shrubs, and in following the path they come into view as a surprise. The preponderance of deciduous trees and shrubs and the paucity of evergreens is conspicuous, and the selection includes things not commonly seen in country gardens, such as the snowy Mespilus (*Amelanchier canadensis*), *Pyrus vestita*, Maiden-hair tree (*Salisburia*), Scarlet Maple, and others.

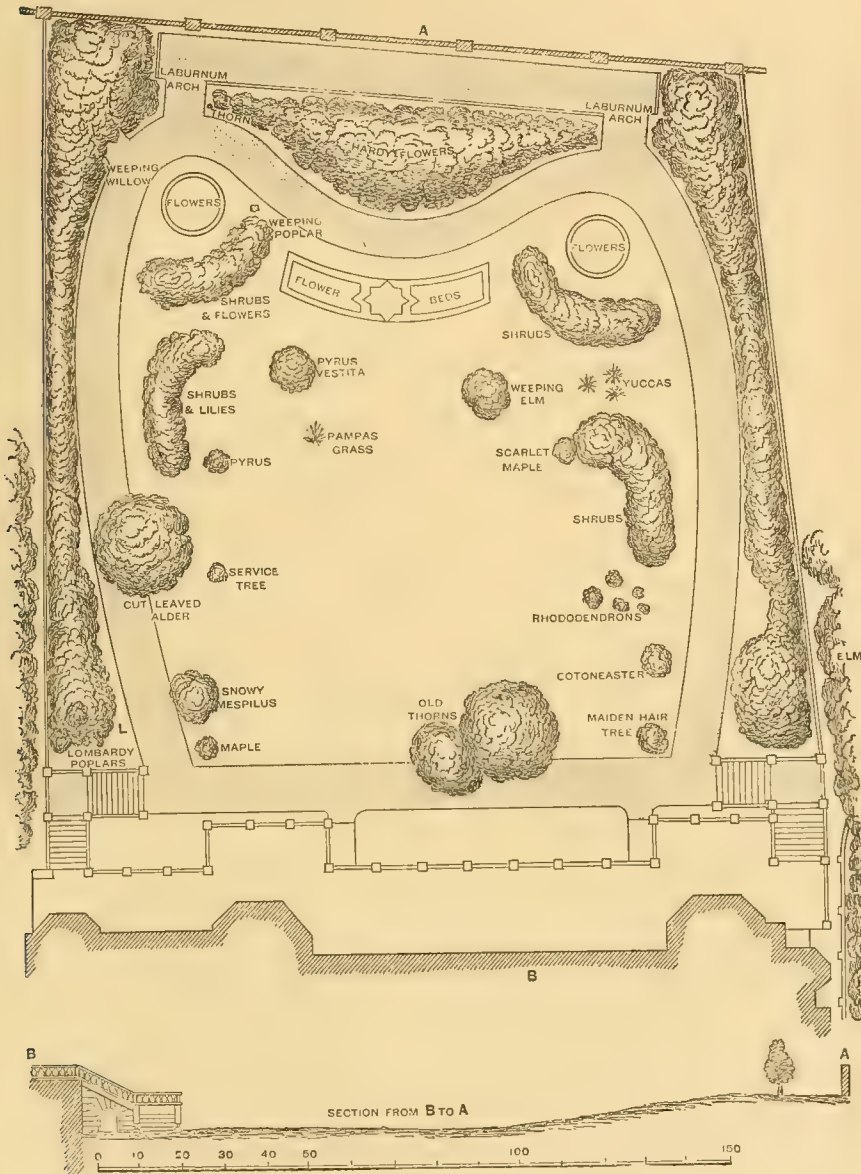
W. GOLDRING.

FLOWER GARDEN.

APRIL FLOWERS.

AMONGST those well worth growing the following may be included, and most of them are now little, if at all, the worse for the hardships they have gone through this spring. *Arnebia echioides*, the Prophet Flower, is already in blossom. It is curious to watch, day by day, the gradual disappearance of the black spots on its yellow flowers as they grow old. The white *Fritillaria contorta* is somewhat finer than the white form of *F. Meleagris*. *F. lutea* is a distinct kind; and the quaint *F. nigra*, when a good clump of it is in blossom, is perhaps worth a place on the rockery, though neither kind can be called pretty. *Mertensia virginica* surpasses the *Pulmonaria* in the beauty of its blue flowers, but *P. saccharata* and *P. mollis* are good spring plants. *Menziesia empetriformis* with the pink and white Mediterranean Heaths have replaced *Erica carnea*. *Saxifraga Wallacei* and the little red-flowered *S. muscoides atropurpurea* are amongst the earliest of the mossy *Saxifragas* here. *Veronica pectinata*, pink and blue, is beginning to flower, and also a pale mauve kind from the College Gardens, Dublin.

The pale yellow *Uvularia grandiflora*, though not effective, is sufficiently distinct to make a clump of it worth growing, and those who care for curious flowers will not grudge a spot for *Allium paradoxum*, with most of its flowers replaced by bulbils, or *Tulipa cornuta* with its pointed, horn-like flowers. *Tulipa Celsiana* is remarkable for having its yellow, slightly sweet-scented flowers bent to one side, and sometimes two on a stem; and *T. pulchella*, one of the smallest of Tulips, claims a place amongst dwarf alpine plants. When grown in good clumps, *Scilla italica*, though less pretty than the early *Scillas*, is very effective. Like many other flowers, its beauty cannot be fairly judged of till it is sufficiently established to blossom well. The same may be said of *Adonis vernalis*, a small plant of which with about eighteen glossy yellow flowers is a pretty sight just now in sunshine. *Ornithogalum nutans* is flowering well this year. It is unaccountable that it is not more largely grown. No plant requires less care, and its silvery green-tinted blossoms are unlike any others that I know of, and especially good as cut flowers. No rockery should be without the dark purple *Aubrietia Hendersoni*; *A. Eyrei* and *A. grandiflora* are also excellent varieties. *Arctostaphylos californica*, a somewhat rare alpine shrub, grows well over a stone; its pink Heath-like flowers are pretty, but it does not blossom freely here. Primroses and various other Pri-



A London garden.

small gardens is a simple matter, but in reality more skill and thought are required in designing a garden in a limited area than one of large size, particularly in towns where the number of trees and shrubs that thrive perfectly is not great. It is simply a question of making the most of a small space. We have only to look at the average London villa garden to see how miserably designed it is in nine cases in ten. Usually we find the place, be it ever so small, cut up in all directions by paths, and these commonly tortuous, the impression doubtless being that such windings and twistings are picturesque in appearance. Often, too, we see such gardens carved out into congeries of beds generally fantastic in outline and crammed full of unsuitable plants. Simplicity,

suitable plants, for however good the design may be, it will be spoiled if the choice of trees and shrubs is bad.

An example of what may be considered good design in town gardens is shown in the annexed plan, which represents the Duke of Buccleuch's garden, at Montague House, on the Thames Embankment, in, it may be said, the heart of London. This garden was designed some years ago by Mr. Marnock, and, as may be seen, it is treated in his usual simple and effective style. The plan speaks for itself. The letter B represents the front of the mansion, with the windows overlooking the garden and the Thames. From the terrace to the boundary wall at A the surface is level with the exception of a gentle rise, on which were placed a

mulas keep well-nigh at the head of the list of hardy plants in April both in beauty and in interest, and will continue to do so well into the summer. Plants of *P. rosea* have blossomed in succession for about two months; it is certainly one of the most beautiful of the many hardy plants introduced within the last few years. Another Indian plant, *Andromeda fastigiata*, seems to like a bog bed as much as this *Primula* does. A very small plant protected by a cloche is flowering well. Queen Anne's Jonquil (*Narcissus odorus fl.-pl.*) is an excellent kind for spring bedding, and, judging from the effect of a few scattered bunches of Queen Anne's Daffodil (*N. capax*), it would be as good, if not a better bedding kind, much paler yellow than the former, and earlier, as it is now out of blossom here. The colouring of *Myosotis elegantissima* is peculiarly soft and pretty; and *Myosotis dissitiflora*, which, except in sheltered nooks, suffered much this season, is now in full beauty, most of it having already recovered. The exquisite colour of a mass of this Forget-me-not is, perhaps, best seen just as the light begins to fade. Where the climate suits it, it would not be easy to find a better bedding plant amongst either hardy or half-hardy flowers; but for brilliancy and rich depth of colour no mass of flowers can well surpass beds of *Anemone fulgens* seen in full sunshine. I send two or three blossoms to show that bronze-leaved *Pelargoniums* grown over their roots during summer do not lessen the luxuriance of these *Anemones*, though this plan, perhaps, makes them begin to flower a little later than those grown in beds not so shaded in summer. Double Daisies have suffered this year, but, in spite of all they have gone through, they help to keep up the brightness of the spring garden, which even such a season has not succeeded in destroying. How can anyone who lives in the country in spring be content to have flower beds like miniature ploughed fields for eight months in the year instead of the constant succession of lovely flowers which may be grown in most gardens from early spring to late autumn?

Knockmullen, Gorey, Ireland. C. M. OWEN.

MORE WALL PLANTS.

THE list of evergreen plants suitable for covering walls mentioned in THE GARDEN (pp. 81-82) might be much extended, especially if intended for our southern counties. A stretch of wall came under my observation now many years ago at Bicton, the effect of which was really grand during the summer months. The plants with which this particular piece of wall was covered were *Magnolia fuscata*, the highly fragrant blossoms of which were freely produced each season, and in spring filled the surrounding air with their perfume. Although not showy as regards the flowers, the foliage is neat and cheerful, and the habit of the plant such as to clothe the wall densely. No pruning whatever is required, unless it be to thin out the weak shoots a little. *Edwardia microphylla* was there too, its small pinnate foliage and twiggy growth being very different from those of most subjects so employed. This plant used to produce its yellow pea-shaped flowers nearly every year. *Ceanothus azureus* was the third occupant, and very beautiful it was; but still it had, if possible, to yield the palm to a large plant of *Solanum crispum*, a free-growing ligneous species, evergreen during mild winters, and liable, if the weather is severe, to lose its leaves. The plant at Bicton grew vigorously; it had in the first place been secured closely to the wall until the required space was covered and then allowed to grow without restraint; the consequence was that the branches fell in a graceful manner from the wall and clothed it with a perfect mass of greenery. During summer it produced flowers freely in large terminal corymbs, and when in bloom it was a sight to be remembered. The flowers are of a bright bluish lilac colour with prominent yellow anthers. Other additions that occur to me are *Ligustrum japonicum* and *lucidum*, two dark green shining leaved Evergreens, perfectly hardy, free in growth, and in summer studded with light open panicles of white fragrant flowers. *Berberidopsis corallina* is a pretty

climber, not too vigorous in growth for low walls. Its foliage is ornamental, and the pendulous blossoms, which are bright crimson, are produced freely. *Akebia quinata*, which we are told by Fortune festoons the hedges and trees in some parts of China, is such a singular plant when in flower that mention of it must not be omitted. It is sufficiently hardy to survive London winters against a south wall, and thus situated flowers freely. It is a slender climbing plant with pale green divided leaves and deep claret coloured flowers, the seed-bearing ones being much more prominent than the pollen bearers. *Garrya elliptica*, though it will grow as a bush, likes a wall. Thus favoured, its dark green leathery foliage attains a larger size than in the open, and its long pendulous catkins render it distinct from all its associates. *Viburnum Awafurki* has leaves fully as large as those of the Laurel and massive in character. It therefore clothes a wall densely.

Some of the *Pittosporums* might also be added, as, for instance, *P. crassifolium*, a kind with light-green foliage, tomentose beneath, and *Tobira*, the leaves of which are of a very pale hue, thus affording a pleasing contrast to the almost black colour of the young shoots. Of this there is a variety, the foliage of which is variegated. The *Pittosporums* are about as hardy as the Myrtle, and the same may be said of *Leptospermum scoparium*. The *Leptospermums* are represented by several species, but their general character is the same. They are medium-growing slender twiggy shrubs, with lanceolate leaves and small Myrtle-like flowers, which are borne in great profusion. In sheltered spots along the south and west of England the *Leptospermums* grow and flower well.

FABIANA IMBRICATA grows vigorously and flowers freely in our warmer coast districts. It is a bright green, cheerful looking shrub with small foliage and pure white tubular flowers, in all respects somewhat resembling a Heath, although it belongs to quite a different order, viz., Solanaceæ. *Passiflora cœrulea* is rapid in growth, and even if cut back during winter it soon recovers. Its flowers, which continue to open all through the summer, are favourites with most people. *Stauntonia latifolia* and *hexaphylla* are two dark green divided-leaved climbers of rapid growth and nearly hardy, the shelter of the wall being quite sufficient protection for them during ordinary winters. The different *Azaras*, too, form pretty wall plants, the foliage of all being dense and solid in texture. Of these Chilean shrubs, *Azara microphylla* has small dark green leaves arranged in two rows; the branchlets are also produced at regular distances apart and droop gracefully, the effect of the whole being that each branch presents the appearance of the frond of a Fern. *Azara integrifolia* has somewhat larger leaves and is less graceful in habit, but still a handsome shrub. Of this there is a variegated variety in which the leaves are deeply edged with yellow, the whole plant being very bright and cheerful, but rather slow growing. Not so the next, *A. Gilliesii*, which is a large, strong growing kind. Its leaves are thick, dark green, and as much as 4 inches or 5 inches long and from 2 inches to 3 inches broad. The flowers are produced from the axils of the leaves during the winter months; in colour they are bright yellow, and resemble small catkins. The evergreen *Ampelopsis striata* is a pretty climber, almost if not quite hardy near London. Its leaves are very deep green, and the leaf-stalks brownish. It is free in growth, and when established, clings to walls without support. *Camelias* make good wall plants even if the flowers are left out of consideration, as the foliage is so handsome and dense. Of course the flowers are often cut off by frost, yet in sheltered spots such is far from being invariably the case, especially if only the hardiest kinds are so planted. For outdoor planting the old single red is one of the best, as it flowers freely, is among the most hardy, and the foliage is better than that of the majority of the others.

GOOD SUBJECTS FOR LOW WALLS are the Mexican *Choisya ternata*, which produces pretty white

flowers in spring, and *Olearia Haasti*, a New Zealand composite which flowers in summer. Like the last, its blossoms are white and individually small, but borne in clusters and in such numbers as to cover the plant. They last in beauty a long time, whether cut or allowed to remain undisturbed. The shrubby *Veronicas* are also suitable free-blooming plants for low walls. *Ivies*, of course, must not be omitted. *Euonymus latifolius*, a deciduous shrub, is nearly related to the common Spindle Tree (*E. europæus*), but far more ornamental, especially as regards its fruits, as when the capsules open the bright orange-coloured seeds hang thereupon suspended by slender filaments, and remain in that condition a long time. It is a valuable shrub, but scarcely adapted for walls, while all the varieties of *Euonymus japonicus* are very handsome trained thereon. To the broad silver-leaved form of *E. japonicus* might with advantage be added the deep golden variegated kind. *Cratægus Pyracantha Lælandi* has larger and brighter berries than those of the ordinary *Pyracantha*, that is if the true *Lælandi* is obtained, as many sold under that name are nothing but the common one. To *Escallonia macrantha* in the south of England may be added *E. montevidensis*, a vigorous growing shrub, which bears large terminal clusters of white flowers. This *Escallonia* pushes forth stout shoots from the base of the plant with great freedom, and it is on these gross branches that the finest flowers are borne. There are several species of *Smilax* quite hardy, and very distinct from any of the other plants here mentioned, which will cover walls from 6 feet to 10 feet high with a profusion of bright glossy foliage. Among them may be mentioned *S. tamnoides*, recently figured in THE GARDEN, *S. aspera* and its mottled-leaved variety, and *S. rotundifolia*. To the list of

DECIDUOUS FLOWERING WALL PLANTS (p. 138) may be added *Forsythia suspensa*, a shrub which should on no account be omitted, as its bright yellow flowers are produced so early in the spring as to render it at that time one of the most conspicuous objects in the garden, while its growth is so graceful that even when out of flower it is always pleasing. To enjoy this plant to the fullest extent, when first planted it should be trained to the wall until the required space is covered, and when that is done it should be allowed to grow freely without restraint. In this way it will push forth shoots in great profusion, and as they are nearly pendulous will completely hide the wall from view in summer, and in winter the slender shoots, often as much as 6 feet or 8 feet long, are, from their light brown cheerful-looking bark, far from unattractive, while the first few days of spring cause them to produce golden blossoms in abundance. *Cydonia* or *Pyrus japonica* is, where the walls are not high, a very suitable shrub to be trained thereon. It also flowers very early in the season, indeed at times nearly throughout the winter, and among its many varieties may be found various shades of colour ranging from bright crimson to white. The fruit is large bright green, and remains on the plant throughout the summer, but it is not edible.

PRUNUS TRILoba.—This, like many of its allies, is remarkably showy in early spring when laden with bright rose-coloured blossoms. It is more slender in growth than most of its class, and therefore more suitable for training on walls. Any one who has seen this *Prunus* trained on a wall at Kew when in flower cannot fail to be struck with its adaptability for that purpose. Some of the Brambles are very pretty, such as *Rubus deliciosus*, which is really handsome as a shrub, but well repays the shelter of a wall. It is a spineless species, with much branched stems, and leaves slightly three or five lobed. The flowers, which are white, are very showy, being often 2 inches in diameter, and borne in great profusion. In good soil this *Rubus* reaches a height of 8 feet or 10 feet. It is a native of the Rocky Mountains, where the fruit is said to be delicious, but with us it never ripens well. *Ribes speciosum* makes a good wall plant, and when so protected its Fuchsia-like blossoms are more freely produced than if treated as an

ordinary shrub. *Fremontia californica* succeeds best on a wall with a southern aspect, and in not too light and sandy a soil, but at the same time it must be thoroughly drained. Although it does not flower very freely, the foliage is ornamental, and when blossoms are produced, from their large size and bright yellow colour they form conspicuous objects.

THE POMEGRANATE withstands the winter perfectly around London when planted against a wall, and flowers freely so situated. There are now great numbers of varieties of this shrub both single and double, ranging in colour from red to white, while several bear striped or parti-coloured blossoms. All the pruning they need is thinning out some of the thin twiggy shoots when too much crowded. *Periploca graeca* is a curious, but ornamental climber, and one which flowers freely when on a sunny wall. The leaves are firm in texture, from 3 inches to 4 inches long, and ovate in shape; the flowers, owing to their colouring, have a very quaint appearance. They are produced on long-stalked clusters, and open about July. They are five-rayed, about 1 inch in diameter, and of a reddish brown colour thickly covered with short hairs. Besides the Honeysuckles already mentioned *Lonicera fragrantissima* must not be omitted. Its sweet-smelling blossoms are produced during the first months of the year, at a time when other Honeysuckles, except its near relative, *Standishi*, are dormant. It is best suited for low walls. The European Box Thorn (*Lycium europæum*) is a somewhat common, but very handsome subject for covering walls, especially where rapid growth is required, as when established it grows freely, and soon covers a large space. Its small, pale, violet-coloured flowers are borne in great profusion, and as many of them are succeeded by comparatively large, bright scarlet fruit, this plant is well worth attention, especially as the long slender shoots are often as much as 6 feet in length, and studded throughout the greater part with berries. This *Lycium* should be treated as recommended for the Forsythia as regards training.

THE CLIMBING ROSES, or at all events most of them, are grand subjects for walls, and should on no account be omitted, as many of them keep up an almost continual succession of bloom throughout the summer, while others, such as the *Banksian*, if they can be induced to flower well, will then compensate for any trouble that may have been incurred.

One or two other things demand a few words, though for the sake of their foliage more than for that of their flowers. The *Virginian Creeper*, besides its rapid growth and ample foliage, is so brilliant in the autumn, as to fully account for its popularity. The smaller *Ampelopsis Veitchii* only needs a little support at first, when it will stick closely to the wall and grow freely when once established. The ample foliage of some of the vines well fits them for covering walls. Noteworthy kinds for that purpose are the cut-leaved and the purple vine, both varieties of the common Grape Vine. *Vitis cordata*, a large heart-shaped-leaved kind from North America, is also well worth attention, as is also *Vitis Sieboldi*, with moderate sized five-lobed leaves, bright green, very glossy above, and covered underneath with a white tomentum. *Vitis heterophylla humulifolia* bears bright blue berries really handsome, but to bring them to perfection a hot, sunny wall is necessary.

ALPHA.

Bedding Violas.—Whilst there does not seem to be so great a demand for these truly charming hardy flowers as once existed, it is satisfactory to find that raisers have not relaxed their efforts to produce improved varieties. Not a few of the kinds shown and certificated in the past, though charming for the moment, have failed to show endurance and hardiness such as are needed in a bedding *Viola*. I find *Yellow Boy*, one of the oldest, to be still the earliest and best of yellows. In old clumps it is beautiful, and in young plants the first to flower. *Mrs. Gray* is a pure white kind, one of the very earliest, and specially valuable with *Yellow Boy* for spring bedding. I am greatly

pleased with *Mrs. Turner*, a bluish violet-hued kind of the best form and stout. *Blue Lass* is an excellent blue, whilst the old *Cliveden Purple* and *Mulberry* make the best bedders in the maroon section. In the south, *Violas* to make a good show in the spring should always be planted out in October.—A. D.

VERBENAS FROM SEED.

THERE can be but one opinion respecting the future of the *Verbena*, and that is, it must be treated as an annual. No one perhaps regrets this more than I do, for time was when it was used largely for bedding, a purpose for which few plants are better adapted. I am old enough to remember the advent of that excellent variety, *Defiance*; as a scarlet-flowered *Verbena* for bedding it has not, either before or since, had an equal. At the time, however, of which I am writing there were many other varieties admirably adapted for bedding; but in the search for new kinds, such as *Mrs. Woodford*, *Emma*, *Woodwardiana*, and others of similar trailing habit, these have all been lost, and the garden in consequence has suffered, because the new introductions have altogether proved to be indifferent bedders. This is, however, no good reason why the *Verbena* should be banished from our gardens altogether, because for those who do not object to having a bed of mixed colours it is still available. For this purpose the plant must be raised from seed—a very simple matter.

THE FIRST STEP is to obtain seed that has been saved from flowers of good substance and various in colour. The earlier the seed is sown after this date, too, the better, and if when sown it can have the advantage of artificial heat, the plants will be larger, and consequently will flower earlier than if raised in a cooler temperature. Seed pans 6 inches deep, and from 12 inches to 16 inches over, are the best for sowing the seed in; these should be filled to within an inch of the rim with fine light sandy soil. After being well watered, the seed may be sown and thinly covered with light soil. To induce the seeds to grow quickly, there is no better place for the pans than a Cucumber or Melon frame in which there is a good bottom heat, and where they can be shaded until the young plants appear. When once the seedlings are up they grow quickly, and as they advance in growth more air and less heat are required. As soon as large enough the plants should be put singly into 3-inch pots, using no crocks, and fine sandy soil. They should then be replaced in a growing temperature until the middle of May, when they may be gradually hardened off and planted out in the beginning of June. Raising seedling *Verbenas* under cool treatment has not been altogether a success with me. I have sown them early in April in well-prepared soil in the open ground, but the plants flowered so late that they were comparatively worthless. I, however, found that a greater number of seeds will grow under cool treatment than when sown in heat. The proportion of the seeds which grow under the cool treatment was about three in five; but when sown in heat the proportion does not amount to more than one in five. This is, however, no new experience, for there are many other seeds that vegetate better when not subjected to artificial heat than they do with it. I have been more successful when I have sown seed in some deep boxes about the middle of March and then placed them in an ordinary greenhouse, when large enough planting them out in other boxes, or potting them singly in small pots. In this case the plants have commenced to flower fairly well in August, and have continued to do so until late in the autumn.

PLANTING.—I have found it best to delay the planting out until June, when the weather has not been favourable, and the result has been a stronger growth and an earlier show of flowers than if the young and tender plants had had to endure cold, rough weather in exposed flower beds. I am rather inclined to believe that of late years we have made our soil too rich for *Verbenas*; they

are excitable subjects, and when planted in rich soil they make rapid progress for a time, but suddenly come to a standstill when they have exhausted the soil near their roots, and this generally occurs when we get hot, dry weather in August. During my experience I have not found anything better as a dressing for *Verbena* beds than well-rotted leaves; 3 inches of these strewn on the surface, and lightly forked in, appear to suit them better than anything else. When we grew *Verbenas*, I always found that our plants became exhausted sooner, and were earlier attacked by mildew when we dressed the beds with animal manure than when we used leaf soil. J. C. C.

NAMES OF POPPIES.

MUCH confusion appears to me to exist about the nomenclature of Poppies. I remember thirty years ago a magnificent crimson variety which used to be called the *Crimson Oriental*. To my delight I discovered this some little time ago in an old-fashioned garden near this, and I rejoiced to see it exhibited last May at South Kensington (I think by Messrs. Barr & Sugden). I ventured to write to Mr. Wolley Dod (than whom, of course, there can be no higher authority) to ask him if he were familiar with this Poppy, and to beg him to tell me its proper name. He replied that it was *Papaver bracteatum*; that it used to flourish in a wonderful way with him when he lived at Eton, but not so well in his present locality, and he most kindly sent me two or three offsets, one of which I am in hopes will give me a flower in late summer. I saw seed of *P. bracteatum* advertised in Messrs. Carter's list; I got a paper of it, and have a good crop up, but it is evidently not the same Poppy; the leaf is quite different, and I feel inclined to doubt the seed of Mr. Wolley Dod's *bracteatum* being so procured as to be only a few pence per packet. Again, with respect to *Papaver umbrosum*, Mr. Wolley Dod tells me it is a yellow Poppy, and he added to his great kindness by sending a few seedlings of his variety. He will, I doubt not, be pleased to hear that three of these are now 16 inches across the plant, and are likely to bloom well. But in various seed lists, notably Carter's and Ware's, *umbrosum* is described as a crimson annual, much like the wild Corn Poppy, but larger. What am I to make of this contrariety? Perhaps Mr. Wolley Dod would kindly notice the matter in THE GARDEN, where, I doubt not, the subject would be interesting to many readers. DENIS KNOX.

Virginia Rectory, Ireland.

GOLD-LACED POLYANTHUSES.

THERE was a rare display of these at the recent *Auricula* Exhibition at South Kensington, more indeed than I have ever seen before; but it appears to be becoming certain that we must look to the northern growers for flowers characterised by those qualities upon which florists insist. The cool, moist climate of Lancashire, for instance, induces a more refined development than we are able to obtain about London, where it is difficult to grow them. Mr. Douglas appears to be the only southern grower who is at all successful with the gold-laced *Polyanthus*, but with all his skill he fails, as a cultivator, to impart to the flowers that refinement which Mr. Barlow and Mr. Brockbank does. The winter was very harmful to the *Polyanthus*. I hear general complaints of losses. Mr. W. Brockbank, of Didsbury, who has a large collection, says they died with him by the hundred; and I know that Mr. Barlow has also been unfortunate with his plants, and unhappily lost almost entirely several fine new varieties. I had a collection of some fifty plants, comprising such varieties as Cox's Prince Regent, George IV., Exile, Lancer, President, Cheshire Favourite, &c., that at Christmas looked most promising, but by the middle of February they were nearly all dead. All my care failed to prevent them rotting away near the collar of the plant.

There is such a demand for named varieties, that no doubt the plants are divided to an extent which

weakens them beyond endurance. It is, therefore, matter for sincere congratulation that Messrs. Barlow and Brockbank have succeeded in raising new varieties of a high character, and, as far as I have seen, of good constitution. Of Mr. Barlow's new flowers, Sunrise was the only one I noticed at South Kensington, and it was in excellent form, a perfect red in point of colour, with the lacing bright, even, and regular. It is a flower of great refinement, and it will be a matter for congratulation when Mr. Barlow is able to put this fine variety into commerce. Mr. Brockbank has evidently hit upon a fine strain of new varieties, two or three at least of which are of excellent promise and robust growth, so far as one could judge from appearances. Black Diamond is a fine and attractive black ground, the centre bright and clear, with a well-defined lacing to correspond. Nonpareil is also a black ground variety, perhaps scarcely so good in colour as the preceding, but with a clear, rich, bright golden centre and lacing, and good form. I think this may eventually prove the better of the two, but one cannot draw a correct conclusion from first sight. John of Gaunt, Lord Derby, and Excellent, likewise black grounds, were also shown by Mr. Brockbank, and if they are not strictly first rate, they will be very useful as parents.

Of older varieties shown on this occasion, the following were conspicuous: Lord Lincoln, Prince Regent, Lancer, Exile, George IV., and Cheshire Favourite, a very good half-dozen, but the first is very scarce and dear. R. DEAN.

WALLFLOWERS.

WHETHER we see them growing luxuriantly on the top of an old wall, or in the border beds, or packed ruthlessly in bundles hawked for sale about the metropolitan streets, Wallflowers seem to possess a sweetness and a freshness of their own. It is customary to speak of them as old-fashioned flowers, but in this connection the epithet is one of endearment. In spite of the mania for new plants, and for new shades of old ones, florists do not neglect to provide us with these sweet-scented brown and golden blossoms, which come in the early spring to remind us that Nature has only been sleeping awhile. Rich and poor alike meet on common ground in their admiration of these old favourites. The cottage garden and the pretentious parterre are both bright with their blossoms. They hold their own against all rivals; and year by year the fashion, which pronounces Wallflowers to be favourites, recurs with the first days of spring. So hardy is the plant, that however hard the winter may be, it is seldom late in blooming. Long before the trees and bushes shoot we are cheered by its brightness. It is ubiquitous. In many a town garden, and in the tiny beds which lie close to the cottage porches in country villages, it is to be found. It blooms with unvarying luxuriance on ruined walls, whether desolate or in the midst of cities. In Paris it is bedded out in masses in the public parks. Even the ruins of old Rome are gladdened by its perfume. It can be found amidst all the fabled glories of Eastern gardens, and even there it is not despised. We have no means of tracing its antiquity in England, but it seems to be pretty well settled that it is not indigenous to English soil. At the same time it is found growing in strangely inaccessible places. It thrives in the crannies of the cliffs and in the clefts of craggy peaks. The old cliff at Dover is, for instance, a famous habitat of this hardy plant, and it must indeed possess a vigorous vitality, since it can survive the east winds there. The secret of the charm which the Wallflower possesses is perhaps to be found in its hardihood. Growing in the crevices of an old wall, it seems as though its roots were well content with such scanty sustenance as they can get from bricks and mortar; and, although it is sometimes cut off by very severe frosts, it generally endures the vicissitudes of our extraordinary climate with enviable indifference. The plant is largely cultivated by market gardeners, owing to the demand for cut blossoms; and the nurseries at Feltham

and Isleworth are famous as the principal source of the metropolitan supply. The Wallflower is, however, sweetest, and often finest, in the cottage garden, and it is reserved for a poet of the future to tell its story as the flower of the poor. It is, indeed, not a little remarkable that floriculture is helpless in attempting to change the popular taste in favour of new-fangled shades of colour. Of these many have been introduced, but the familiar hues which pass through every shade of gold to brown are still preferred to any of those which the gardener's art can produce. In the same way, the flowers which bloom in "the open" are more highly prized than the most gorgeous productions of the hothouse. The Wallflower is indeed "old fashioned," and perhaps that is the reason it is beloved. All through the winter cut flowers of it might have been seen in nearly every window, and even now branches of its rich brown blossoms are brought to our markets in thousands. —Queen.

Golden Moneywort.—The old green-leaved Moneywort is well known, but the variety having yellow foliage is not, I think, much grown. Unlike many variegated plants, it is of vigorous growth and forms a fine companion to the type, which for a window ledge in a north aspect is unrivalled, forming a dense curtain of verdure, which in its season is studded with bright yellow flowers. —BYFLEET.

Hoop-petticoat Daffodils.—Are not the flowers herewith sent remarkably fine specimens of *Narcissus Bulbocodium*? There is one which goes by the name of *N. B. conspicuus*; surely this must be the one. I have never seen such fine ones. They are from Jersey. —A. RAWSON. [They measured $1\frac{1}{4}$ inches across the crown, and were otherwise proportionately large. The colour, too, a bright orange-yellow, seemed richer and deeper than usual.]

Eranthemum pulchellum.—Among winter flowering plants this old inhabitant of our houses well deserves a word in its favour; it is a plant of easy culture, flowers freely even in a small state, and the blossoms are of a beautiful rich bright hue. Notwithstanding the number of *Eranthemums* which we now have, I question whether any of them equals this. Small plants of it in 3-inch and 4-inch pots with but one good spike of flowers are very useful for decorative purposes, as the pots occupy but little space, and even if some of the plants get injured there will remain enough for stock for another season. —H. P.

Blue flowers — *Gentiana verna*. — "Delta's" note about the difficulty of cultivating this plant rather surprises me. I bought a small plant of it a year or two ago from Mr. Ware, of Tottenham, and it has flourished and flowered freely with me ever since. I counted fourteen blooms on it this morning—probably about two-fifths more than I had last year. I have it planted in perfectly common soil at the edge of a by no means well sheltered border, and close to it grows a very strong plant of *G. lutea* (which I am in great hopes to see flower this year) and a fine specimen of *G. cruciata* with some thirteen or fourteen flowering spikes. I am inclined to think that much of the difficulty found in cultivating *Gentians*, and, indeed, many other choice hardy plants consists in choosing the right time—the "psychological moment," as Prince Bismarck would call it—for planting them out. This certainly is not always to be found in the season which, *faut de mieux*, we are obliged to call spring, for the hateful, rasping north-east winds, which keep returning time after time, when one thinks they are finally got rid of, are simply death to unestablished alpine. I may add that the slugs (even my slugs!) never seem to look at *G. verna*, though they were so good as to eat several shoots of *G. asclepiadea* for me during the winter. By the way, if "Delta" wants another blue flower, let me suggest to him that lovely Borage-wort, *Mertensia* (*alias* *Pulmonaria*) *virginica*, and let me express a hope that in return he will not lend his authority, as an amateur gardener, to talking

about *Aubrietias* in connection with blue flowers. I am myself too old a bird to be any longer caught with blue chaff; but I will remember a few years ago rushing off in a hurry to see *A. croatica* which I saw described in a catalogue as "deep rich blue," and finding it, of course, a red-purple with a strong tendency to pink. Many people will probably agree with me that the difference between the blue of nurserymen's catalogues and the blue of fact needs settlement almost as urgently as the question as to "which is Daniel and which is the lion" among the white Daffodils. —J. C. L.

GARDEN FLORA.

PLATE CCLXXXVII.

ROSE MARECHAL NIEL.

I REMEMBER the time when the beautiful, because truthful, picture which appears in this number of THE GARDEN would have created a great perturbation among those who love the Rose. Some would have denounced it as an imposition, and, resenting it as an insult, would have protested indignantly—"preposterous, absurd, impossible!" Some of less irascible temperament would have sighed, "How cruel to mock us with a vision of loveliness which can never be realised." Others more sanguine might have hoped "it may be a veritable fact. We have heard of Cloth of Gold, and we have grown *Solfaterre*. *Io triumphe*. We have got a grand, hardy, yellow Rose at last, and we will have it if we pawn our boots."

Well, I can assure the younger brethren who have been brought up to it, and have always grown it as a matter of course, that it did make a grand sensation when it first came to us in all its golden glory. Never since we first smelt *Devoniensis* or cut our first Charles Lefebvre (about the size of the five-guinea cup which it helped us to win) had we been so thrilled, jubilant, inebriate. And though well-nigh twenty years have passed since M. Pradel saw the first bloom of it among his seedlings (I wonder whether he cried or danced, for without some such relief to his excitement he must have lost his reason there and then, and I should not be surprised to hear that he is crying or dancing still), it ever reminds, with each returning spring, of our first love, and charms us with almost all its pristine power.

No Rose, I think, brings so much satisfaction to the eyes and noses of Her Majesty's subjects, contributes so largely to the decoration of boudoir, bouquet, and button-hole as this magnificent *Maréchal Niel*. Wherever grown under glass, it is the first to cheer the ungenial days of March and April, and it is not only reliable and constant, never declining to open, like Dickens's fractious *Periwinkle*, always fulfilling in efflorescence the promise of its buds, but it is as ample and generous as it is sweet and fair. I have known several instances in which rosarians of limited means, or who resembled good Mrs. Gilpin in their economical habits, "for though on pleasure she was bent, she had a frugal mind," have paid the yearly amount of coal consumed in their greenhouse (cobble, of course) with Roses cut from *Maréchal Niel*.

There must be glass to secure this early abundance, for this Marshal is no more frost-proof than were the marshals of Napoleon in that disastrous Russian campaign; and the Rose, on its own roots or budded so low on the Brier that it may make them in the soil surrounding, should be planted out (not kept in pots) and trained up wall, pillar, or rafter; or it may be grown like the Vine from an



outside border and brought into the house. However this may be, it should have an amplitude of fertile soil, and this should be continually enriched with manure, liquid and solid.

At the same time, though the *Maréchal* is not quite hardy, it may be successfully grown, with a little care, out of doors; and though I have once or twice been rebuked for my temerity, I have only failed for one season in producing its grand Roses on my walls. I believe the best plan to be this, to bring the upper growth from the walls and arrange it underneath, so that you may the more readily protect it from the frost. This may be done best with glazed frames, if you have them to spare, because they do not exclude the light, and are easily moved to and from the wall (in the latter position resting against stakes set some 2 feet from the wall), or, if these are not available, with garden mats. In April or May, according to the thermometer, the protective duties may be removed, and there may be free trade in wind and sunshine. The finest blooms I have ever seen have been grown upon walls having an eastward or southward aspect; and there is this further advantage for exhibitors, that they may with umbrageous ingenuities, or by cutting a few days before the show, be enabled to include in their collection a Rose which is not only so beautiful in itself, but which educes by contrast the beauty of those around it.

When in its full vigour the *Maréchal* only requires the removal of thin and weakly shoots, but if the plant appears to be deteriorating close and low pruning must be tried. This Rose is somewhat capricious, and liable to sudden and mysterious decay, so that it is best to have a young plant coming on and to keep up a sure succession.

As to Roses generally, I have a good hope that, though much injury has been done, "there's life in the old dog (Rose) yet," and I see strong signs already of its recuperative power. Should we have the phenomenon of that genial May, which "never is, but always to be," we may have a happy Rose-tide after all. As with other weakly invalids, they will require good support in their convalescence; and as I am not a member of the Blue Ribbon brigade, I propose to administer a gentle stimulant.

Of novelties, I only know that *Merveille de Lyon* promises to be a marvel and a lion also—a white lion, "larger, fuller than the *Baroness*, 4 inches in diameter." What can mortals wish for more? The raiser says that it is undoubtedly the finest Rose ever sent out; and who knows its qualities so well as he? "Do yer think," said one rustic to another, who was somewhat incredulous at a fair, "that the gentleman 'ud say as the giant wor ten foot high if he wor'n't ten foot high—spooney?" S. R. H.

Deformed Roses.—I send you malformed blooms of *Boule de Neige* Rose for inspection. They are taken from a large plant growing in a house constructed by Rendle. Fully one-third of the blooms come like the enclosed, full of centre buds and entirely useless.—W. W., *Brough*. [Your Roses, after they had formed flower-buds, have begun to grow afresh, owing to some exciting cause, such as a sudden rise of temperature or excessive stimulation at the root.]

Malformed Rose (G. W. E.).—A by no means uncommon malformation, and one which shows the close relationship that exists between flower buds and wood-buds in certain stages of growth.

ROSE GARDEN.

PROPAGATING ROSES.

At no time during the whole year do Roses strike more readily from cuttings than at present. Plants just out of flower that have been gently forced will furnish cuttings, and the sooner they are taken off after the flowers are faded the better, because longer time will be given them to grow into plants. Anyone with a common hotbed or other convenience for affording a gentle bottom heat in a close structure will have no difficulty in finding suitable quarters for the cuttings. Assuming that there is this convenience, the first step should be to prepare a sufficient number of 3-inch pots; these should be first drained and then filled with a fine sandy soil. Ordinary potting soil will do if sandy; but if a mixture has to be prepared, it should consist of three parts loam and one of sand sifted through a fine-meshed sieve. When the pots are ready the cuttings may be taken; each should have three or four joints, and in every case it is desirable to leave two fully developed leaves on each cutting. One cutting placed in the middle of each pot with the name attached to it is sufficient, and after being well watered the pots must be taken without any unnecessary delay to the frame or propagating pit, as the case may be. Here careful attention is necessary to produce satisfactory results. A moist atmosphere, with a bottom heat ranging from 75° to 95°, and with only just enough air admitted to prevent any excess of accumulated moisture in the frame, is the sort of treatment which they require, and partial darkness for the first eight or ten days is a necessary condition. In short, the cuttings should be shaded from 9 a.m. to 6 p.m. for the first ten days in order to maintain the requisite degree of moisture about them. Water should be given as often as may be necessary, and on the evening of bright days both cuttings and the sides of the frame should be gently syringed, the object being to keep the foliage from withering. If the leaves can be kept fresh and green for the first fortnight, there need not be much fear of losing the cuttings. With careful management, quite 85 per cent. of them will form roots in a month, and they will also have commenced to make growth, a sure sign that the roots are active, and measures should be taken to carefully harden the growth by admitting more air and reducing the supply of atmospheric moisture. If the progress has been satisfactory from the first, the plants should be ready for shifting into larger pots in six or seven weeks. The advantage of putting each cutting separately in a single pot will then be apparent, as they can be potted onwards without any serious disturbance of the roots. To induce a vigorous growth it is necessary that the plants should have a

RICH HOLDING SOIL. The most suitable for them should consist three parts good fibrous loam and one part rotten hotbed or farmyard manure, with a sprinkling of coarse sand or road grit; all should be well mixed together and passed through a coarse-meshed sieve, but care should be taken that the mixture is not wet when used; if it is, it will be sure to run together in a compact mass, into which the roots will refuse to penetrate; indeed, unless the soil is in a suitable condition as regards dryness, it should be spread out on the floor of an open shed for a few days to allow some of the moisture to escape. These details may appear somewhat tedious, but they are necessary if early and satisfactory results are to be expected.

IN POTTING provide rather liberal drainage and use only clean pots. From the cutting pots shift into a 6-inch size pot, press the soil moderately firm, and give the roots a gentle watering at once. When potted replace the plants in a close pit or frame, and if they can be set on a slight bottom heat so much the better, but this is not absolutely necessary so long as they can have a position where currents of air do not reach them, and where they can be shaded during strong sunshine. For the first fortnight very little air will suffice; after that time they will require much less shade and more air, but they ought not to be fully ex-

posed all the summer if it is desired to get them well established before winter sets in. The shelter of a cold pit or frame is all they require. Under such treatment they will become well rooted and vigorous. They should be allowed to remain in the cold pit all winter or in some other light structure secure from frost, and in spring they will produce a few good flowers before any Roses can be had from the open beds. If required for pot culture, they should be shifted into 8 inch pots as soon as they go out of flower, and then placed in a cold frame for a few weeks to get established before being exposed to the open air. No further shifting into larger pots will be required, *i.e.*, if intended for planting in the open ground; but Rose trees that have been wintered under glass ought not, even in the most favoured localities, be planted out until the middle of May, and in the northern counties the first week in June is quite early enough. J. C. C.

Gloire de Dijon Rose.—This grand old Rose is unquestionably one of the best, if not the very best, that can be grown, either indoors or out. In the latter position it is exceedingly hardy, and almost the first in bloom and the last out; while under glass it is very rare that it is entirely without flowers, and for many months during early spring and summer it comes exceedingly full. We have one in a house now that has a stem as thick as one's arm, from which we can any day cut great numbers of Roses and half-opened buds, all having stout sturdy stems, that keep them erect and show them off to advantage. The plant referred to is budded on a climbing *Devoniensis*, a capital stock for any of the strong rambling sorts, and would, I should think, be the very best stock for *Maréchal Niel*, of which so many complain, owing to the way which it has of cankering or going off at the union between stock and scion. This appears to be brought about by the swelling that occurs there. None of the stocks that I have seen it on yet appear free enough for it. The way in which we manage our *Gloire de Dijon* is, when the first flush of bloom is over, to prune it in, or rather thin it out severely, and when it breaks again, which it quickly does, we lay in the best of the young wood loosely and let it run as long as it will. It is from the buds on these shoots that it flowers the following year, and few, if any, miss showing blooms. As a standard or bush in a bed *Gloire de Dijon* is comparatively useless, but allowed to grow unrestricted on a wall, trellis, or fence, as its nature requires, it will furnish Roses in abundance. To have flowers at different seasons it is a good plan to have plants in various aspects; those on a south aspect are in bloom very early, while others in more shady and cool situations succeed them, and afford blossoms quite unique in colour and laden with the sweetest perfume. Some we cut from a north-east wall last year were superb in both these respects; they were of the richest fawn colour and full of odour, of which *Gloire de Dijon* has as much as any other Rose, and perhaps more.—S. D.

Out-door Hyacinths.—In response to Mr. Cornhill I will shortly state my treatment of these flowers. In November the ground is well worked to the depth of 16 inches; the upper half of the earth is then thrown on one side, and about 4 inches of good compost, generally from an old Melon bed, takes its place; upon this the bulbs are placed, and the ground levelled up with the soil previously removed. The small bulbs are planted in a nursery till they are large enough to go with the others. After flowering the seed vessels are cut off, and I always find it better to take up the bulbs before the leaves are quite withered, lest they should either decay or push prematurely. They are now dried for a few days in the open air, and laid not more than three or four deep in hamper, and thus they remain in any cool, dry place till November comes again. When they have been forced in pots, after flowering they should be plunged into the soil in their pots, and, as Mr. Cornhill suggests, not be allowed to die down till their natural time. These bulbs

will not recover the first year.—T. H. ARCHER-HIND, *South Devon*.

SEASONABLE WORK.

INDOOR PLANTS.

BORONIA ELATIOR.—This is such a profuse-flowering subject and so easily managed, as to make it deserving of general use wherever a greenhouse or conservatory exists. It will last in flower for over two months, and from its graceful habit of growth it is a pretty object even when not in bloom. As soon as the plants have done flowering they should be slightly cut over, shortening the last season's shoots about one-third their length; if this is done the plants will keep for years without getting straggling or too large for ordinary purposes.

HYDRANGEAS.—A sufficient stock of cuttings of these should, if not already put in, be seen to once, using the young shoots, which the spring-flowering plants usually produce freely. If the cuttings are kept moist, close, and in a little heat, they will root in a fortnight. More plants intended to bloom should be pushed along to precede those that have been retarded, giving them plenty of manure water as growth progresses. Quick-growing, gross-feeding plants such as these are only seen in their best condition when liberally supplied with nutriment. Dip them in Tobacco water or fumigate as soon as aphides appear.

LILIES.—As the shoots of these extend, keep the pots well up to the glass; for the summer and autumn-flowering kinds a cold frame in a light position, with the lights off in the daytime, will favour stout, sturdy stems much more than if kept in a plant house. If the stems are at all drawn up quickly the lower leaves will be proportionately thin in texture, rendering it impossible to keep them on until the plants bloom. As the earliest will now be growing freely, supply them regularly with manure water, so as to get them strong, as on this to a great extent depends the quantity of flowers which they produce. It is the nature of some Lilies to form a quantity of roots from the lower joints of the stem above the bulb; means should be taken to preserve and encourage these by adding soil, so as to cover them, or by potting them lower in pots a size larger; these stem-roots may not assist the growth of the bulbs, but they have a marked influence on the flowering.

CHRYSANTHEMUMS.—Late-struck cuttings should at once be placed in 5-inch or 6-inch pots, and treated so as to get them on, stopping the shoots of those that are intended to be grown bush fashion. Do all that is possible to keep them sturdy; if they are at all drawn up in their earliest stages it is useless to expect the lower leaves to stand until blooming time. To this cause quite as much as to inattention in the way of giving with water through the summer is attributable the naked condition these plants get into before flowering.

ACHIMENES, GLOXINIAS, AND GESNERAS.—Achimenes started some time back should not be allowed to make too much growth before they are transferred to the pots or baskets in which they are to bloom. It is well not to overcrowd them; if this is done, their flowering will be comparatively short-lived, and the leaves will be almost certain to have a sickly yellow colour. Few summer-blooming plants are so bright and effective as these when well managed; where it is desirable to have them in bloom over as long a season as possible, they ought to be started into growth in succession, or else a portion should be subjected to less warmth than the rest, but they are heat-requiring subjects, and will not do well if deprived of a sufficiency of warmth during the early stages of their growth. Gloxinias that were started early will now be pushing up their flowers, and need all the light that can be given them so as to keep the foliage stout and give strength and substance to the flowers and the stalks on which they are borne. The flabby, weak, half-prostrate condition in which these plants are often found

destroys the character of both the foliage and flowers. The solid tubed species and varieties of Gesnera, such as *G. Cooperi* and others, are beautiful and most useful summer-flowering plants, not nearly so generally grown now as they deserve to be. They succeed with moderate stove heat, and occupy comparatively little room; and where sufficient quantities of them are grown a succession can be kept up. *G. Cooperi* will flower twice in the course of the season if well treated, the second crop of shoots yielding a head of bloom little inferior to the first. The variegated section is handsome both in leaf and flower, but unless means are taken to keep them free from such pests as mealy bug and thrips, their leaves soon lose their beauty, the means that have to be employed to rid them of the insects destroying their velvety, lustrous appearance.

CAMELIAS AND SPARMANNIA.—Camellias that flowered earliest will now be in active growth, and if at all deficient in vigour through want of root room, soot water should be given once a week; this will speedily show its effects in the increased size and deep colour of the leaves. *Sparmannia africana* is another plant easily grown, and one of the freest of free bloomers. Its white flowers, set off with quantities of singular filaments, have a distinct appearance unlike anything else, and, being produced during a considerable part of the winter and spring, render the plant doubly useful. To secure large specimens of it, cuttings ought to be struck in the usual way in a moderate heat about the beginning of March, and grown on with plenty of room, as required in summer. For such plants 12-inch pots will not be too large in which to bloom, but cuttings put in now will make good flowering examples in 8-inch or 9-inch pots. Ordinary sandy loam will suit them, and they like plenty of light, the foliage standing more sun under glass than that of most things.

FORCED SHRUBS AND BULBS.—As has before been pointed out, the too common practice of allowing shrubs, such as *Andromedas*, *Lilacs*, double-flowering *Plums*, *Ghent Azaleas*, *Laurustinus*, and *Rhododendrons*, after having been forced to remain comparatively uncared for is wasteful. Although such plants usually require a second season to bring them up to the condition they were in previous to forcing, it is well to recollect that in most cases the warmth to which they have been subjected has caused them to make a quantity of young growths in addition to their roots also being set in motion, and unless they are gradually inured to the open air before being turned out of their pots, they suffer so much as to be reduced to all but a state of worthlessness; whereas, if duly cared for, with, after blooming, a year's rest, they will again do good service. The course of treatment they have undergone tends to check all inclination to exuberant growth, in place of which a disposition to flower profusely is secured. If the latest bulbs, such as *Hyacinths*, *Narcissi*, *Tulips*, *Crocuses*, and *Scillas*, which will have bloomed without much forcing, are similarly well cared for by being turned out in the reserve ground and sufficient water given, they may be made useful in different ways, as all but the *Hyacinths* will, after an interval of a year, bloom in the open ground as well as if they had never been subjected to pot culture.

FLOWER GARDEN.

SUB-TROPICAL GARDEN.—The beds may now be edged and raked down ready for planting, but previous to doing this give such beds as are to be filled with plants that require abundance of manure a good scattering of guano or other fertiliser, which will thus get covered with soil at once. A commencement may then be made to plant out the hardier kinds, such as ornamental shrubs, Australian *Dracenas*, *Eucalypti*, *Hemp*s, *Funkias*, *Fish-bone Thistles* and also the hardier edging and groundwork plants, such as *Cerastiums*, *Ajugas*, *Sedums*, *Veronicas*, and *Harrison's Musk*; the last is a fine groundwork plant for large growing dark-leaved plants in the way of *Gibson's Ricinus*

and *Canna Van Houttei*, and the partial shade which these afford seem to be just what is needed to keep the Musk in continuous flower from early in summer until late in autumn. The tender section of plants will still need attention indoors; it will not be safe to plant them out till quite the end of the month, and some of them not till June. They should not be allowed to get root-bound, but be grown on freely, being given plenty of space and air. A single plant well grown affords more real satisfaction, and does as good service when planted out as do a dozen that have been huddled together in heat. Tobacco, Chilian Beet, Loves-ly-bleeding, and Perilla do best when planted in a very young state; they will now be ready to prick out into boxes, which when filled place in frames, and keep them rather close till the roots have begun to work in the new soil, then give air freely, and plant out in the last week in this month.

MIXED BORDERS.—These must now be furnished for the summer. Asters, Stocks, Marigolds, Larkspurs, Zinnias, and indeed all kinds of annuals may be utilised for filling up vacancies. They should be planted in clumps containing five or seven plants each, taking pains to have the taller growers at the back part of the border; not that uniformity of height in such a border is desirable—far otherwise, but simply that the arrangements may not look too lop-sided, owing to the tallest plants being too much in juxtaposition with the shortest. The common kinds of plants may still be sown for late flowering, viz., *Delphiniums*, *Pyrethrums*, and *Dielytras*. Tall *Veronicas* will now need tying up, in doing which endeavour to avoid a bunched-up, broom-like appearance. On the contrary, tie them as loosely as is compatible with their freedom from injury by wind or heavy rains. If continued gaiety of the borders be desired, and time can be devoted to the matter, many of the earliest kinds of spring flowers, such as *Primroses*, *Daisies*, and *Arabis*, that have now done flowering, may be taken up and planted in the reserve garden, and their places filled with any of the annuals mentioned above, or with ordinary kinds of bedding plants, such as *Pelargoniums*, *Calceolarias*, *Petunias*, and *Verbenas*; single and double *Dahlias*, *Hollyhocks*, *Marvel of Peru*, and any spare *Cannas* and *Castor-oils* that there may be will look well at the back part of the borders.

GENERAL WORK.—Weeding and, after rain, rolling walks and mowing with the scythe for the first time lawns formed last season. These will now need attention. Get vacant beds in readiness for the reception of bedding plants. Transplant spring flowers and bulbs to the reserve garden, and at the same time increase the stock of desirable kinds by division and offsets. Clear *Roses* of greenfly by syringing the plants with soap-suds, and in bad cases with Tobacco water. Tie up climbing *Roses*, and direct the growth of recently-planted climbers, such as *Ivy*, &c., by tacking in the principal shoots.

ORCHIDS.

EAST INDIA HOUSE.—Sufficient instructions have lately been given as to shading this house and the best positions for the different sections of Orchids. It may, however, be well to again allude to the *Angræcums*. They require a warm, shady position, and a constant watch must be kept for thrips; they get into the axils of the leaves, and are often not seen until traces of their work are observed on the leaves. It is a good plan to have a small vessel filled with diluted Tobacco water placed in the house, and a small camel's-hair brush at hand with which to apply it to the leaves whenever traces of the insect are to be seen. If it is possible to fumigate the house, that may be done on successive evenings; it will kill both thrips and aphides. In our case there are plants in the house that will not stand Tobacco smoke strong enough to kill thrips, and therefore we must be content to dip or wash them. Plants of *Odontoglossum Roezli* in this house have been much infested with thrips. They ought now to be clean, for the flowers just opening will be injured

by dipping; even flower-buds are injured by the operation, and do not open well. We also grow our *Calanthes* in this house, although one 5° lower would probably be better. The evergreen section, such as *C. veratrifolia*, *Masuca*, and *Dominii*, were surface dressed with good loam and rotten manure nearly two months ago, and thick, healthy white roots are now running up into the loam. If not already surface dressed, that operation may yet be performed, and as the flower-spikes are well advanced (indeed, in some cases the flowers are open), it is necessary to watch them in order to destroy any of the yellow aphids, which sadly mars the beauty of the pure white blossoms. We remove the pest with a camel's-hair brush, but it ought to be destroyed by dipping in some solution before the spikes are seen above the foliage. The temperature of this house should not fall below 65° at night, and often it will be 70° at 10 p.m., falling perhaps a few degrees before morning.

CATTLEYA HOUSE.—Some grow *Cattleyas* with scarcely any shade at all; but we are still of opinion that the safest way in which to grow Orchids of any kind is to shade them from the sun, but we would let them have as much light as possible. *Cattleyas*, such as *C. Mossiæ*, *Warneri*, *Mendelli*, &c., are pushing rapidly into bloom, and ought to be in a light position near the glass, so that when the flowers open they may be good in substance and colour. The only way by which *C. gigas* may be flowered satisfactorily is to suspend it near the glass in baskets. Large specimens ought to be raised in pots, so that the tops of the leaves may not be more than a foot from the glass. *Odontoglossum Phalaenopsis* should now be in flower. This is a very desirable species, and one which lasts long in perfection, but it seldom does well unless suspended near the glass. It requires to be dipped frequently in weak Tobacco liquor to destroy red spider, which attacks it, and often does much mischief before it is observed. The *Anguloas* are now coming fast into flower, and as roots are being formed at the same time, they also require considerable supplies of water. See that no yellow aphides are lurking in the wrinkles of the leaves. As large importations have recently been made of *Dendrobium Wardianum* and *crassinode*, those who have plants requiring to be potted should use small shallow pans. They are light and can easily be suspended from the roof; as soon as roots are emitted from the base of the new growths, watch for slugs and give water freely.

COOL HOUSE.—With hardly any artificial heat the thermometer seldom falls in this house below 55° at night, unless perhaps an hour or two before daybreak, when the thermometer is low outside; under these circumstances it is desirable to remove any cool house plants that have been wintered in the *Cattleya* house to their summer quarters in the cool house. Such *Masdevallias* as *M. tovarensis* and all those of the *Chimæroid* section, also *M. Wageri*, &c., would now do better in the cool house. Indeed, our plants of *M. tovarensis* were removed long ago, as we found, by trying half of them in the cool house and the other half in the *Cattleya* house, that they did best where they were coolest. It may be, if the winter was more severe, that they would succeed best in warmer quarters. Numbers of plants of the *M. Chimæra* section of *Masdevallias* have been recently imported, and all of them, except the true *Chimæra*, which produces its flowers from an upright stem, should be potted in baskets, the flowers being produced from the base of the plants, the flower-stems having a downward tendency. They like a position near the glass, but require a moist atmosphere, and, like the rest of the *Masdevallias*, plenty of water at the roots. The cool house is now gay with flowers of *Odontoglossums*, and the earliest-flowering *Masdevallias*, such as *M. Veitchi* and *M. Chelsoni*, are in flower, and form a striking contrast to the wealth of white, blush, and variously spotted forms of *Odontoglossum cirrhosum*, *Pescatorei*, and *Alexandre*. While there are so many plants in flower we are anxious to keep them in good

condition as long as we can, and are careful not to sprinkle too much water about at night. The flowers do not damp off so much when there is a little heat in the hot-water pipes as they do when these are quite cool. A circulation of air night and day promotes the health of the plants and tends to the better preservation of the flowers.

FRUIT.

CHERRIES AND PLUMS.—Examine the trees and fumigate if necessary before the fruit changes colour. Green fly may easily be eradicated, but the black and brown aphids often give a great deal of trouble, and it is not always convenient to cut off and burn the points of the shoots; but if taken in time, regular dipping in tobacco water will soon clear the trees. As the ripening period approaches, see that the roots are in nice condition and properly mulched to keep in moisture. Go over the trees and stop all superfluous shoots at the fourth leaf, tie in leaders, discontinue syringing, and protect from birds by hanging fishing nets over the ventilators. If trees in pots are too thickly set they may now be thinned. Feed well and mulch to keep the surface moisture in the pots and to prevent the constant use of water. Syringe Plums twice a day with soft water until the fruit begins to ripen, thin well when stoned, and feed with liquid at every watering. Plums will stand more heat than is good for Cherries, but nothing is gained by its application. Fumigate for fly. Keep the trees pinched and tied in, and see that *Golden Drop* and other late kinds intended to hang are not distressed by overcropping.

MELONS.—Where the pot system is followed the first batch of plants will soon be ripening off their crop of fruit, and, time being an object, see that another set is thoroughly established in fruiting pots ready to take their place. Although cleansing after the first crop is not absolutely necessary, cleanliness is an important item in good culture, and always pays for the small outlay in quicklime and sulphur. When the fruit in succession houses has attained the size of ducks' eggs select the fittest for swelling away evenly together, cut off duplicates and all lateral growths, top-dress with heavy loam, bone dust, and dry cow manure, and feed liberally. Avoid wetting the foliage at the morning syringing, but damp all paths, walls, and surfaces; ventilate freely until noon, and syringe overhead after closing for the day. Pay particular attention to plants in pits and frames, and carefully avoid producing a check by stopping or cutting during the time the fruit is setting. Fertilise all female blossoms, and at the same time draw them up above the foliage to the influence of solar heat and light. When a good set has been secured, pinch two joints beyond the fruit, elevate those intended for the crop on inverted flower-pots, and trim away all surplus growths. If the bed of soil has been made between two planks placed 2 feet apart, the advantage of the plan will now be discovered in the facilities offered for top-dressing, ramming, and feeding. Melons in pits and frames should never be shaded, neither should the soil at the outset be enriched with manure, but food of the richest quality may be given to them during the time they are swelling their fruit.

HARDY FRUIT.—Seldom perhaps have fruit trees of all kinds broken away in a more satisfactory way than they have done this spring; but Plums and early Pears on pyramids and bushes have been much injured. Currants, too, have suffered, but Gooseberries, where protected by their leaves, seem to have escaped, and trees on walls are mostly safe. Disbudding will soon require attention, but, considering that we are not long out of April, the little-and-often system of taking off a few shoots at a time should be strictly adhered to; and although the trees may be the better for having the covering removed, it should be kept within easy reach, and temporary copings should remain on the walls for some time longer. Give regular attention to the thinning of Apricots, which are a tolerably good crop, and wage incessant war with the active grubs, which soon do serious

mischief, particularly where the trees are heavily cropped and there is a dearth of foliage. Wash the trees well with clean water when days are mild and cloudy. Mulch the borders with good rotten manure and old lime rubble, as calcareous matter will be in great demand at stoning time, and water copiously to insure its reaching every part of the soil in which the roots are embedded. Take the foreright growths off Peaches, also the small fruit from the shoots. Wash well with clean water, and always have the usual insecticide ready for application to parts affected on the first appearance of green fly. Examine the borders and see that the recently root-pruned or old trees do not suffer from the want of good mulching and feeding. The usual mode of training a Peach tree against a south wall or within a few inches of a glass roof, so as to expose every leaf to the sun, is a most trying position, and unless a liberal supply of water is given to the roots and foliage, insect life will soon be abundant, and heavily cropped trees will ripen their fruit prematurely if they do not cast it when stoning. Look over Cherries and Plums on walls, destroy the grub by pinching the points of the shoots, and dip or syringe with Tobacco water on the first appearance of black or brown fly. The latter soon paralyses the young growths, and the grub makes very short work of a crop of Cherries; hence the importance of thoroughly cleansing the trees and walls when the trees are unnailed in winter. Maiden Strawberry plants from which the current year's supply of runners is to be obtained may be divested of their flowers, well mulched and watered if necessary, and autumn-planted beds may be made very firm by treading when the ground is dry. If fresh stable litter is plentiful and at hand all the fruiting beds will be the better for a good covering after rain and before the flowers and foliage get too forward. In due time the rain will carry the ammonia down to the roots; sun and wind will bleach the litter and render it equal to new wheaten straw long before the fruit is ripe.

CUCUMBERS.—When the Cucumber house is divided into several compartments, sections in which the plants have been longest in bearing should be cleared in regular succession to make room for young plants which come into bearing in a very short time, and the necessity for constant fire-heat having ceased, a clean, healthy growth will be secured throughout the summer. It will be necessary to clear away all old soil and plunging material prior to scalding, cleansing, and washing with quicklime, otherwise the usual pests—spider, woodlice, and worms—will soon re-establish themselves. Make the hills or ridges for summer use as far as possible from the top-heat pipes, and endeavour to secure a steady, lasting bottom-heat from fermenting materials in preference to having constant recourse to firing, for much as the Cucumber can and does often yield good crops for a time under high pressure, all practical growers are agreed that a top-heat ranging from 70° to 85°, with air when draughts can be avoided, and a bottom-heat of from 80° to 90° will keep them vigorous and fruitful as long as daily details are properly attended to. If old plants cannot be dispensed with, cut them over and ply the syringe well, using water at the temperature of the house at the time of closing. Shade for a few days, and let the heat on fine afternoons run up to 90° to economise night firing. Avoid the use of solid manure for the roots, but feed well with tepid liquid and earth with rough fibry loam, from which the fine particles have been separated, and a liberal mixture of old lime rubble, which will absorb and give off moisture when most needed by the foliage. Spring-sown plants in pits and frames will now be in bearing and in some danger of being over-cropped. Dress over as often as the weather will permit, peg out the young Vines, and carefully guard against getting the foliage too gross by constant stewing in a vapour atmosphere, but keep it stout and healthy by giving a little back or front air, according to the direction of the wind, on fine mornings. Shut up about 3 p.m. with a flush of sunheat and moisture, and let it gradually

descend to 70° for the night. If all the heat is obtained from fermenting materials, renovate back and front linings alternately. Cover well with dry mats, and provide for the escape of noxious gases by giving a chink of air after covering up for the night.

MARKET FRUIT GARDEN.

WHERE the ground has been roughly dug during winter, as is the custom in Kent, many strong rooting weeds will now be pushing up strongly, even though they have been buried for months. Coltsfoot, Docks, Couch Grass, &c., will find their way to the surface if only buried one spit deep, and experience proves that in stiff soil, unless spring and summer cultivation are strictly carried out, the land soon gets into a foul condition, as in autumn, owing to the press of work connected with harvesting the fruit, the weeds generally make rapid headway, more especially if the season be wet. At the winter cultivation it is therefore difficult to clean the ground properly. It is dug as roughly then as possible, so that the frost may act on the lumps of soil and pulverise them. Now, therefore, is the time when workmen, armed with stout three-pronged hoes like little forks set on a handle like a rake, proceed to pull over the lumps just named, and work them down to a fine tilth, bringing as the work proceeds the large weeds to the surface, when in their blanched state they quickly wither up. When quite dry they are collected and put in heaps to burn; this thorough stirring destroys all the seedling surface weeds and renders the work of destroying succeeding crops a light matter, as with a well pulverised surface hoeing with draw hoes is performed at a trifling cost per acre, and when the bushes or trees are wide enough apart, the horse hoe and harrow are used instead of manual labour.

GOOSEBERRY CATERPILLAR.—A sharp look out must now be kept for Gooseberry caterpillars, for if allowed to get established, they not only spoil the crop, but the bushes as well. In this locality acres of bushes divested of foliage last year are looking very weakly and are bearing very light crops, while those carefully cleared of caterpillars are heavily cropped. There are many remedies for this pest and many ways of applying them, but the general plan is to dust powdered hellebore on the bushes when the first signs of caterpillar appear. The hellebore kills all it touches, and if followed up a few times, will usually keep the bushes quite clean. Tin canisters with holes made in them, like flour-dredgers, are employed for dusting the trees, and as the caterpillars usually start from the centre, and clear the leaves off the tips of the shoots, it is necessary to lift up the outer branches and carefully inspect the centre of the bushes, for they multiply so rapidly, that if allowed to remain many days undisturbed, their destruction is almost hopeless.

GRAFTED TREES.—All kinds of grafted trees will now need frequent inspection, as the occasional showers we are now experiencing will loosen the clay coverings, and if not replaced quickly, the drying intervals between the showers act most injuriously on the graft, and that, too, at the most critical stage of its existence. Any coverings that have given way must therefore be replaced at once, and those that are cracked must have some fresh clay worked into the fissures, as the more thoroughly air is excluded, the more certain will be the success of the grafts.

RECENTLY PLANTED TREES must be kept firmly staked and tied to prevent wind-waving, for as the leaf gets heavy, the strain will be even greater than it now is. See that they do not get chafed; put plenty of soft material round the stems before tying, as unless the top is kept steady, the young freshly formed rootlets get broken, and the tree thereby considerably checked. Look to top-dressings; see that they are not only ample, but also frequently stirred. In the case of old orchards on Grass, this is a good time to remove Nettles, by forking them up by the root, also Docks, Thistles, and other coarse-growing weeds.

Keep an extra supply of sheep grazing under the trees now, as in addition to the abundance of Grass there is usually green garden crops that can be spread in orchards to supplement their food. All kinds of the Brassica tribe, such as Cabbage stalks, winter greens, &c., when running to seed are far better put into the orchard for the sheep than on the rubbish heap, as the little they leave of the hard stalks can be raked up and burned when dry. The season for gathering fruits will soon set in. About here vast quantities of Gooseberries are picked green, and those who get them forward enough for the Whitsuntide market usually get a high price for them. See to the stock of baskets, packing paper, labels, sticks, &c., so that when required, no delays may arise. Many of these can be prepared on wet days when outdoor labour is at a standstill, and the profits of fruit growing demand that economy of time as well as of other resources be practised if the cultivator would live by his labour.

KITCHEN GARDEN.

HERBS.—Sweet Basil should be sown in a frame under glass, and for a very early supply in pots in heat. When fully grown and just showing flower it should be dried, powdered, and kept in bottles corked up tightly; in fact, all herbs retain their flavour when kept in this manner. Mint should now be planted, both the Spearmint and Peppermint. The usual system pursued is to lay in three roots in a shallow drill, but the better plan is to take cuttings of them, *i.e.*, the shoots that come away from the old roots with a small piece of white stem, and which are sure to grow if bedded in nice light land. Concerning Sage, the old proverb, "Plant Sage in May, it is sure to pay," is literally true; slip the side shoots from the parted plant, and plant them with a dibber. This herb makes a good edging plant where trim Box edging cannot be had. Borage needs but little attention; where once grown scores of seedlings make their appearance, and supply all our wants gratis. Perhaps the most useful of all herbs is the knotted Marjoram; this should be sown under glass, and planted out in small tufts the latter end of May. Tarragon is a useful herb, but in many places does not do well. Here it grows fine and strong. We part the old plants yearly, and replant them in a different place, giving them a few barrow-loads of burnt refuse. Such herbs as Savory, Thyme, Marigold, and all the more common varieties do well sown outside the second week in May. Lavender we strike from cuttings under hand-lights, and also Rosemary; both are very useful. Lastly, our good friend Parsley must not on any account be neglected.

TOMATO plants ought now be 1 ft. high, and should worthily occupy 6-in. pots by say the 15th of May. They will be showing flower, and when planted by the side of south walls, will begin fruiting at once. President Grant Tomatoes and similar monstrosities are not what is wanted, either for exhibition or private use. Tomatoes should not be large: on the contrary, about six to a pound is about the right size. Speaking of Tomatoes, we may add that the green fruits gathered in autumn, and laid on shelves under the glass to ripen, certainly become red, but as regards flavour it can only be compared with that of box fruit from our neighbours across the Channel. English Tomatoes fetch from 2s. to 2s. 6d. per lb., while French ones only realise from 1s. to 1s. 6d. Hoe between all growing crops whenever the weather is suitable. Plant double rows of Lettuces on the top of Celery ridges. Keep a sufficient quantity tied up in the winter quarters to meet all demands. Sow successional crops of Turnips, Lettuces, Radishes, Mustard and Cress, &c. Now is a good time to thoroughly clean walks, cut Box edgings, and finish by putting a little gravel on the walks, so that all may be smart and trim for the summer.

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KITCHEN GARDEN.

HARICOT BEAN CULTURE AND COOKERY.

MRS. RAMSBOTHAM, as quoted by *Punch*, says that "hashed mutton and varicose Beans when in season is an excellent dish," and in my opinion she is quite correct in her estimate of the dish, although, as usual, incorrect in her orthography. It is surprising how few there are who appreciate or cultivate Haricot Beans. They are grown extensively in some gardens, but why in so few, or in such limited quantities, I fail to understand. I find them exceedingly serviceable, especially in times of comparative scarcity, for supplying a large amount of wholesome and nutritious food. It may be the taste for them has to be acquired, but with the assistance of a good cook this should prove no difficult matter. It is my privilege to have to supply a really good chef, and if we failed with Haricot Beans, he would not be well pleased; in fact, should I fail to grow a sufficiency, I should at once buy as many as were required. Last season was one of the worst on record for the proper ripening of the seed, but fortunately I did not rely exclusively upon one variety, and was able to meet the demand. I find any white-seeded kidney or runner Bean will answer the purpose, and accordingly sow long rows each of White Dutch and the smaller seeded Running Haricot, and in addition a large breadth of Carter's Longsword. The two former are treated exactly the same as Scarlet Runners as detailed in *THE GARDEN* (p. 407), but shorter stakes suffice for the Running Haricot. We generally thin out the pods of the White Dutch for the kitchen; these in all but the flowers and seed resemble ordinary Scarlet Runners, and are extensively grown in some districts in common with them. Care, however, is taken not to do more than thin out the pods, as it is of the greatest importance that the crop be secured as early in the season as possible in order to ripen the seed before frosts intervene.

THE ONLY VARIETY that ripened properly last season was Carter's Longsword. This is a very prolific white-seeded dwarf kidney Bean, and serviceable for gathering when in a green state in common with other kidney Beans; or if the whole of the pods are saved and the seed ripened it is still more profitable. Even these did not ripen the seed in the open last season; on the contrary, the plants had to be pulled up early in October, bunched, and hung up in a dry shed where a fire was burning the greater part of each day. Here they ripened off the seed fairly well; at any rate, it was fit for cooking. The seed of this variety is usually sown during the first week in May on a warm, sheltered border. The rows should be 2 feet apart, the plants eventually thinned to about 6 inches apart. They are lightly moulded up after rain and staked; otherwise they are apt to break down, in which state the seed ripens imperfectly.

COOKING.—Haricot Beans need not necessarily be dried; in fact, they are preferred here when gathered for immediate use while yet the pods are green. They may be prepared in the following manner: Half fill a stew-pan with water, and when this is boiling throw in the Beans, adding a pat of butter and a small quantity of salt. They should boil till quite soft, when they should be drained in a colander. Next let them be put into a stew-pan, adding 3 ounces of fresh butter, a little pepper and salt, chopped Parsley, and Lemon juice. Let the whole be tossed together until thoroughly mixed, and when dished up surrounded with "croutons," that is, thin pieces of bread cut into various shapes and fried in clarified butter. The foregoing relates to fresh seed, but when it is dried it is necessary to steep it in cold water for five or six hours previous to its being prepared for the table; and, in addition, it should be put on in cold water to boil. **GROWER AND EXHIBITOR.**

Chou de Burghley.—"H. P. J." may depend on this Cabbage Broccoli for both hardness and good quality. It is one of the very best vegetables of its kind he can grow. —J. S. W.

POTATO SETS.

THOUGH now late in the season, yet "J. S. W." has opened an interesting topic, and one well worthy of discussion. I do not disagree with the late Mr. Robert Thompson's observations as quoted by "J. S. W.," because it is true that large tubers, being of larger build and containing larger reservoirs of sap as a rule do push the largest shoots; indeed, there can hardly be two opinions as to this fact. Still, it is qualified so far by the habits of various kinds, as, for instance, one sort will, on a given surface, produce only say three or four shoots, whilst another will furnish twenty. Thus we know that in most of our best English kidneys it is the rule, let the tuber be ever so large, to yield but one, two, or three very strong shoots at the bud end, because the bud eyes are nearly all at that end. On the other hand, in the American Rose and its allies bud eyes are all over the surface of the tubers, and everyone will start at the same time, so that whilst all the strength of the tuber in the one case goes to the building up of two or three shoots, in the other case it goes to build up twenty. If again two-thirds of the buds of the Rose tubers were taken out, it is doubtful whether those which remained would be much stronger in consequence, because each bud has its sap channel in that case, whilst in the kind that has its buds at one end only, the sap channels are few and large, and all converge from one end to the other. Round Potatoes are in many cases most active in breaking at every eye, whilst others will start one, and that the prominent bud eye only, all the rest for a time being dormant. Break off the first shoot, however, and all the rest will push up. Here lies the chief evil which results from the foolish practice of so storing seed tubers that the sprouts have to be removed not only once, but sometimes twice before planting time comes.

Now, whatsoever may be said in favour of small sets, it has long been most fully demonstrated that crops are greater or lesser just as sets are large or small, provided the soil be of equal quality. On the other hand—and no doubt this is the point which "J. S. W." is aiming at—the real question is, what size of set—all other things being equal—will give the most profitable results with the least waste? for it is waste to plant sets big enough for consumption if smaller ones will do as well. In saying this, exception must of course be made in favour of big tubers cut into several sets, but, as a rule, that is not a good plan to adopt. Where, however, compelled by circumstances to plant large sets—and I can get two, three, or even four good eye-buds or shoots—I never hesitate to cut, as I am sure such is, as I have shown, the distribution of the sap channels in the tuber that each set will get its proportion of sap to build it up. But after all the great thing with the shoots on sets, large or small, is that they shall find when planted not only early nutriment, but in such a form as shall force a rapid and robust growth. It is an old story to say that Potato shoots, as long as the sets are kept stored dry and in light, have no inherent power to push beyond an inch or so in length; that fact shows how much the power of the set to make growth is limited until it comes into contact with either moisture or soil. New roots already in embryo are pushed at once, and the moment these feel soil and manure the development is wonderful. If small sets have an ample supply of stimulant at hand the growth will often prove as strong as is produced by bigger tubers if in poorer soil. It will thus be seen that stimulating the rootlets at the critical moment of first development seems to be almost of greater importance than is the size of the respective sets. Growers of Potatoes for exhibition secure as fine crops as can be grown, and they do not plant big sets, but those of medium size, carrying one or two shoots, all the rest having been removed. The object is to secure tubers of even size, not so many perhaps as would be the case if all the eyes were left, but giving as much weight and perhaps more because the whole of the tubers are larger. It used to be recommended, to secure the same result, to remove all the weaker

shoots when well through the ground, leaving only two or three of the strongest; but that was not a desirable way to secure the desired end. By thus thinning the shoots few or no small tubers result, and the smallest are really fine seed, whilst the largest are either first-rate for exhibition or for table. In measuring the produce of a given extent of Potato plants it is as important to know the proportion of table tubers as it is to know the entire bulk, as if a considerable portion be small the value of the crop is very much lessened.—A. D.

—No doubt there is a good deal of truth in "J. S. W.'s" opinion in your issue of April 28, that the crop of Potatoes from whole small seed will be equal in size and weight to large seed cut, but another most important consideration is, will they keep up as healthy a strain? Long observation has convinced me that to resist disease and to keep up a first-class strain the very largest tubers should be planted, either cut in two or planted whole and far apart.—Q. Q.

MARKET GARDEN NOTES.

WHITE LILAC.—For some years past a friend of mine has forced this with considerable success in cellars, getting the plants into bloom about Christmas, at which time white flowers of all kinds are much sought after. As soon as the foliage drops, good strong bushes with well developed buds are taken up carefully and are laid in moist earth, and a constant temperature of about 60° is maintained. The flowers realise about six shillings per dozen, a price which ought to be a paying one, seeing that growing them under the conditions necessary to ensure the requisite purity does not demand the outlay for firing, nor indeed the labour which would be needful to maintain the same heat under a glass roof. It is easy to perceive that where no air or light is admitted the cost of flower forcing is comparatively a cheap and easy matter, and it is probable that cellars, caves, or sheds which may be available could scarcely be more profitably employed than for the production of white Lilac. When my friend first conceived the notion of turning the cellars of his dwelling into a forcing house, he fitted up a heating apparatus in them, the same consisting of a small hot-water boiler, with pipes attached, which thoroughly warmed the place with but little trouble and expense. All went well until the flowers were in just the right condition for market, when an escape of sulphurous fumes from the boiler completely ruined them. Profiting by this severe lesson, my friend removed his boiler to the outside of the building, and now forces his Lilac with ease and entire absence from danger. One thing especially the grower of white Lilac has to guard against, and that is too high a temperature, especially when the buds are bursting. I once received a lesson in the matter which I have never forgotten. Wishing to get some flowers in by Christmas, and having no heated shed or suitable convenience, I constructed a hut of mats under the stage in the stove, and put the same large well-budded bushes therein. Had I fitted up the coolest end of the house, I should have got on all right; but, forgetting the old proverb of "more haste less speed," I made my arrangements at the hottest portion of it near the boiler. The result was very disappointing, as through having to fire hard during a period of severe weather, the shoots made a rapid growth, the greater portion of them showing no bloom at all. With a temperature of 55° to begin with, running up some 10° later on, I should have obtained some good spikes of bloom.

ARUM LILIES.—Formerly the season for these scarcely commenced before Christmas, and it was only at that time and at Easter that the flowers could be said to command remunerative prices. Within the last few years this flower has increased wonderfully in popularity, and not only is this the case, but it is "asked for" now at a period when in times past it would have been but a drug in the market. This is, I believe, in a great measure due to the now almost universal custom of holding harvest festival services in our churches, as well as to the extensive and lavish use of flowers therein

throughout the year, white flowers, of which the Calla is queen, being in especial demand. Last autumn a grower of my acquaintance obtained 6s. per dozen for flowers of medium excellence; had they been quite up to market form, they would have brought him at least one-third more. This is not so much as they realise later on, but probably is quite as remunerative as the higher prices obtained by means of constant firing during the coldest months of the year. Moreover, getting in of a crop of bloom so early allows the bringing of successional batches along for Christmas and later, so that the glass may be made to earn more than it otherwise could. Some kind of special culture is needed to induce the Calla to bloom with certainty in autumn, and this, I am told, consists principally in selecting plants which have not bloomed or the strongest offsets early in the year, and growing them along as freely and strongly as possible through the summer, getting them under cover at an early date, and firing as soon as the nights get cool.

PELARGONIUM DUCHESS OF EDINBURGH.—It is really wonderful the quantity of bloom that good plants of this decorative variety yield. For a period of six weeks the same plants continue to throw up good trusses, and as the flowers are pure white, with a blotch on the upper petals, they sell well in Covent Garden. A friend of mine has been cutting from well-established plants in 6-inch pots for some weeks past, and there are yet many flowers to expand. The habit, too, of this Pelargonium is so good as to form a model of what a market variety should be in this respect. A gentle warmth of about 55° brings it into bloom about the middle of March, but it is an excellent forcing kind and may be got in in fine condition at a much earlier date. If the plants are to be grown for cutting only I would advise that two-year-old ones be employed, as in proportion to their size they seem to produce a larger amount of flowers than younger ones. J. C. B.

JAPANESE PEPPERMINT.

IN more than one periodical the botanical name of this plant has been given as *Mentha arvensis* var. *purpurascens*. It will be well, therefore, to point out that this is an error before the statement is further copied and the mistake perpetuated. The plant has green foliage, with not a trace of purple, and less deserves the name *purpurascens* than the true Peppermint (*Mentha piperita*), of which a purplish-leaved form is well known. The mistake probably arose in the first place in a printer's error. The history is as follows: For some years past a large quantity of a substance called menthol has been imported into this country, and extensively used as a topical application for the relief of neuralgia, and in some instances as an antiseptic. This substance in appearance closely resembles Epsom salts, and consists of crystals deposited in the oil of peppermint distilled from the Japanese Peppermint plant. This oil when separated from the crystals, is now largely used to flavour cheap peppermint lozenges, being less expensive than the English oil. The crystals deposit naturally in the oil upon keeping, but the Japanese extract the whole of it by submitting the oil several times in succession to a low temperature, when all the menthol crystallises out from the oil and falls to the bottom of the vessel. The source of the Japanese peppermint oil has been stated to be *Mentha arvensis* var. *javanica*. On examining several specimens of this plant in our national herbaria I found that the leaves tasted like those of the common garden Mint (*Mentha vioidis*), and not at all like Peppermint, and that therefore the oil and menthol could not possibly be derived from this plant.

I then asked my friend Mr. T. Christy, who takes great interest in medicinal plants, to endeavour to get specimens from Japan of the plant yielding the oil. After many vain attempts he at last succeeded in obtaining live plants. These were cultivated in his garden at Malvern House, Sydenham, and when they flowered I examined the plant and found that it differed from

other forms of *M. arvensis* in the taste, in the acuminate segments of the calyx of the flower, and in the longer leaf-stalks; the leaves also taper more towards the base. Dr. Franchet, the greatest living authority on Japanese plants, to whom I sent specimens, confirmed my opinion as to the variety deserving a special name, and M. Malinvaud, a well-known authority on Mints, suggested the name *piperascens*, which I adopted, calling the plant *Mentha arvensis* var. *piperascens*. Specimens of the plant kindly lent by Mr. Christy for the purpose were exhibited by me at an evening meeting of the Linnean Society, and by a printer's error in the report of the remarks then made the name of the plant appeared in print as *Mentha arvensis* var. *purpurascens*. I trust that the present note, through the medium of THE GARDEN, will prevent the perpetuation of this error. This is the more important, as I hope that the plant will come into cultivation in this country. It is a robust plant of rapid growth, as easily cultivated as the English Peppermint, and seems to require less moisture, and is therefore capable of cultivation in a great variety of localities. The increasing demand for menthol, which can only be procured in small quantities from the English Peppermint, and the high price of English peppermint oil, lead to the hope that instead of importing menthol from Japan, it will be prepared in this country from the Japanese plant. With the appliances of more advanced civilisation, it ought to be possible for the oil and menthol to be made in this country at a less price than the Japanese products now cost.

At the present time large quantities of cheap peppermint oil are imported into this country from the United States, and Chinese oil is imported into Bombay for use in the Government medical stores. There is no reason why this should be the case if the Japanese plant were cultivated in this country. In Ireland, where labour is cheap and the climate moist, this crop might afford a valuable source of income to enterprising cultivators. It may be interesting to note here that the plant used in China closely resembles the Japanese one, differing chiefly in the narrower and more glabrous leaves. I have therefore named it *Mentha arvensis* f. *glabrata* from specimens sent to me from Hong-Kong by Mr. C. Ford, the director of the Botanic Gardens there. E. M. HOLMES.

FRUIT GARDEN.

EXTENSION VINE BORDERS.

THE conclusion to which "J. C. C." (p. 375) comes in advising an all but unlimited space for the roots of Vines to extend in is not likely to be accepted by those who have had much experience in Vine culture. The roots of Vines, like those of other free-growing plants that naturally take a horizontal direction, have a constant disposition to extend and frequently travel much further than is supposed; they do this regardless of whether the soil is suitable for them or not, and often where such is within their reach go deep down into bad material such as prevents their bearing as they ought to do. "J. C. C." admits that a few large roots may find their way into undesirable quarters; where this happens, if examined it will often be found that all except a few that can exert little influence on the well-being of the Vines have got astray. In exceptional localities where the soil, both surface and underneath, is naturally suited to Vines, an unlimited root-run may be an advantage where it can be given without the roots getting where they will be interfered with. In my neighbourhood the soil is strong and heavy, yet so full of flints, that when turned up it looks as if a coat of gravel had been spread on it, and in most places the deeper one goes for several yards the more flints there are in it; so well do Vines like it, that they keep in good condition after their roots have gone very deep down, as well as far beyond the limits of the widest Vine border. But for one locality where this can be permitted with impunity there are two or three

where it would be fatal to anything better than middling crops of third-rate fruit.

DEEP NARROW BORDERS are not likely to find many advocates at the present day, although under exceptional circumstances narrow ones are sometimes a necessity, and the crops that in skilful hands for many years that can be got out of them is surprising. Of all plants in cultivation Vines are the last that any hard and fast line should be laid down for as regards the extent of the root room to be given them. Where there is nothing in the natural soil inimical to the roots it is a mistake to confine them to a narrow border; but even where the soil is thus suitable it is also a mistake to let them run at will over a kitchen garden, for they will not stop at the 60 feet or 70 feet which "J. C. C." names. Where good gardening is carried out deep trenching is a practice not to be lost sight of, and where this is to be done how are the Vine roots to fare? In most cases where the roots have extended 60 feet or 70 feet away, if the ground is examined it will be found that there is scarcely a feeding fibre for half the distance next the stems of the Vines, all the roots sustaining them being in the outer part of the space. In far the greater number of places much better results are attainable with

A FAIRLY MADE BORDER than with the roots in the ordinary soil. A very common mistake in Grape growing is to look upon making a Vine border as an event in a lifetime, once done, seldom afterwards to be touched. There seems often to be a horror of interfering ever so little with the roots, as if there need be any loss of time or expenditure in material, or labour of a serious character entailed. The fallacy of this is shown by the fact that the most successful growers, both as to quality and quantity, are to be found amongst those who are continually from time to time at short intervals renewing a little of the soil, lifting a few of the roots, and encouraging plenty of feeders within a reasonable distance of home. This course, I venture to say, will in most localities give better crops, and enable the Vines to continue fruitful better than making unreasonably big borders or letting the roots run where they like, which latter, as I have stated, may do in the comparatively few places where the natural soil and other circumstances are alike favourable, but in most places such treatment is the reverse of calculated to obtain the best results. T. B.

SPRING AND SUMMER MANAGEMENT OF FRUIT TREES.

THE cold experienced during April, just as fruit trees had budded, has been the means of retarding growth, and it always follows when this is checked that the young shoots become infested with insects, the worst among these being aphides, which curl the leaves, and unless held in check or destroyed, soon do irretrievable damage by ruining the health of the plant. The trees they most affect are Peaches and Nectarines, which become a ready prey to their attacks and suffer more quickly than most others, and it is to these therefore that attention should be first directed. In order to wage war successfully, the trees must be divested of all superfluous shoots by a general disbudding, which clears the field as it were to wage war with the enemy, and he can then be assailed in a variety of ways. The most simple, and perhaps the most effectual, as well as the safest, is by means of Tobacco dust, which may be puffed on to the points of the shoots and among the curled leaves by means of a distributor which all nursery and seedsmen keep and sell for the purpose. The Tobacco powder is so patent and quick in its action, that it fairly staggers the insects, and shortly after its application they may be washed off and dashed to the ground. To carry this out there is nothing equal to a garden engine, as by its aid water can be ejected and sent on to the foliage with some force, but at the present tender stage of the leaves care is needed, or the dash of the water will bruise and tear them to pieces. To prevent this, the jet or stream should be broken up by placing the finger against the delivery tube

or keeping the engine at a distance of 10 feet or 12 feet from its work, as then the water cannot hit hard. If a garden engine cannot be had, a syringe will answer the same purpose fairly well, but to keep trees at all clean it is absolutely necessary to use one or the other. The time they should be brought into requisition is either early in the morning or towards night, the latter being best, especially when the season becomes more advanced and the days warmer, as then the water has a very refreshing and strengthening effect on the trees and wards off red spider, a pest that otherwise is apt to be very troublesome during the summer, but which clear water holds in subjection. Next to Peaches and Nectarines, Cherries are the trees most liable to the attacks of aphids, and the Cherry louse and black fly are most difficult to kill, as they have tough skins, which are protected by an oily coating that repels wet and throws most insecticides off. The best remedy against these hardy aphides is nicotine soap, which is a most valuable preparation, and used in the proportion of about 4 ounces to the gallon of water destroys the black fly at once. The most economical way of applying it is to have a bowl or other similar handy vessel and dip the shoots in, which may be quickly and easily done by gently bending them down. Previous to taking this in hand, all foreright shoots should be stopped back to three leaves, and only those left that are required for laying in to extend the branches and for filling up bare spaces on the walls. By doing the stopping early it often saves trees becoming attacked with insects; and not only that, but it makes the spurs fruitful, by causing the formation of flower-buds at the base of the shoots, where the strength is then concentrated, instead of expending itself and going to waste. Morello Cherries require different treatment from the dessert kinds, as Morellos bear on the young wood, and in the management of these as much should be left and nailed or tied in as there is room for without crowding, the shoots that should be chosen being those best situated on the branches and close to the wall. Plums of all kinds fruit most freely on spurs, and here again the stopping of the shoots plays an important part for reasons already stated, and the same with Apricots which, like Plums, cannot well be too closely nipped in, as the nearer the spurs are to the wall the better protection they get. In cases where spurs are long and dense they may be considerably improved by an entire removal of some of the end shoots, which will let in light and air and strengthen the others below. By a judicious and timely pinching and thinning in this way, very little autumn or winter pruning will be needed, as the finger and thumb may be so used as to regulate the growth of a tree to a nicety. The spur system is also the best for Pears and Apples that are grown on walls or as pyramids, espaliers, or bushes, but the stopping of these like the others must be done early, and to have regular crops annually it is necessary for the fruit to be thinned, for if a tree is too heavily loaded this year it will ease itself by not bearing next. Mulching over the roots of trees that have much fruit on them is a great help to them, and an additional assistance may be afforded by a soaking or two of liquid manure. S. D.

Fruit crops in Suffolk.—These have been very promising, but now there appears very little hope of a large crop of fruit, except in the case of the later and more hardy kinds, as not only has the weather for some time past been most fitful and cold, with keen north and north-east winds, which have on several occasions approached almost to a gale, but on the night of the 3rd inst. we had quite a sharp frost, making the Grass stiff and coating it over with a hoary deposit. This was followed by a heavy fall of hail, betokening further mischief, and should it clear up and freeze again, the consequences will be most serious, for Plums, Cherries, and Pears are just at that critical stage when they are most liable to injury. They are in full flower; the tender stigmas are therefore quite exposed, and if these are blackened it is impossible for fertilisation to take place. Fortunately, everything is very dry, which is much in

favour of the blossoms. Apples are too backward to take much harm, and as they are late and the trees remarkably full of flower-buds we may get a good crop.—J. SHEPPARD, *Woolverstone Park, Ipswich.*

KIEFFER'S HYBRID PEAR.

I SEE that Mr. Hovey represents this hybrid Pear as being of poor quality. That may be his opinion; people's tastes differ; and a fruit that is pleasant and agreeable to one person may not be so to another, and the quality of different specimens of the same variety of fruit may differ; we sometimes find Lawrence Pears of poor quality bitter and disagreeable, though the Lawrence is considered a good Pear. The same may be said of other varieties. There are several circumstances to be observed—the Pear should be well grown on a healthy tree and properly ripened. It requires several years to establish the reputation of a new fruit. At one time the editor of the *Germantown Telegraph*, a popular and influential paper, denounced in strong terms the Kieffer Hybrid Pear as worthless—"totally worthless in (his) estimation—at least as a table fruit." Since then, having become better acquainted with its merits, he has changed his views, and placed it in the select list of valuable fruits recommended to his numerous readers. It is natural for the introducer of a new fruit to esteem it highly, and no doubt Mr. Hovey esteems the Hovey Seedling Strawberry, introduced forty years ago, higher than the Albany Seedling of more recent date; yet the verdict of fruit growers in our wide country of fifty millions of people is against him, if we judge by the catalogue of the American Pomological Society, where there are but seventeen stars given to the Hovey and sixty-three to the Albany Seedling. Some are fond of the peculiar piquant aroma of Kieffer Pears, and during the autumn I indulged in eating one or more almost every evening before retiring in preference to the Lawrence Pear, of which we had plenty. I never claimed for the Kieffer best quality. In a description given on a former occasion I rated it as "simply good; about equal to the Duchesse d'Angoulême." In reply to this Dr. Thurber says, "We think he does what is unusual with introducers of new fruits, *i.e.*, underestimates its quality." Our recollection is that it has a refreshing briskness that the Duchesse has not. The fruit, while it may not come up to the high standard of "best," is of sufficiently good quality to be acceptable to those who esteem the Bartlett, which, while regarded as second or third-rate by critical amateurs, meets the general taste, and every candidate for popular favour must stand comparison with that best known of all our Pears. We have not for a long time seen a fruit that appeared to unite so many elements of popularity as Kieffer's Hybrid, and shall be much disappointed if it does not prove to be a valuable and profitable market fruit. The tree is a strong and vigorous grower, bears early, is very productive and apparently as free from disease as the sand Pear, which is one of its parents. The fruit is of good size, of an attractive colour and keeps well, never decaying at the core.

THE CENTENNIAL FRUIT COMMITTEE gave it a prize medal and certificate, as introducing a new race of great excellence, and at the fifteenth annual exhibition of the Pennsylvania Horticultural Society it received "honourable mention." It was tested and found of good quality. And at the annual exhibition of the Burlington County Agricultural Society, held in 1881, it was awarded the only prize medal given to any Pear. The editor of *The Gardeners' Monthly*, in the January number, 1880, says: "We have eaten fruit of the Kieffer Pear, which was equal in luscious richness to any Pear we have ever eaten. The whole of the judges at the Centennial, who had some fruit before them, also seem by their report to have had a favourable experience of the Kieffer. Now, if there are some gentlemen who have had fruit of it that was not commendable, it is no more than general experience with other fruits, for everybody has had Vicars and Flemish Beauties and other fruits that were not worth eating. If these

poor samples happen to be sent for opinions, of course, no editor can do anything else but speak of them accordingly. We expect some time to have a poor specimen of the Kieffer as well as of any other kind, but that will not alter our opinion about the excellent fruit we have tasted."

ONE EXTENSIVE PEAR GROWER who exhibited 300 varieties of Pears at one exhibition of the Pennsylvania Horticultural Society, in Philadelphia, stated that "his faith in the Kieffer as the coming Pear was supreme." He had the past year about 200 bushels of this variety, all grown upon grafts set two years ago last spring. The fruit sold readily in the market at from 2s. to 3s. per half-peck, and selected specimens at from 1s. to 2s. each. He says that the Kieffer and Le Conte Pears will revolutionise the whole business of Pear growing, and make Pears more plentiful than heretofore. Another extensive fruit grower in this neighbourhood, who has been sending Kieffer Pears to Philadelphia market for three years past, finds the demand and price have increased each year as the fruit became known. In the autumn of 1880 Kieffers sold at 1s. a half-peck; in 1881 they brought 2s. a half-peck, while good Lawrence Pears were selling in the same market at 10d.; and in the fall of 1882 he had 40 bushels, mostly grown on young grafts set two years last spring, which sold readily at from 2s. to 3s. per half-peck, and he disposed of several bushels to one person at £1 4s. per bushel. Kieffers also found customers in Massachusetts, as several bushels grown in Burlington County, N.J., were shipped to Worcester, Mass., and although delayed a week by an accident on the railroad, they sold readily on arrival at £1 4s. per bushel, the same as in Philadelphia. The writer of this imported in 1840, from France, 312 varieties of best selected Pears and carefully planted them; since then he has added to the orchard many others that were highly recommended, but has never found any other variety that combined so many desirable elements of profit to the fruit grower as Kieffer's Hybrid Pear, which is a strong, vigorous grower when propagated on Pear stocks from buds cut from healthy standard trees having no Quince sap in them. It is an early bearer, will produce fruit the second year from the graft set in older trees, and on young trees when three years from the buds, and it is enormously productive. The fruit is large, measuring from 10½ inches to 11 inches round, and weighing from 10 ounces to 12 ounces each, and very uniform in size. It is of double turbinate shape, and pointed at each end; skin greenish yellow, with some russet; flesh white, buttery and juicy. It ripens in October, and will keep through November when other Pears are scarce and high-priced. This Pear colours up beautifully, becoming rich yellow, with a red cheek next the sun. It does not rot until very ripe, and remains firm at the core to the last. Fruits of it have been shipped to England, and bear transportation as well as Apples. Possessing, as it does, so many good qualities, this variety will occupy the same position among Pears that the Concord does among Grapes, and the Albany Seedling has heretofore among Strawberries. The Kieffer is

THE PEAR FOR THE MILLIONS, and can be grown as easily and abundantly as Apples, and sells much higher in market. Delicious flavour is not the only property for fruit growers to look for. The most important considerations for those who wish to grow fruits for profit are to obtain trees and plants that are hardy and productive, yielding an abundance of fruit of fair quality that carries well and sells well. Fruits that cannot be grown to a profit will not be much grown for market. My advice to the young fruit grower is to plant what pays best. We have planted and tried to grow the Orange, Hornet, and other choice varieties of Raspberries, but could make no profit from them here; while ten acres of Brandywines—dry, firm berries, not of best quality for table use—yielded one season 26,300 quarts which carried well, looked well, and sold for £868, and after deducting all expenses, left a nett profit of £560—an average of £56 per acre. Apples that are the most delicious for table use are not the most profitable to

grow for market. Maiden's Blush and Early Hagloe, second or third-rate Apples, are very profitable and largely grown; while the luscious Summer Pearmain and Early Joe, Apples of first quality, are not profitable nor much grown, one tree of each being plenty for anyone to have. The Seckel, the most delicious of all Pears, is not very profitable, nor much grown here by market men. We have planted trees and tried to raise the Washington, Jefferson, and Coe's Golden Drop, Plums of the finest quality; but they could not resist the Curculio, and we got but little fruit and no profit from them, and discontinued growing those varieties, while the Wild Goose, a little red Plum, was yielding more than a bushel to a tree, which sold readily in market at 12s. per bushel; they are very profitable, and are being planted largely. Peaches and Bartlett Pears have been and still are the most popular fruits in their season. Unfortunately, they both ripen at the same time, and when both are abundant and cheap, there is no need of, nor much call for, other fruits. Fortunately, Kieffer Pears come in later, and being larger, handsomer, firmer, bearing transportation better, and having no competition in the market, sell higher than either Peaches or Bartlett Pears in the season. Kieffer Pears come at a season to occupy a vacancy not filled by any other fruit; and fruit growers may cultivate all the Peaches and Bartletts to which they can properly attend, and have another orchard of Kieffers to come in later yielding more profit than both of the others. —*Rural New Yorker.*

Fruit prospects.—Mr. Rutland, writing from Goodwood, says: I have just had a look over our fruit trees and am in hopes that we are going to have a much better crop than might have been expected from the trying weather we have had of late. Apples and Pears are very promising indeed; Peaches and Nectarines will be a fair crop; Cherries promising also. Currants, Gooseberries, and Strawberries, Apricots and Plums appear to have suffered most in this locality. Kentish Cherries, we hear, are safe in most places, though the ground under them was covered with snow when they were in bloom.

Small-flowered Peaches for forcing.—"W. W. H." (p. 375) asserts that small-flowered Peaches and Nectarines are best for forcing, but in this I must differ from him. Dr. Hogg Peach and Lord Napier Nectarine, each bearing flowers as large and beautiful as any I know of, are in all respects equal to the small-flowering varieties recommended by "W. W. H." for early forcing, and in some important points superior to them.—R. WESTCOTT, *Raby Castle, Darlington.*

—There are doubtless some Peaches better adapted than others for forcing, but as to the size of their flowers having anything to do with their adaptability for the purpose, I should very much doubt. If that be so, how comes it that the good old Noblesse, which has perhaps the largest bloom of any Peach, sets so freely, and is such a favourite for planting indoors? Then, again, there are the large-flowered Nectarines, which only differ from Peaches in their skins; and what kind can set with greater freedom than Pitmaston Orange, Hawick Seedling, or Lord Napier, all of which have larger flowers than any other sorts? Those that set freest indoors are the sorts that set most readily out, and these are the hardiest and best suited for walls, for if we want to grow Peaches there Royal George, Violette Hâtive, Grosse Mignonne, Stirling Castle, Bellegarde, and Noblesse are those which most planters choose for the purpose, and any of these are equally good under glass, and the same with the Nectarines just mentioned.—S. D.

Abercainey Grape.—I am obliged to Mr. Brown (p. 403) for his correction in this matter. No doubt I am in error about the raiser of the Grape. I only recorded impressions received from casual conversations many years since. It is more satisfactory to have the distinct character of the variety itself certified by Mr. Brown.—J. S. W.

TREES AND SHRUBS.

ADVANTAGES OF A HOME NURSERY.

The numerous advantages of a well stocked home nursery, especially where planting is extensively carried on, are so well known and appreciated by every forester, that comment on this subject seems almost unnecessary; however, as the season of nursery re-filling is now upon us, a few remarks on the subject may not be out of place. I do not propose in the present paper to dilate on the details of nursery management, my object being more to dwell on the advantages of a home nursery for the rearing of plants for special purposes, such as the planting of barren, exposed districts, as well as the convenience of having at hand a stock of plants suitable for all emergencies, and whose hardiness can, to a great extent, be relied upon. Where ornamental planting, game coverts, or hedging is performed on an extensive scale, the convenience of a home nursery cannot be over-valued, the plants being always at hand and of the size and in the quantity required, thus obviating the necessity of sending to a distance for these when wanted. The advantages in these cases are too well known to require comment, and plants, more especially those of a large size, sent from a distance cannot, after packing and transmission by road and rail, be expected to succeed equal to those raised and planted on the same day. The extra soil or ball with which large plants can be removed for a short distance is also much in their favour, but which is next to impossible where packing and transit have to be resorted to. It is well known that too sudden a change from rich, well-sheltered nursery borders to bare, exposed hillsides often proves fatal to young plants; and when we consider that few public nurseries are at a greater elevation than 300 feet, the necessity of proprietors rearing their own stock whose plantations are, perhaps, upwards of 1000 feet above sea level will the more readily be seen. There are certainly difficulties to contend with in planting high-lying ground, more especially if the soil is poor and the situation exposed, and in these cases the advantages of using hardy plants that have been frequently transplanted in a well-chosen home nursery are only too perceptible, especially when contrasted with others that have been grown under more favourable circumstances and in a sheltered position. Some plants seem better adapted than others for this removal, but in the majority of cases the shock sustained by transferring from low-lying ground to that at a great elevation is only too apparent, and from which the plants seldom recover. A good deal of comment has taken place as to the necessity of

REARING TREES FROM SEED sown on the site of the future plantation; and, although the suggestion has many points in its favour, still, artificial planting is better adapted to the wants of our country, and not at all likely to be superseded by artificial reproduction, which is more fitted for countries differently situated from our own. The nursery treatment of plants is, therefore, sure to remain a prominent feature of British forestry, and as such the soil and situation, as well as most successful treatment of these, so as to produce plants suitable for the positions they are intended to occupy, will require due consideration, and vary much according to the situation of the estate and ground to be planted. In choosing the

SITE OF A HOME NURSERY, a good deal, as before stated, will depend on the general elevation and exposure of the estate. The situation should neither be too much exposed nor yet sheltered, but partaking to a certain extent of both, and with a southern or western exposure; for although too sudden a change from sheltered to exposed ground often proves fatal to young trees, this should not altogether form a criterion for rearing such in situations unfavourable to the development of strong, healthy plants. The soil should be good friable loam on an open, porous sub-soil; but the quality of ground required for different seedlings is so diversified, that it is next to impossible to suit all within the small bounds re-

quired for a home nursery. As water is indispensable where seedlings are raised, as well as for numerous other purposes in the nursery, it is well to have provision made for a continuous supply, either by a stream running through the nursery ground or in close contiguity to it.

SIZE AND LAYING OUT.—From six to ten acres will be found sufficient nursery ground for most estates, but it is advisable to add a little more than is really required, so that the breaks may not all be under forest trees at the same time, but undergo, when found necessary, a course of green

way of shelter. The site chosen for the seed beds should be naturally sheltered, or failing this such artificial shelter as is found necessary should be provided, as exposure of the young plants to cold, cutting winds causes them to become stunted and bark-bound. In the management of a nursery the amount of care and attention required is certainly great, but any trouble as well as expense connected with starting and keeping it in good condition afterwards will be amply repaid by the increased value and superiority of the stock obtained; and as the subject of extended plant-



A tropical riverside scene.

crops, which will not only enrich, but clean the ground, and leave it in good condition for replanting with seedling forest plants, bearing in mind that farmyard manure should always be applied first to the green crop, and never directly to the plants themselves. Land intended for nursery ground should be thoroughly trenched to the full depth of the soil, and where necessary heavily manured or enriched by the addition of lime, vegetable soil, or loam, as the case may require. In laying out the ground into breaks it will be found convenient to have these either square or rectangular in shape, and, if possible, parallel to each other. The breaks may be divided by different kinds of hedges, which, when well kept, give not only a neat and tidy appearance to the nursery, but are highly beneficial in the

ing is one well worthy the consideration of proprietors owning exposed or otherwise worthless tracts of land, a step in the right direction will be the establishing and maintaining in good order a well-stocked home nursery. A. D. WEBSTER.

Penrhyn Castle, North Wales.

Ribes alpinum pumilum aureum.—This dwarf variety seldom exceeds 2 feet in height, and forms a dense-growing, much-branched shrub, thickly clothed with leaves of a bright golden hue, especially when first expanded, for though they do not become wholly green at any time, they partially lose their colour as the season advances. Its slow growth and rather spreading habit eminently fit it for rockwork and for places of limited

extent; a position should, however, be chosen for it where it would be exposed to the sun's rays, as the depth of colour is thereby much increased. I have not been very successful in striking this plant from cuttings made in winter after the manner of those of the Currant or Gooseberry, and the pieces removed were a loss to such a slow-growing subject as this *Ribes*; therefore, having a couple in pots, in the spring they were placed in rather a warm greenhouse, with the result that they broke into leaf and pushed out young shoots quickly, which attained a somewhat greater length than they would have done in the open ground. While these shoots were still succulent they were taken off for cuttings, inserted half-a-dozen around a 4-inch pot of sandy soil, put in a close case, and treated in all respects the same as *Fuchsia* cuttings. Treated thus, they struck readily, and, being potted off as soon as rooted, made another growth the same season.—ALPHA.

New seedling Rhododendron.—About twenty-five years ago I raised a seedling *Rhododendron*, which has only flowered once during that period, viz., last year, when it produced one truss of three flowers—the normal number apparently. There have been twenty-one flowers upon it this year, besides several bunches not yet expanded. As regards scent, it outvies most plants; my conservatory is perfumed with it from morning to night. In respect to perfume it is far before the *Brugmansia*. I think I have seen the plant somewhere, but not in flower. I have had it, as I have said, over twenty-five years.—J. SCOTT, *Merriott, Somerset*. [A beautiful variety, with large white blossoms of a delicate pink colour in the bud stage. In the absence of other kinds with which to compare it we cannot speak of its distinctiveness.]

SOUTH AND NORTH.

It is curious to note how similar the wayside vegetation of the world is, and how in every country we see old friends or types very much like those at home. In some very tropical countries, however, the change in vegetation is indeed great, and we are in a new world of fair and new forms, often, however, as in the case of the Banana and Plantain, shorn of their grace and fullness of form by the wind, which has equal respect for Passion Flower and Thorn Bush. The wind which strips the great-leaved tropic plant has on its way passed the Oak unharmed. Without going so far, however, as tropic lands, man has it in his power to form very beautiful aspects of vegetation in the open air. Such is the one illustrated opposite where the fine crest of the Date (nothing is handsomer when well grown in the open than this Palm) is tossed gently by the breeze. The scene is a moonlight one, and the moon's light is a good one for enjoying vegetation of the nobler exotic types. They seem more strange then, while the cooler night air and the scents of old greenhouse and stove plants add another charm to the scene. The great truth, however, that should never be lost sight of in observing matters of this kind is that the charms of our own vegetation are no less precious than those of any other country. The tendency is to believe otherwise. Much has been done to make people believe that it is the exotic in vegetation which is best worthy our attention. This is a great mistake. When we have seen all that the semi-tropic garden has to bestow, we long for the soft young greens and many flowers of an English spring. How much more welcome would our English spring be, if we gave the attention now bestowed on glass sheds and their many delicate occupants to the things that only ask for soil and sky. Few know the difference this would make to our gardens and the greater charm it would lend to country life. There are no gardens in the world could equal ours if we gave the noble outdoor vegetation the place of honour and of thought—if ceasing to regard what we have of it as a matter-of-course appendage to our varied splendours in the hothouse line—only fit for neglect or rudest labour, while all the "swell" gardeners are, like their choicest plants, under glass.

SOCIETIES.

ROYAL HORTICULTURAL.

MAY 8.

THERE was a good show of plants in the conservatory on this occasion, but the most remarkable feature was the unusually large number of new plants submitted to the committee who awarded no fewer than twenty-seven first-class certificates as follows, viz.:—

PHALENOPSIS SANDERIANA.—A lovely new species in the way of *P. amabilis*, but the flowers instead of being white are suffused with a delicate rose-pink, like those of *Odontoglossum vexillarium*. In foliage it is distinct from *P. amabilis* or any other species. It was shown by Sir Trevor Lawrence, Burford Lodge, Dorking, and Mr. Lee, Downside, Leatherhead, both of whom had admirable examples of it, that from Mr. Lee being the richest coloured.

AZALEA BARON N. DE ROTHSCHILD.—A new Indian Azalea, having large double blossoms of a rich plum-purple, borne profusely even on small plants. This is unquestionably among the finest double Azaleas yet raised, and will doubtless become popular. Both Messrs. Veitch and Turner showed this Azalea in fine condition.

HELIOTROPE SWANLEY GIANT.—Probably the finest of all the *Heliotropes*. Its flower clusters, which are enormous, and measuring about 15 inches across, are violet-purple in colour, the perfume, as usual, being strong and agreeable. It is one of the best new plants that have come this year from Messrs. Cannell and Sons, Swanley, who showed it on this occasion.

ODONTOGLOSSUM VEXILLARIUM ALBICANS.—A variety with almost pure white blossoms, the only colour being in the centre. The plant was shown by Sir Trevor Lawrence, and bore three fine spikes of large blossoms.

NEPHEODIUM RODIGASIANUM.—A handsome new stove Fern, having long pinnate fronds somewhat erect, though recurved, and collectively forming an elegant specimen. Exhibited by Mr. B. S. Williams, Upper Holloway.

MASDEVALLIA XANTHOCORYS.—Similar to *M. Shuttleworthi*, but much inferior to it in beauty. It resembles it in habit of growth as well as in the size and shape of the blossoms, but they are rather unattractive, being without the graining of purple which makes *M. Shuttleworthi* so beautiful. Shown by Sir Trevor Lawrence.

CYMBIDIUM DEVONIANUM.—A rare species introduced many years ago by the Duke of Devonshire. It belongs to the pendulous spiked section. The leaves are leathery and erect, and produced from slender pseudo-bulbs. The spike is nearly a foot long densely beset with flowers about 1½ inches across with sepals and petals of an olive-green, and a violet-purple labellum richly blotched with intensely deep crimson. It is a handsome plant. Exhibited by Mr. James, Castle Nursery, Lower Norwood.

ODONTOGLOSSUM ELEGANS.—A truly handsome Orchid, elegant in growth and attractive in flower. It is supposed to be a natural hybrid between *O. cirrhosum* and *O. Halli*, and appears to be intermediate between these two. The flowers have long sepals and petals somewhat twisted, and the lip is also attenuated. The colour is creamy white, heavily blotched with chestnut-brown. It bears long, gracefully arching spikes loosely beset with flowers. The bulbs much resemble those of *O. cirrhosum*. If not unique this is an extremely rare Orchid. Exhibited by Mr. E. Wilson, gardener to Mr. Pollett, Fernside, Bickley.

MIMULUS MOSCHATUS GRANDIFLORUS.—A new variety of Musk, similar in flower to *Harrison's*, but remarkable for its extreme dwarfness and compact growth, being only about 2 inches high. Dense masses of it thickly studded with bright yellow flowers have a pretty effect. Exhibited by Mr. R. Dean, Ranelagh Road, Ealing.

AZALEA SOUVENIR DE PRINCE NAPOLEON.—A single-flowered variety of the highest merit, and, moreover, distinct from the host of varieties of *A.*

indica now in gardens. The flowers are large, of good form, and have prettily crisped and wavy margins. The colour is a rich salmon-pink spotted with crimson and edged with white. It is an abundant flowerer and of good habit. Shown by Messrs. Veitch.

MASDEVALLIA ROSEA.—A new and pretty species, quite distinct from any other in cultivation. The flowers somewhat resemble in form those of *M. Harryana*, but the odd sepal is bent over the others and the tube is considerably longer. The colour is a carmine-purple, but variable in tone. It is extremely floriferous, small plants of it shown by Sir Trevor Lawrence being abundantly furnished with bloom, two or three of its slender stalked flowers being borne from one growth.

MIMULUS NOVELTY.—A Hose-in-hose variety, having large showy flowers of a bright crimson-buff colour, profusely borne even on small plants. It represents one of the finest strains of this class of *Mimulus* we have seen. Shown by Mr. R. Dean.

WORMIA BURBIDGEI.—A handsome-leaved plant allied to *Dillenia*. The leaves are large and broad, some being 18 inches by 10 inches, and of a bright green colour. On the upper portion of the stem, which is erect, are borne the flower racemes, which project almost horizontally. The flowers are circular, nearly 4 inches in diameter, and of a clear yellow. It is a handsome Bornean plant of easy culture and rapid growth. Introduced by Messrs. Veitch, who exhibited it.

MIMULUS MOSCHATUS RUBER.—The counterpart of the variety *grandiflorus* (also certificated), except that in this the colour is a reddish buff. Like the other, it is very dwarf, compact, and floriferous. Shown by Mr. R. Dean.

COLUMNEA KALBREYERI.—A plant having a singular habit of growth. Its leaves are about a foot long, arranged one above the other on stout, erect stems. Their upper surfaces are a sort of metallic green, while the under-sides are a vinous purple. The flowers are large and yellow, reminding one of those of a small *Allamanda*, and produced direct from the stem without stalks. Shown by Messrs. Veitch.

AURICULAS HOMER, ROYSTERER, A. LLOYD, ROB ROY, and RESPLENDENS, all alpine varieties, finer than any that have been produced hitherto; some have creamy centres, others yellow, and all have ground colours of indescribably beautiful hues in all cases exquisitely shaded into lighter and deeper shades. These were all raised and exhibited by Mr. Turner, of Slough, and well did they all deserve the awards made to them.

AZALEA PRINCESS LOUISE.—A double variety of the Indian Azalea, having large full blossoms of a pleasing rose-pink abundantly produced on compact habited plants. From Mr. Turner, Slough.

COLAX JUGOSUS PUNCTATUS.—A variety differing from the type in the flowers being much more spotted with purple on a white ground. Not only are the lateral sepals spotted, but the dorsal one also. Shown by Mr. Lee, Downside, Leatherhead.

RHODODENDRON SCARLET CROWN.—Another of the beautiful seedlings of the Javanese section raised and exhibited by the Messrs. Veitch. It has large trusses of flowers of symmetrical outline, and larger than any older variety of a similar colour, which is a bright crimson-scarlet.

AURICULA DELICATA.—A double-flowered variety having large rosette-like blossoms of a soft creamy yellow tint. A distinct and beautiful plant, quite a new departure from the ordinary run of Auriculas. Exhibited by Mr. R. Dean.

AZALEA COMTE DE CHAMBORD.—A variety of *A. indica*, having single flowers of large size and good substance, and of a soft salmon-pink colour edged with white. Quite an acquisition among sorts of this colour. From Mr. Turner.

NEW AZALEAS were numerous shown by Mr. Turner, Slough. All were first rate varieties, particularly those certificated. Among the others were *Furstin Bariatinski*, white, flaked with carmine; *Madame Van Houtte*, salmon, crimson

spotted, and white edged; *Memoire de Louis Van Houtte*, a beautiful double, of a rich carmine; *Comte de Kerchove*, white, heavily blotched with crimson and white edged; *Versicolor* and *Rosea picta*, two very much alike, both having large white flowers flaked and spotted with carmine. With these Mr. Turner showed a group of *Auriculas*, show, self, and alpine varieties, all of which were in perfect flowering condition, as fine and even finer than those shown at the *Auricula* show a fortnight previous. The alpine varieties were particularly beautiful, and seldom if ever had they been seen so fine. Most of those shown were new seedlings, all of the highest quality as regards size of flower, symmetrical outline, and richness of colour. A group of about a dozen and a half specimen *Pelargoniums*, chiefly decorative varieties, was also shown by Mr. Turner, which, together with the *Azaleas* and *Auriculas*, made one of the most attractive displays in the show. A silver-gilt medal was awarded for this group.

RHODODENDRONS AND POT ROSES from Messrs. Lane & Sons, Great Berkhamstead, were a beautiful feature. The large standard bushes of *Rhododendrons* were superbly flowered, and represented some of the finest varieties. The group of about three dozen pot *Roses*, too, was good, and on some of the plants of such standard sorts as *La France*, *Anna Alexieff*, *Marie Baumann*, and others were some superb blooms, as fine as those of July. A bright display was also made by *Azalea mollis*, which Messrs. Lane had as a fringe to their *Rhododendron* group. The abundance of bloom on these small plants, and the soft and pleasing colours of their flowers rendered them very charming. A silver-gilt medal was awarded.

A SILVER-GILT MEDAL was also awarded to Mr. B. S. Williams, Upper Holloway, for a large and exceptionally choice group of plants, consisting of *Orchids* and other flowering plants, intermingled with *Palms* and *Ferns* in an effective manner. Among the *Orchids* was a huge specimen plant of *Cypripedium villosum*, carrying several dozens of flowers; also a fine plant of *Dendrobium Calceolus*, a species not often met with, but a very beautiful one with large pendulous spikes of rich yellow blossoms; *Cattleya Mendellii*, represented by some splendid varieties; *Calanthe veratrifolia*, with tall spires of white blossoms; and *Masdevallia Harryana grandiflora*, with large brilliant carmine-magenta flowers. The chief attraction, however, in the group was a very fine specimen of a richly coloured variety of *Odontoglossum vexillarium* named *splendens*. This was a huge plant in a 12-inch pot carrying nearly a dozen spikes of bloom. In this group there was also a specimen of *Cypripedium caudatum* bearing three spikes of flowers, the tails of which measured fully 26 inches—the longest we had measured; also *Azalea Phœbus*, a first-rate double variety, and *Crinum Kirki*, a new species with large white, crimson-striped blossoms produced on stout, erect spikes, the latter one of the most conspicuous of the plants shown by Mr. Williams.

A GROUP OF *NARCISSI* from Messrs. Barr & Son was again (the third time this season) a centre of attraction, the number of sorts being as large as ever, and the quality of the blooms as fine as on previous occasions. There was, however, a slight change in the composition of the group. The *Trumpet* varieties were fewer, but the *incomparabillis*, and especially the poeticus, types were more abundant. The varieties of the *Poet's Narcissus* were particularly admired, and scarcely less so its near neighbour, the *Burbridge* section, which intermingles the characters of the *Peerless* and *Poet's* section in a beautiful way. A silver Banksian medal was awarded to Messrs. Barr & Son for their group, which we were pleased to observe was more tastefully arranged than we have hitherto seen it this season.

DOUBLE PETUNIA blooms of high quality, some good plants of the double *Mignonette*, a fine variety, and some well berried potfuls of the little *Nertera depressa* came from Messrs. Cannell & Sons, Swanley. A large group of a new golden form named *Gymnogramma lauchena grandiceps* came from the raisers, Messrs. Dixon,

Amherst Nurseries, Hackney. The fronds are elegantly cut, covered with golden powder, and broadly tasselled at the tips, giving the plant an elegant and beautiful appearance. It is undoubtedly an acquisition to the list of stove *Ferns*. Another beautiful *Fern* was shown in quantity by the same exhibitors. It was named *Athyrium Goringianum pictum*. It is of dwarf growth, and has finely cut green fronds marked along the ribs with a purplish colour. It is apparently a greenhouse *Fern*, and a most desirable one.

ORCHIDS from Mr. James, Castle Nursery, Lower Norwood, included two uncommonly fine varieties of *Cattleya Mendellii*, one with large broad, white sepals and a richly toned frilled lip; the other named *rosea*, with the flowers suffused with a beautiful rose-pink throughout. A variety, too, of the *Foxbrush Orchid*, *Aeides Fieldingi*, was also shown by Mr. James. It was a splendid one, large in spike and flower and richly coloured, and was appropriately named *grande*. Mr. G. F. Wilson, Heatherbank, Weybridge, showed a marvelously fine form of *Odontoglossum Andersonianum*, having large, long sepalled flowers, richly marked with chestnut-brown on a white ground. A specimen plant of *Lælia purpurata*, bearing twenty-two flowers on six spikes, was exhibited by Mr. Bones, gardener to Mrs. McIntosh, Havering Park, Romford. It was an exceptionally finely grown plant, and bore evidence of skilful culture, and a medal was deservedly awarded to Mr. Bones for it. Among other *Orchids* from Sir Trevor Lawrence were *Phalænopsis sumatrana purpurea*, a highly-coloured form of the type, the true *Odontoglossum Wilkeanum* and Toll's variety of *Miltonia spectabilis*, with large flowers of a delicate rose-pink. A cultural commendation was awarded to Mr. Clinkaberry, gardener to H. Hollington, Esq., Forty Hill, Enfield, for some plants of the lovely *Lælia majalis*, some of which bore uncommonly large flowers of a soft pinkish-mauve colour. The exhibitor evidently knows the requirements of this *Orchid*, judging by the plants he showed, for they were in perfect health, with large plump bulbs. Mr. Warner, Chelmsford, showed a wonderfully large and fine variety of *Masdevallia Harryana* under the name of *Distinguiflora*. The colour was a brilliant magenta.

Rhododendron devoniense, a new seedling variety from Messrs. Luceombe, Pince, and Co., Exeter, was a beautiful plant, having large white flowers suffused with pink. It is one of the greenhouse section. Mr. Parr, Givon's Grove, Leatherhead, sent a *Carnation* named *Acme*. The flowers were large and of a beautiful deep rose. Mr. Graham, Cranford, sent plants and cut flowers of his fine new yellow *Wallflower*, named *Cranford Beauty*. *Pansies* in variety came from Mr. Eckford, Boreatton Park, Baschurch, and Mr. Divers, Maidstone, and *Primroses* and *Polyanthuses* were shown by Mr. Lowe, Chepstow, which included some pretty varieties. An uncommonly fine yellow *Polyanthus* was shown by Mr. G. F. Wilson, which was quite unlike any ordinary variety. A group of decorative plants tastefully arranged, and also some elegant stands of flowers, were contributed by Mr. Aldous, florist, Gloucester Road, to whom a bronze Banksian medal was awarded.

A group of novelties from Mr. R. Dean was interesting. It contained, besides the plants certificated, a variety of *Myosotis dissitiflora* named *Perfection*. It differs from the ordinary form of this beautiful *Forget-me-not* in the flowers being larger and of a brighter colour, and altogether finer. Among the others were a dwarf yellow *Wallflower* selected from the *Belvoir Castle* variety and apparently an improvement upon it; a new plant for carpet bedding named *Spergula pilifera aurea* with golden turfy tufts, and several fine show and self *Auriculas*, but the best plant in the group we thought was *Iberis gibraltaria hybrida*, which is unquestionably a valuable new plant. It is said to be a cross between *I. gibraltaria* and *I. Tenoreana*, and its appearance justifies the statement. It is dwarfer than *I. Tenoreana*, but more vigorous than that species. The large flat flower-heads are of

various shades of violet purple, very delicate and pretty. The plants shown were uncommonly well flowered, and were perfect specimens of good culture. It surely ought to have been considered worthy of a certificate.

FRUITS AND VEGETABLES were not numerous. An extensive collection of varieties of *Rhubarb* was sent from the Society's garden at Chiswick, and which comprised all the known sorts, some being, to all appearance, alike. Stott's *Monarch* and *Victoria* were the largest, and the other sorts included Johnson's *St. Martin*, Dancer's *Early Red Defiance*, *Crimson Perfection*, and *Champagne*—all with useful sized leaf-stalks. A cultural commendation was awarded to Mr. Allan, gardener to Lord Suffield, Gunton Park, Norwich, for four fruits of *Hero of Lockinge Melon*, which, having regard to the early date, were exceptionally fine and well coloured; one in particular was very large and finely netted, and weighed 3 lbs. 15 ounces. A cultural commendation was also awarded to Mr. Stevens, gardener to the Duke of Sutherland, Trentham, for two dishes of *Cherries*, excellent for the season. Messrs. Carter & Co. sent a dish of their new *Golden Queen* or *Como Onion*, a small sort and a very useful size for some purposes. Mr. Todman, Tooting Common, sent a dish of his new *Early Prolific French Bean*. It was referred to Chiswick for trial. Two uncommonly fine braces of a new *Cucumber* were exhibited by Messrs. Sutton & Sons, Reading. It was named *Defiance*, and was stated to be a cross between the *Blue Gown* and *Kirklees Hall* varieties. The fruits were large, long, and smooth. First-class certificates were awarded to

PEACH ALEXANDRA.—A new and very early variety, with medium-sized and highly-coloured fruits, said to be of excellent quality. Exhibited by Messrs. Rivers, Sawbridgeworth.

SPINACH MONSTRUEUX DE VIROFLAY.—A fine variety with large leaves, said to be of excellent quality, and a rapid and vigorous grower. Exhibited by Mr. Barron from the Society's gardens at Chiswick.

The committees were constituted as follows: *Fruit*—Mr. H. Veitch (chairman), Messrs. J. Lee, L. Killick, G. Bunyard, J. Smith, P. Crowley, F. Rivers, and Dr. Hogg. *Floral*—Mr. G. F. Wilson (chairman), Messrs. W. Bealby, J. Wills, J. Laing, S. Hibbert, H. Bennett, G. Duffield, H. Turner, H. Ballantine, J. Dornay, H. Ebbage, J. Hudson, H. Cannell, W. B. Kellock, and T. Moore.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Pinus Nordmanniana diseased.—Mr. Maclachlan gave his report on this specimen sent to the last meeting by Mr. Noble, and considered the insect to be *Chermes corticalis* in a young state, but he required to see the winged form before speaking positively. He recommended the means used in America for destroying orange scale, &c. The most effective appears to be an emulsion, of which the recipe is as follows: Two parts refined kerosene and one part of sour cow's milk; apply as spray by means of a force pump. It must be used at once while the oil and milk are intimately mixed. Or a solution of 1 pound of whale oil soap with 1 gallon of water. Apply as spray while hot, because it solidifies on cooling. Mr. Noble sent a group which had been treated as above. It certainly had done no damage to the tree, but Mr. Maclachlan could not say for certain whether the eggs had been killed, and recommended a second application as soon as a new brood appears.

Orange Coccus.—Sir J. D. Hooker showed specimens with a letter from Mr. G. S. Jenmann, of the Botanic Gardens, Georgetown, British Guiana, asking for information as to the best method of destroying them. It was referred to Mr. Maclachlan for report.

Primulas.—Dr. Hogg observed that he had raised the English *Oxlip* from seed and it had come perfectly true. He also raised a seedling of the *Bardfield Oxlip*. This, however, developed into a *Polyanthus* of a dull red colour, but with all the characteristics of form of the English *Oxlip*. Mr. G. F. Wilson exhibited a fine *Polyanthus* of a mauve tint, having a greenish centre.

Ixiolirions.—Mr. Elwes exhibited sprays of three species—*montanum*, *Ledebourianum*, and *tataricum*, which under cultivation appear to be very nearly identical.

Tulipa undulatifolia.—He exhibited a cultivated specimen to show how it had changed from the wild state, as it occurs in Asia Minor. The wild form has the edge of the leaf closely crimped, the leaf is linear, and the flowers one-third the size of the cultivated plant; whereas the leaf shown was broad with a waved margin.

Fritillaries.—He also exhibited flowers from the supposed species *pyrenaica*, *lilacea*, *oranensis*, and *lusitanica*, with a small dark coloured as well as a yellowish-green-flowered seedling. All these Mr. Elwes is inclined to think identical, though *F. bithynica*, with green flowers and four large bracts, seems very distinct. The question was raised whether the above could not be the result of hybridisation. Mr. Elwes remarked that Lilies were, and he thence inferred the *Fritillaries* would be very difficult to hybridise. Hybrid Lilies always died out very soon.

Iris hybrid.—Professor M. Foster exhibited a hybrid between *I. balkana* and *I. Cengiali*, with probably some of *I. pallida* in it. The former has purple and veined flowers, *pallida* being sky-blue. The hybrid had the foliage, scape, and spathe of *balkana*, but the stamens of *pallida*, while the flower was much larger than in *balkana*. He remarked upon the great difficulty of *Irises* setting seed unless artificially crossed. Bees appear to be very inefficient agents. Mr. Elwes remarked that lowness of temperature had often much to do with the setting of seed; especially is the case with *Tulips*, and observed that they did so with greater freedom in the Mediterranean regions than with us. This was corroborated by Sir J. D. Hooker, who remarked that a relatively small number of plants at Kew seeded well as compared with the great number grown. Dr. Hogg remarked that florists grow a great many whole coloured *Tulips* as "breeders," and wait, it may be, ten years before they "break," and that conversely if variegated *Tulips* are not taken up, they revert to self. Mr. Henslow remarked that the facility of raising seed from whole coloured flowers was co-related with the fact that such (as Mr. Darwin had them) are much better able to fertilise themselves. With reference to the varieties of colour, Dr. Masters observed that a plant of the common wood *Anemone* transplanted to a garden has now turned blue. Mr. Elwes remarked that at Bangor four colours occur in the same wood.

Lilium Thomsonianum.—Mr. G. F. Wilson brought a cut spray. The plant has ten spikes, the main one has thirty-five flowers on. It is very difficult to blossom unless the bulbils are all removed.

LECTURE.—The Rev. George Henslow took the *Narcissus* as the subject of his lecture, which was illustrated by many specimens from Mr. Barr's beautiful collection. With reference to the origin of the name, he explained how in Greek mythology the son of Cephissus and Liriope, slighting the Nymph Echo, fell so desperately in love with his own shadow in the stream instead, that death alone could release him from the anguish of unrequited love. The Naiads mourned for him, and on searching for his body discovered nothing but a beautiful flower instead, which henceforth bore his name. Coming to more prosaic matters, the genus, though abounding in "forms," is, according to Mr. G. Baker, a limited one. That botanist groups them under three heads, viz., those with long trumpet-shaped crowns or "coronas," as the *Daffodils*; those with crowns of a medium length, as in the *imperialis* group; and those with a mere rim, as the *Poet's Narcissus*.

Describing the structure of the flower, he pointed out the difference between the family *Amaryllidæ*, to which the genus belongs, and that of *Lilies*, the former being known by all its members having the "ovary" below the perianth. The crown he explained as being a mere out-growth from the perianth, and would seem to correspond to the rim seen in the corollas of the *Primrose* and

Forget-me-not. It is not at all characteristic of the majority of the genera in the family, the *Amaryllis* and *Snowdrop* being entirely without it. Double flowers are frequent and are of different kinds: 1, the corona may be filled with a mass of petals; 2, the perianth and corona may be broken up and repeated many times, so as to form an irregular mass of petals; 3, the petals may be piled up in front of one another, as in a *Rose*; this occurs in the var. *cystettensis*. With reference to physiological properties, the *Narcissus* is more or less poisonous, the *Daffodil* and the *Poet's* being especially so, and have been used in medicine as emetics. Other members of the family are poisonous, as *Brunsvigia toxicaria*, which is used by the natives of South Africa to poison fish. It was this which accidentally poisoned Dr. Pattison, though he fortunately recovered. The *Narcissus* has been long cultivated in England. Gerard in his "Herbal," A.D. 1597, describes seventeen kinds, and Parkinson in his "Paradisus" (1629) figures a good many and describes ninety-two kinds.

Selecting a few for illustration, Mr. Henslow first alluded to the *Hoop-petticoat*, *N. Bulbocodium*, from the western Mediterranean regions, and which is remarkable for the shape of the crown and the delicate stamens. It is recorded that a bulb of this species having been in a herbarium for twenty years, subsequently revived, was planted and flowered.

The *Daffodil* or *N. Pseudo-Narcissus* is probably the only native species of Great Britain, though the *Poet's Narcissus* is naturalised. It is very variable, especially under cultivation. The size of the flowers quite justifies the terms *maximus*, *major*, *minor*, *minimus*, applied to as many varieties. The colour may be all yellow or the perianth white, while the crown alone is yellow (*e.g.* *bicolor*) or all white (*e.g.* *cernuus*), such as are the Spanish forms.

Double forms of the larger sorts are common, though that of the true wild *Daffodil* is not.

Of the second group, with shorter crowns, the most important is the form *incomparabilis*, with its many varieties. This is now considered to be a hybrid between the *Poet's Narcissus* and the *Daffodil*, although it occurs wild in France and Spain, for Dean Herbert and others have raised it from such a cross. Indeed, he thought that by using the pollen of *N. poeticus* successively for two or three generations the *Daffodil* could be converted into *N. poeticus*. It is remarkable that the purple of the cup of *N. poeticus* with the golden yellow of the *Daffodil* give rise to an orange tint in the cup of *incomparabilis*, just as a purple and chrome yellow mixed on a palette produce a similar orange. Another important species is *N. odoratus* (the "Campanelle"), of a pure yellow colour, with a six-lobed corona, and is very scented. This is intermediate between the *Jonquil* and *incomparabilis*. Its native home is Southern France, Italy, to Dalmatia.

Of the third or short-crowned section *N. Tazetta* is, perhaps, the most variable; the Dutch, even in 1800, cultivated as many as 300 forms. It has apparently the widest geographical range, for if not truly wild there, it is, at least, very largely cultivated in China. All other species appear to be limited between England and the Caucasus. It is the common *Polyanthus Narcissus*, as it bears many flowers on the scape. The typical form has a white perianth and a yellow cup, but varies in colour like the *Daffodils*, and may be double as well.

The true *Narcissus* of the ancient poets appears to be *N. poeticus* or *biflorus*, especially the former, as it is described by Virgil as "purpureus," doubtless in allusion to the purple rim to the crown, which colour is wanting in *N. biflorus*. Its double form, resembling *Gardenia florida*, is much cultivated for decorative purposes.

EVENING MEETING.—The first evening meeting in connection with the new scheme of this Society was held in the Linnean Society's rooms, Burlington House, on Tuesday last. In every sense this first meeting must be regarded as an unqualified success. There was a numerous and influential

attendance, and the promoters of the movement provided for it ample entertainment, there being an extensive and beautiful display of choice and interesting plants and flowers, and the papers read were of a highly interesting character.

Lord Aberdare presided. In his opening remarks he alluded to the vicissitudes the Society has experienced since the old days at Chiswick and since it had made South Kensington its headquarters. He regarded these evening meetings in the light of a "new departure" calculated to extend the sphere of usefulness of the Society both in a scientific and practical sense. The Society, now almost elbowed out of South Kensington, will, it is to be hoped, ere long be in a position to acquire a home of its own in some central situation in London, where it would be enabled to hold its meetings and small choice exhibitions. That established, we think its future could not fail to be both a bright and a useful one as regards the advancement of horticulture.

The papers read on this occasion were as follows:—

"*Iris susiana* and its Allies: their Habitats and Culture." By Dr. Michael Foster, F.R.S.

"*Australian Apples*." By Dr. Hogg.

"*Hardy Cacti: their Habitats and Culture*." By Mr. E. G. Loder.

"*Novelties in the garden at Baden-Baden*." By Herr Max Leichtlin.

A paper on "Cypripediums," by Mr. W. Goldring, was, for want of time, deferred until the 12th of June, the date of the next evening meeting.

IRIS SUSIANA AND ITS ALLIES formed the subject of the first paper by Dr. Michael Foster, than whom no one better qualified to speak on *Irises* could be found, as he has made them a subject of special study. He explained in the first place the structure of the flowers of *Irises*, generally and particularly of the group *Oncocyclus*, to which the *Susian Iris* belongs. He then dwelt at some length on the organs of the flower which had special relation to fertilisation by insect agency, and illustrated his remarks by numerous diagrams and sketches. He then referred to the early history of the *Susian Iris*, how it took its name from Susa, in Persia; how it had been the object of much interest to such early botanists as Clusius, and also to the manner in which it had found its way into cultivation in this country, through Holland, in the latter half of the sixteenth century. The allied species of *I. susiana* were then commented on. These, he said, were *I. iberica*, the commonest of the group in gardens at the present time, and of which he had about a score of fine flowers before him; *I. Heylandiana*, a very beautiful species recently discovered in Mesopotamia; *I. Saari* and its variety *lurida*, both in the way of *I. susiana*, and both in cultivation in this country; *I. acutiloba*, a beautiful Transcaucasian plant; *I. paradoxa*, one of the most beautiful of all *Irises*, coming from Iberia, Armenia, and Persia; and a newly discovered species, *I. Kolrokowi*. These comprised the *Oncocyclus*, or *Susian Iris* group, and all bore large and very handsome flowers. The geographical distribution of this group was the next subject dealt with by the lecturer, who had charts of the geographical area over which the various species were dispersed. The headquarters of the group, he observed, were Palestine, Persia, Cilicia, and outlying members were found on hillsides in the surrounding districts. The native habitats of the plants and the conditions under which they grew formed an interesting subject, as it had a direct bearing upon the course of treatment which the plants required when under cultivation. Their culture, Dr. Foster observed, was somewhat difficult, as our climate is so unlike that of their native habitats. They require more sun than we have in this country; therefore in order to ensure success, recourse must be had to artificial treatment; the plants must be assisted in ripening their growths by placing them under glass in summer and by planting them in the open again in the autumn. The rains of autumn and winter do not injure them if the growths of the previous season were thoroughly ripened. An interesting

discussion followed Dr. Foster's discourse, in which Mr. Elwes and Mr. Baker took part. The former briefly alluded to the culture of Irises belonging to the Susian group just described, while Mr. Baker alluded to two other Irises of the group, namely, *I. Lorteti* and *I. Helena*, both of which have been rather recently discovered by Mr. Barbey in the Orient and described in Boissier's *Flora Orientalis*.

AUSTRALIAN APPLES.—Dr. Hogg gave a short account of some Apples which he had received from Australia. They had been sent from Melbourne in February last, and arrived in London in April. He remarked that American Apples now sent to our markets in such large quantities came to us when we had plenty of our own; but that here we had Apples which ripened at an entirely different time of the year, and which, it was evident from the sample produced, could be sent to us in good condition just when we most wanted them. Apple trees, he said, were being largely planted in Australia, hundreds of acres being occupied with them in Victoria alone, and he predicted that ere long their fruit would form a valuable part of Australian exports to this country.

HARDY CACTI was the subject of a paper by Mr. E. G. Loder, who makes this interesting class of plants a speciality in his garden at Weedon, in Northamptonshire, and who has recently collected them from their native habitats in Colorado and in other parts of North America. Many interesting facts were stated with regard to the native habitats of these plants, which are of so much value to cultivators. He illustrated his remarks by numerous diagrams, photographs, and pictures, but he was unable to exhibit any flowering specimens of hardy Cacti at this early season of the year. The subject matter of this paper was much the same as that on hardy Cacti communicated by Mr. Loder to *THE GARDEN*, Vol. XX., p. 601, Vol. XIX., p. 593, and Vol. XXI., p. 28.

Mr. Max Leichtlin showed flowers of a new *Bomarea*, collected in Peru by Lehmann. Flowers of a red *Aubrietia*, raised by repeated sowings in the garden at Baden-Baden. The colours, however, can only be properly judged when a mass is seen in the open. Flowers of a new *Saxifrage* named *speciosa*, a natural hybrid between the form of *S. Stracheyi* and *S. cordifolia purpurea*. It combines the size and fine shaped outlines of the flower of *Stracheyi* with the rose colour of those of *cordifolia*; besides it is hardy and very robust in constitution. A third of a leaf of *Trillium discolor* (Wray), dark olive-green, chequered by splashes of whitish green; the triple or rather whole leaf measures 9 inches across. A flower of *Veronica Lavaudiana*, from New Zealand, dwarf and hardy.

The library of the Linnean Society on this occasion was gay with a bright display of plants and flowers contributed from numerous gardens. A glorious gathering of choice Orchid flowers from Sir Trevor Lawrence's garden at Burford Lodge, Dorking, was a great attraction, for rarely can such a display of Orchids be seen. It consisted of gorgeous *Cattleyas* (chiefly of *Mossiae*), *Lælia purpurata* and its variety *alba*, long, elegant wreaths of *Odontoglossums*, graceful sprays of brilliant-toned *Masdevallias*, while among the curious kinds we noted a fine spike of *Coryanthes eximia*, one of the rarest and most singular of all cultivated Orchids. Mr. Lee, of Downside, Leatherhead, also sent a rich display of Orchid blooms, chiefly of *Cattleyas*, *Odontoglossums*, *Vandas*, and quite a sheaf of *Masdevallia Harryana* and others. Another beautiful feature was an extensive display of *Rhododendrons*, from Mr. Mangles, of Valewood, Haslemere, who makes a speciality of *Rhododendrons*. These included huge trusses of *R. Nuttallianum*, one of the largest flowered of all the species, and with splendid white blossoms. In contrast with this was a flower spray of the tiny white *R. anthopogon*, one of the smallest of *Rhododendrons*. The group also comprised a large gathering of trusses of seedling and hybrid varieties, chiefly of the high coloured arboreum type. Mr. Major, of Croydon, and Mr. Boscawen also exhibited *Rho-*

dodendrons. Mr. Loder, of Floore, Weedon, contributed a most interesting collection of hardy plants, including rare and beautiful species, and a similarly interesting group was exhibited by Mr. Lynch from the Cambridge Botanic Garden, among which were *Cheiranthus mutabilis*, flowers of *Aloe plicatilis*, *Arctotis Aureola*, a handsome composite, *Siphocampylus bicolor*, *Vitis gongyloides*, *Nicotiana affinis*, the night-scented Tobacco plant, *Saxifraga peltata*, and *Pyrus spectabilis*. Messrs. Veitch contributed a choice group of plants, chiefly of *Nepenthes*, *Sarracenia*, the elegant *Asparagus plumosus*, and *Anthurium Scherzerianum*. Mr. B. S. Williams sent plants of various species of *Cypripedium*, and Messrs. Barr had an attractive group of their beautiful hybrid and other *Narcissi*. In the lecture room was an extensive collection of cut flowers of *Cypripedium*, to illustrate the paper on *Cypripediums*, kindly sent by Sir Trevor Lawrence, Messrs. Lee, Bowring, Peacock, and also flowers of hybrid varieties from Messrs. Veitch.

Lawn mowers.—I accept the challenge (p. 415) on the conditions named by Mr. May, Walton-on-Thames, if he will allow the further proviso named by me in *THE GARDEN* (p. 370), viz., that the lawn mower he uses at the proposed trial is to "satisfactorily cut" grass 5 inches above the level of the knife-plate; and by "satisfactorily" I mean that the machine must cut it close, smooth, and even the first time over. I am aware long grass can be cut by raising and lowering the knives, and going over the ground two or three times. But that is not what I mean or what is understood. The general level of the top of the grass to be cut must be 5 inches above the knife-plate, and Mr. May must work the machine himself. I will endeavour to meet his arrangements to his satisfaction, and I promise to report the result truthfully and accurately. I shall be pleased to discover a mower that will do what he says. I have found none yet that would do it, not even the *Inviacible*, which, I observe, beat the *Excelsior* at Manchester in cutting long grass by three points to one. I observe that Mr. May has raised his boy's age three years since April 21, when a twelve-year-old boy could easily use a 14-inch *Excelsior* on any ordinary lawn. Now he is to be fifteen years, and it is stipulated that he is only to work it for "a reasonable time without undue fatigue." I must protest against any further extension. When Mr. May has intimated in *THE GARDEN* his acceptance of these conditions, as stated here, I will write to him privately and arrange matters to our mutual satisfaction.—AN OLD LAWN MOWER.

—In reference to the discussion on lawn mowers, allow us to say that we have several in daily use and work them for profit; consequently we naturally try to procure the most durable, efficient, and lightest working machines in the market. After trying nearly all that have been brought to our notice, we have come to the conclusion that for our constant hard work, for long or short, wet or dry Grass, there is no lawn mower in this country equal to the "*Archimedeum*." Like Mr. May, we are neither lawn mower makers nor agents; but, unlike him, we have yet to see a lawn mower that will satisfactorily cut Grass 6 inches long on a thick English lawn. We have strong objections to imported lawn mowers, on account of the difficulty there is in obtaining broken parts or getting repairs done; but the "*Archimedeum*," although an American invention, is made in London, and in its case we have always been able to get done promptly what we required.—W. NORTH & SON, *Manor Lane, Lee, Kent*.

The "Standard" on lawn mowers.—He (the villa gardener) is, however, not without labour. He has a green patch of Grass, and after having in a man to mow this once or twice, concludes to try a mowing machine. Of course he requires one of the smallest size, one described by the maker as of "child" power. From the first he wonders over the strength of children, and finds that the machine requires all the power and much more than the average patience of a man. It is always clogging up or getting out of order. It

either does not cut at all, or tears the Grass up by the roots. After using it for a time he suggests to his wife that it will provide her with healthy exercise, but his wife altogether ignores the proposal. He then puts it to the servants whether it would not be a pleasant amusement of an evening for them to mow the Grass, but the servants both reply that they are not fond of gardening. The enthusiast, therefore—if he is not an enthusiast he will have given up the garden in despair at the end of the first year—is driven to work it himself. In time he gets to know the capabilities of his garden and enjoys them. It is not what he had dreamed of, but it is nevertheless pleasant. For labour a gardener comes in and digs the garden up thoroughly, when he puts in the *Chrysanthemums* and the bulbs, and during the rest of the year he comes in once a week for two hours in the evening to mow the Grass and tidy up.

Loudon's Arboretum Britannicum.—This work, with its illustrations, has been acquired by Mr. W. Robinson. The pages are not stereotyped, as are those of the "*Encyclopædia of Trees and Shrubs*," which is an abridgment of the "*Arboretum*." Of the "*Encyclopædia*" a small edition will be published by Messrs. Warne, after which the plates will be broken up, leaving the ground then free for a really new and complete work on the trees and shrubs of northern and temperate climes, should the taste of the public seem to warrant its production.

Grubs (W. J. W.).—The grubs you have sent are commonly known by the name of leather jackets. They were hatched from eggs laid by the daddy-longlegs, or crane fly. They are exceedingly destructive to many plants, and are very difficult to destroy, as any insecticide which would influence them below the surface would kill the plants. Numbers may be killed by rolling the ground at night. Long trenches 6 inches wide and 6 inches deep with upright sides have been found very useful; the grubs fall in whilst roaming about at night, and cannot escape. They should be collected in the morning. Pieces of Potatoes, Turnips, &c., buried in the ground, with a skewer stuck into each, form good traps; they should be examined every morning. Dressing ground with nitrate of soda, gaslime, soot, and guano has been found useful. When a plant is attacked, open the ground round the roots and pick out the grubs; they prefer damp, undrained land; moles and many birds are very fond of them.—G. S. S.

APPOINTMENTS FOR THE WEEK.

Manchester.—Whitsun week exhibition of Royal Botanic Society.

May 16.—Regent's Park.—First Summer Show of Royal Botanic Society.

Vanda teres Andersoni.—We have here a mass of this beautiful *Vanda* bearing forty flowers; it flowers regularly every year, each spike having six or seven flowers on it, a sight worth seeing.—J. GILLIES, *Grovesea, Middlesborough*.

Azolla pinnata.—It may be interesting to some to learn that this little aquatic plant has lived in the open garden frozen in 12° of frost in one of the tanks here provided for various kinds of aquatic plants quite exposed.—CHARLES GREEN, *Pendell Court, Eletchingley*.

BOOKS RECEIVED.

Voices from Creation, by Fannie Smith Marriott. Westerton, Knightsbridge; and Adams, Hereford.

Handbook of the Ferns of British India, Ceylon, and the Malay Peninsula, by Col. R. H. Beddome. W. Thacker & Co, London.

Names of plants.—*T. V. (South Norwood)*.—1, *Ame-lanchier canadensis*; 2, *Pyrus spectabilis*; 3, *Forsythia suspensa*; 4, *Ribes aureum*.—*A. K.*—*Ornithogalum ex-capum*. The *Ranunculus* we cannot name without radical leaves; 1, *Narcissus incomparabilis*; 2, *N. incomparabilis fl. pl.*, *Orange Phoenix*; 3, *N. odoratus*; 4, *N. Tele-monius plenus*; 5, *N. minor*.—*W. G. C.*—*Polemonium reptans*.—*H. R. C.*—*Tulipa sylvestris*.—*Mac.*—*Ficaria ranunculoides* (yellow). The other is not in a condition to name.—*E. N. S.*—*Ca'la ethiopica*.—*P. B. P.*—*Tulipa sylvestris*, the native Tulip.—*E. Tedman*.—*Umaria flus cinnabarinus*.

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"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—Shakespeare.

AN INTERESTING SMALL GARDEN.

THE garden I propose to describe is one where the owner (like many others), for uniformity's sake, is forced to conform to an unnatural style of gardening instead of to the seemingly careless, wild, informal style so much more to the taste of all who love Nature unadorned. It is on a terrace on which the previous occupants, with exemplary unanimity, committed themselves to Grass plots, Grass slopes, and Grass edgings; with flower beds in every variety of geometrical design—circular, star-shaped, oval, and so on; indeed the aim seems to have been not to have two alike. This style, however, had to be accepted, or the neighbours would have complained that the regularity of their lawns was spoilt by an adjoining wilderness. Still, much has been done to render this primness nugatory by ousting out all notions of annual bedding and planting perennials. Commencing with a selection of the most irregular stones to be found in an adjoining quarry, preference being given to such as were moss-grown, and half burying them, a natural appearance of outcropping boulders was obtained, and a few plants of the evergreen Iberis, Saxifrages, Sedums, and Mosses soon hid any faulty junctions between soil and stone. In a space of 50 yards by 20 yards much cannot be expected where the bulk is already appropriated by Grass, with its too great preponderance of bright green for colour harmony, but two borders at least are worth notice; one running the entire length of the garden is 50 yards long by 3 yards wide; the other at the end of the garden measured 20 yards by 4 yards, the latter unfortunately shaded by Balsam Poplars. Along this lesser border the path is irregularly edged with stones of all shapes, in the shelter of which Primroses, Polyanthuses, and Auriculas are planted; and as these get the benefit of plenty of light in spring before the overshadowing trees have come into leaf, they luxuriate, teaching us that many spring flowers may be well grown in what turn out a few months hence to be moist, shady situations. Under the trees, Daffodils, Wood Anemones, Ferns, and Foxgloves from the adjacent woods fill up what is generally a hiatus, whilst in the three divisions formed by paths, still shaded from the south, are British Orchids, patches of Mimulus, Mosses, shade-loving alpine, and such plants as Cyclamens, Camassia esculenta, Anemone fulgens, A. Helena Maria, Winter Aconite, Dog's-tooth Violets, mixed Oxalis, Irises, and Arums, not forgetting the Christmas Rose; these are backed up by Lupines, Famotories, Lavender, and Sage. The larger border of the two, running north and south and "sloping slowly to the west," is, however, that which affords the most pleasure, for here may be seen blooms of some kind all the year round. An ugly wall is hidden by Hollies, the red-flowered and white Ribes, and Laurels, these being so disposed that even in the depth of winter a comforting bit of colour is furnished for the artistic eye to rest on.

The ends of this belt of shrubs are left open, the side entrances being filled up with plants of the trailing Rosa arvensis of the woods and Sweet Brier. In front of the shrubs Lilies are grown—

L. tigrinum and *bulbiferum* alternating with clumps of *L. auratum*, a few Sunflowers and single Dahlias being interposed; then come *Chrysanthemums* (Pomponé varieties), *Gladioli*, *Tigridias*, *Aquilegias*, perennial *Phloxes*, and *Sweet Williams*. Before these again comes (I am sorry to say it) a row of twenty-five budded Briers of last season, the maiden blooms of which are expected to create a sensation, and to hide the long, ugly legs of these half-standards dwarfs on the *Manetti* are planted, and the *Roses* in turn are fronted by *Narcissi*, *Daffodils*, *Tulips*, *Anemones*, *Monardas*, *Pulmonarias*, *Funkias*, *Chionodoxas*, and *Snowdrops*, whilst the very front rank is occupied the entire length of the border by fancy *Pansies*. These *Pansies*, which were shrouded for six months of the winter under a blanket of dead Bracken and tanned matting, were uncovered during the mild weather of early March, and looked like bunches of *Watercress*, so fresh and green were they; but the 9th of March sadly injured them, with the exception of old stagers, such as *John Currie*, *John Grainger*, *Buttercup*, and *Fred. Perkins*, and these with their progeny of rooted cuttings in a circle round them have sufficed to fill up the blanks made in the ranks. But for this one frost the *Pansy* border would have been 2 feet wide, all grown from single plants put in last spring. The best way in which to increase a border of this kind is to open or lay bare the centre of each plant and drop on it a handful of sand and leaf mould in equal parts; in this the young shoots always springing from the centre readily root, and in a few weeks may be easily, but gently torn out and transplanted. These young plants give the largest blooms and best markings, whereas the old plants deteriorate. We may thus maintain individuality and perpetual rejuvenescence without much trouble. For winter protection, as has been stated, fronds of dead Bracken are laid lightly over all on the first frost setting in, and these in turn are covered with a strip of old netting to keep them from being blown away. Under this covering *Pansies* are many degrees warmer than they would otherwise be and scarcely cease growth all winter. Indeed, the only thing to guard against is too early uncovering.

On the other side of this small garden a dividing fence of iron hurdles is utilised by having galvanised wire netting fastened to it, and on this such climbing *Roses* as the *Evergreen Félicité Perpétué* and *Dundee Rambler* are trained, each being budded in the case of a few shoots with *Hybrid Perpetuals*. *Sweet Peas*, major *Nasturtiums*, *Hop-bines*, major *Convolvulus*, and *Canary Creepers* are allowed to ramble as they please over this wire-work. Next come four beds—round, oval, star-shaped, and nondescript, the first being filled to overflowing with *Carnations*, *Picotees*, and *Pinks*, not forgetting the old crimson *Clove* and the white *Mrs. Sinkins*. Bed No. 2 contains *Roses* on the *Manetti*, but treated in an uncommon, though not a new way. A tall shoot near the centre of each plant is left erect, a few inches being cut off the extremity in pruning, and all buds but four or five of the uppermost are rubbed off as they appear; the rest of the branches are bent to the ground, slit with a knife for half an inch in length at the point where they touch the soil; there they are fastened to a slight stake, and a mixture of leaf mould and sand is put round the fracture, care being taken not to break the bark all round. This gives us from one plant (a standard) a bed of *Roses* close to the ground, and

on their own roots. The third bed is occupied by dwarf *Roses*, *Moss*, *Damask*, *China*, and *Hybrid Perpetuals*, with clumps of *Irises* in the intermediate spaces, whilst the last bed contains own-root *Roses*, interspersed with masses of *French Ranunculus* and *Myosotis*. *Roses Madame Berard* and *Gloire de Dijon* ornament the house front.

Horsforth, near Leeds.

R. A. H. G.

NOTES.

THE CRESTED IRIS is not too common in the best of gardens, albeit very lovely when its delicate mauve blossoms peep up thickly among its short, broad spear-like leaves. A mat-like mass of this dainty crested *Iris* now lies in the sun before me bearing a hundred or more of its flowers and purple-tipped buds, the whole mass, fresh leaves and flowers, nestling quite close to the earth, being in this way more dwarf than the *S. pumila* varieties, and bearing flowers of different structure. In warm, moist, sandy soils this beautiful *Iris cristata* spreads so quickly, that one wonders the more at its rarity in most gardens.

THE GRAPE HYACINTHS are all very lovely. How rarely, however, is the true *Muscari pallens* to be seen. It is similar to the white form of *M. botryoides*, sometimes called by old authors "Pearls of Spain," but is dwarfer and of a delicate pearly grey or lilac hue. The varieties and shades of blue to be found among blue *Grape Hyacinths* are so marked and different, that I expect *M. botryoides* to be a species of extended distribution, and therefore climate and natural seedling have done good work in adding a variety of charm to its native beauty. These forms of *Grape Hyacinth* are, however, so commonly met with in all good old gardens, that we need say no more of them, but the yellow Musk-scented kinds are less frequently seen, and yet a few shrivelled flowers in a drop of water long remain a fountain of sweetness when brought indoors. This plant is *M. moschatum*, of which there are three or four kinds, the best of all and one of the rarest being *M. moschatum flavum*, which is just now in bloom. Its buds are purple when young, but turn soft, pure yellow as they attain their full size. The large waxy bells and their delicious fragrance are but too seldom to be appreciated; even in good nurseries it is a rare plant, but this rarity of itself will be to some a recommendation.

DIVERSITY OF COLOURS.—"About 15,000 varieties of colour are employed by the workers of mosaic in Rome, and there are fifty shades of each of these varieties, from the deepest to the palest, thus affording 750,000 tints, which the artist can distinguish with the greatest facility." So much for stone pictures, but who shall tell us of the myriad colours, and shades, and hues which lie ready to the hand of the gardener? Nature and art have given to him a palette and a canvas of the best, and it is his own fault if his work be not noble and enduring. It is his duty to make the earth "bring forth her increase" of blossom and nobler fruitage. He may paint the earth with loveliest colour, and drape rock, or wall, or tree trunk with the magic living tapestry of Nature herself. To no other artist has she given so much; none have been honoured as she hath delighted to honour him; all others may but copy or imitate her. At the best a "true likeness" is their reward, but he who would plant a modern Eden is alone permitted to enhance her own charms. "This is an art which does mend Nature: change it rather: but the art itself is Nature."

THE TIME OF WINDFLOWERS.—Some of the *Anemones* are just now very fine, all the *A. coronaria* and *A. stellata* varieties to wit, and a great blaze of colour, bright as *Poppies*, they make along with *Wallflowers* and *Tulips* in the balmy sunshine. But the gems of the tribe now in bloom are *A. alpina* and its still more lovely soft-yellow variety *A. sulphurea*, both now at their best, and

the last is as I take it perhaps the *Anemone* of spring-time, stately and refined in port and colour, while, its soft finely-cut foliage rivals that of *Thalictrum* or Fern. Tufted masses of *A. thalictrifolia* (some call it *Thalictrum anemonoides*) are now thickly beset with pure white stars, and the two double-flowered varieties of *A. nemorosa* are also in bloom, beside that most graceful of all the *Windflowers*, *A. sylvestris*, which is everywhere throwing up its pure white flowers towards the sun, while its downy buds hang *Snowdrop* fashion above the dark green tuft of leaves. Even the dwarf *A. decapetala* has a soft clear greenish yellow beauty of its own. Odd blooms of *A. apennina* still linger in moist, shady nooks, but the two loveliest of all early spring kinds, *A. blanda* and *A. nemorosa* var. *Robinsoniana* (*A. n. var. cœrulea*) are things of the past for this year. Some people have told me that *A. apennina* and *A. blanda* are merely forms of the same plant; but while the first has thick stringy roots, *A. blanda* has large corrugated tubers; indeed, when their underground growth is seen side by side no one could confound them.

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THE BRONZE LEAF is a plant not often seen, allied to the *Saxifragas*, and a native of Japan. I saw it at Coombe Wood two years ago; it is one of Mr. Maries' introductions, and was considered valuable, for I could not get a bit of it either for love or money from Mr. Veitch, and yet when I narrated the fact to my friends the amateurs, two of them sent me nearly as much as would fill a wheelbarrow. The plant is a noble one, and is now very fine, spreading out its large five-lobed leaves in the sunshine, and in colour they are fine olive-green or bronze, quite different in port and formation from those of any other hardy foliaged plant I know. Planted in bold clumps near to golden *Plantain Lilies*, or nigh to the golden-leaved *Comfrey*, the bronzy hue is intensified and a very striking effect is produced. Those who admire noble foliage should make a note of this, one of the noblest of all the "Stone-breaker" family.

*
PLEASURE GROUNDS.—I sometimes wonder how far this name is truly and rightly applicable to the outlying portions of the lawn, since, as a matter of fact, every inch of a garden, however large or however small, ought to be a pleasure, or garden of pleasure to its proprietor. Whenever a garden or a portion thereof becomes a burden to dress and keep, there is something wrong, and the sooner the owner makes it pleasant to himself in some other way the better, for if a garden is worth the name it must yield either profit or pleasure or both in return for the work expended upon it. Would that our gardens were more often pleasure grounds than they are; and yet I know some few gardens that are well planned and so well planted that while yielding their owners much genuine enjoyment, they are not at all expensive to keep. I was in such a one yesterday. Sloping down to the sun a little lawn leaned towards a fruit and Cabbage garden, with a nook or two stolen here and there from the vegetable quarters for a few *Roses*, or for a few choice alpine collected by their owner in his own holiday tours. Here a *Rose* has wedded an *Arbor-vitæ*; there is a blaze of *Forget-me-nots* and *Tulips*; a few choice *Ferns* grow on the wet stones near a little water-tank, and just now the place is a picture of green turf and Apple blossom. Two or three little greenhouses nestle in the lower garden, where *Orchids*, *Ferns*, and other exotics thrive. They are mostly the willing gifts of friends of kindred tastes and fancies, and while in bloom they are brought to live in the dwelling-house, and so for the time become personal acquaintances rather than mere floral ornaments. In these greenhouses all space is utilised; floors, stages, walls, and roof are alike taxed to support as much floral beauty as may be, and some large flower-pots filled with water and used as tanks for aquatics of curious interest are fairly swaddled in a mat of the black hair-like roots, and bristling with fresh green fronds of the native *Maiden-hair Fern*. *Caladiums*, *Begonias*

Coleus, *Hoyas*, *Orchids*, *Ferns*, and *Selaginellas* all live together in happy company, and I am very much mistaken if there are not larger and more expensive gardens which yield far less enjoyment to their owners than does this small one to my friend. This and many other little gardens of similar kind are real pleasure grounds to those who have them, yielding something pleasant to the eye and also produce good for food.

VERONICA.

PLANTS IN FLOWER.

FRENCH ANEMONES from Colonel Stuart-Wortley's garden at Rosslyn House, Grove End Road, remind us that these brilliant spring flowers can be grown admirably even in a London garden. The rosette-like flowers are of various bright shades of scarlet, crimson, blue, purple, and are well developed. Colonel Wortley remarks that he finds them very useful in making the garden gay at this season.

ARBUTUS MILLERI.—I send you a spray of this *Arbutus* to show you the beauty of its clusters of almost pure white flowers. I find it quite as hardy, if not harder, than the common *Arbutus*, and you will notice that the flowers and foliage are more robust. I have not seen any fruit yet.—JOHN S. TREVOR, *Hampton House, Malvern*. [Evidently a handsome shrub, having vigorous foliage and large dense clusters of white Lily of the Valley-like flowers.]

THEROPOGON PALIDUS is the name of a rather new and pretty greenhouse plant from the Himalayas. It may be best likened to an *Ophiopogon* in the foliage, which is long, narrow, and recurved, but the flowers are very similar to those of *Lily of the Valley*, and exactly the colour of what is known as the rosea variety. They are produced in spikes slightly overtopping the foliage, and their colour is a pale violet-purple. It is an easily grown plant treated in an ordinary greenhouse temperature, and when well grown has a pretty effect when in flower, as it now is at Mr. Bull's nursery at Chelsea.

THE ACACIAS in the temperate house at Kew are just now worth a journey to see, particularly the large planted out bushes of *A. armata*, verticillata, and others which are 8 feet or 10 feet high, and complete masses of yellow blossoms. Small pot plants on the stages represent a large number of species from which a selection of the best and most useful sorts for that kind of culture may be made. It is, however, when planted out in free soil and with plenty of room for development that *Acacias* are seen to best advantage, and where possible they should be so treated in private gardens.

MARECHAL NIEL ROSE.—Some glorious blooms of this popular favourite, figured in THE GARDEN last week, has reached us from Mr. Fyfe, gardener at Thames Ditton House, where it appears the *Maréchal* is grown to perfection. In the conservatory there a grand specimen has produced hundreds of blooms this season, and if of the same fine quality as those now sent us by Mr. Fyfe, it must indeed have been a beautiful sight. In some places the *Maréchal* is a capricious subject to cultivate, and on the other hand it seems to flourish to perfection in some gardens without any special attention. Mr. Fyfe could, perhaps, give our readers a few hints upon his course of treatment.

CALOCHORTUS LILACINUS.—A flower of this charming little Californian plant comes from Colonel Stuart-Wortley, who appears to be successful with its culture, as he says that "every bulb has thrown up three or four flowers which last a long time, and the one sent has been open seven days." *C. lilacinus* is one of the true *Calochorti*, that is those species having large, open, spreading flowers. It has rather broad leaves and conspicuous bracts, and bears its flowers on long, slender stalks, from four to eight from a bulb. The flowers measure nearly 3 inches across; the three broad petals are a pale lilac-mauve, blotched with purplish red at the base,

covered on the inner surface with short silky hairs. It is a native of California, about San Francisco, and was figured in the *Botanical Magazine*, t. 5804, under the name of *C. uniflorus*. It is, indeed, a pretty plant, and one well worth a little trouble in cultivating.

POLYANTHUSES.—Two correspondents, Mrs. Mansfield, Castle Wray, Ireland, and Mr. Horley, Toddington, Beds, send us some beautiful gatherings of *Polyanthuses*. Mrs. Mansfield contributes some extremely pretty sorts, good in flower and rich and varied in colouring. As she observes, they have great decorative value for the open garden, and the raising new seedlings of them affords much pleasure. Mr. Horley's are chiefly *Hose-in-hose* kinds, and are likewise very showy.

LATE CHRYSANTHEMUMS.—Having seen several accounts in THE GARDEN of late-flowering *Chrysanthemums* this season, I enclose blooms of a white Japanese variety, named Mrs. Charles Carey, cut from a plant that has been in bloom since November last. Last week thirty blooms were all open at once, and there are buds in all stages, so that this variety will be in bloom for a long time to come. Till last week I had another—an incurved variety—in bloom named *Exquisite*, but its beauty is now over.—E. PETERS, *Somerset Terrace, Guernsey*. [These unusually late blooms are really very fine, as large and as pure in colour as in November. Soon we shall be having *Chrysanthemums* all the year round.]

CRASSULA JASMINEA makes an extremely pretty pot plant for the conservatory at this season when grown as it is by some of the market growers around London who lately seem to have taken a particular fancy for it. It is very neat in growth, being only about 6 inches or 8 inches high; its dense tufts of flower-stems form a compact globular mass of white blossoms which at once remind one of *Jasmine*. It is a near relative of the well-known *Kalosanthes coccinea*, the flowers being about the same size and shape, and borne in similar umbelled clusters, but white instead of crimson. It is an old plant in gardens, but it is only recently that its merits as a market plant have been recognised. It is made free use of by Messrs. Veitch in furnishing their large conservatory in the Royal Exotic Nursery, Chelsea, at the present time.

Names of Poppies.—Last autumn, when looking over the Rev. Mr. Ewbank's garden at St. John's, Ryde, I was particularly struck with the gorgeous black-blotched crimson flowers of a dwarf *Poppy* which he informed me was *Papaver umbrosum*, and kindly gave me some seed, stating that the best way to treat it was not as an annual, but as a biennial. It should, he said, be sown in pans or boxes and wintered in a frame or cold house. Acting on this advice, I sowed the seed immediately on my return, and have now plants that promise to flower much earlier than spring-sown ones. As soon as I get expanded flowers I shall endeavour to verify the name. This *Poppy* is dwarf and compact with very pretty laciniated foliage.—JAMES GROOM, *Seafield, Gosport*.

Myosotis diesitiflora alba.—The prevailing idea respecting this lovely *Forget-me-not* at one time was that it was only the white variety of *Myosotis sylvestris*, but as I had an opportunity of seeing it in quantity frequently when living in Kent, I felt sure it would not be long before its true character and merits would be recognised. I am, therefore, pleased to see that Messrs. Veitch have taken it in hand. Good clumps of it in pots are strikingly beautiful, and can easily be had, as it is a plant which can be readily raised from seed. Seed-bearing plants must, however, be protected from linnets, or they will certainly take every seed as it ripens. I have frequently noted that even here, where birds are scarce, linnets find out the *Forget-me-not*, the seed of which they prefer to that of any other plant ripe at the same time. A small-meshed fish net is the best safeguard, and then any seed that falls on the soil will germinate; and this variety may even be readily increased by cuttings, or pieces of it merely pulled off and dibbled into any cool, shaded position will grow.—JAMES GROOM, *Seafield Nursery, Gosport*.

TREES AND SHRUBS.

EDWARDSIA GRANDIFLORA.

A WEEK or two ago some flowers of this valuable wall shrub were sent to us by Mr. Scrase-Dickins from his garden at Coolhurst, Horsham, and as the

species is one of the many plants discovered by Sir Joseph Banks in New Zealand, where it forms a tree of considerable size. A finer sight can scarcely be imagined than a tree of this sort extending to a great breadth on a wall with a western aspect in the apothecaries' garden at Chelsea, where it was planted by Mr. Forsyth about

otherwise, so as to induce it to form short-jointed shoots, which, if well ripened, will be sure to flower the succeeding season. There are several other species belonging to the genus *Edwardsia*, but we believe there is but one other in gardens besides *E. grandiflora*, viz., *E. microphylla*, which bears smaller and more slender foliage, and not such large and showy blossoms. This used to be grown against a wall at Kew, and though the plant rarely flowered, its elegant foliage had a pretty effect.

BERBERIS DARWINI AND JAPONICA

THESE are now in their glory, and when planted in suitable soils and positions, few of our early-flowering shrubs can surpass or even match them.

Both thrive best in good, rich loamy soil, thoroughly drained. They are very suitable for planting in the mixed shrubbery, as well as in plantations, where they afford excellent covert and food for pheasants. They also thrive remarkably well when planted on well-decomposed peat bog, especially *B. Darwini*, which often attains a large size, and produces great quantities of flowers and fruit. The latter, if protected from game with a piece of netting, falls to the ground when ripe, and produces a crop of seedling plants without any

trouble. Seedlings, however, whether self-sown or raised in a seed bed, should be planted into nursery lines when they attain a few inches in height, allowing plenty of room for development, and for weeding and keeping the ground in proper order. When one year in these lines, the stems should be cut over in spring a few inches above the surface of the ground; by this means they will produce three or four stems in the place of the one cut down, thus making fine bushy plants either for ornament or game covert. When intended for covert, they may either be mixed up with others, or planted in the form of groups of different shapes and sizes, each of which should be at distances of some 50 yards asunder. But, whether planted with others or in groups, care should be taken not to plant this *Berberis* in stiff clay soil, as it not only fails to grow, but often dies altogether in the course of a few years after planting. On patches of stiff clay, however, the *Berberis Aquifolium* grows freely, and, as it is a close bushy evergreen, it also makes excellent covert. I have likewise used *B. Darwini* in the formation of ornamental hedges, for which it is well suited; likewise for training on old walls and wooden fences where it is desirable to form a screen to shut out unsightly objects; and as it is a rapid grower and easily trained and kept in proper trim, it is admirably adapted for such purposes. The merits of *B. japonica*, either for covert or ornament, cannot be too highly appreciated. It is well adapted for planting as a single specimen on a well-kept lawn, and in such a situation it generally becomes well furnished and bushy; it may also be trained with a single stem in the form of a standard, which in spring produces pretty yellow flowers, surrounded by flat shining leaves, thus producing a striking contrast, which is in no way lessened when the flowers are shed, and their place filled up with pretty fruit, consisting of large berries of a bluish colour, covered with a bloom which cannot be surpassed, if even equalled, by that of the finest black Grapes. When it is desirable to propagate this species the berries should be protected by a piece of netting, in order to keep birds and game from eating them when they get ripe. My practice has been to sow the seed as soon as matured, choosing a piece of well pulverised ground in a sheltered place in the nursery for the purpose. It should be sown broadcast, and covered lightly with fine sandy soil, and in winter, should the weather be severe, the young plants will require a little protection, as they are liable to be cut down or thrown out of the ground altogether by hard frost. When



Flowering branch of *Edwardsia grandiflora* (flowers yellow). Sketched in April from a plant grown at Coolhurst, Horsham.

plant appears to be but little known, we thought that by giving an illustration of its flowers and leaves our readers would have a better idea of its appearance than words can convey. It is by no means new; it was indeed brought to this country from New Zealand upwards of a century ago, and formed the subject of a coloured illustration in the *Botanical Magazine* as far back as 1791. We therefore cannot do better than reproduce the note that appeared with this plate, which runs as follows: "This magnificent and highly curious

the year 1774, and which at this moment (April 28, 1791) is thickly covered with large pendulous branches of yellow, almost golden, flowers. They have a peculiar richness which it is impossible to represent in colour. In winter care is taken to cover it carefully with mats lest it should suffer from any extraordinary severe weather." A coloured representation of it appeared in *THE GARDEN* in 1877. Its chief requirements are a warm, sunny wall, protection from excessive cold in winter, and a good loamy soil, rather stiff than

they attain a height of 5 inches or 6 inches they should be planted out into nursery lines, allowing plenty of room for their development; and when they attain a height of 10 inches or 22 inches they may be planted out where they are to remain.

J. B. WEBSTER.

Cost of extinguishing forest rights in Epping Forest.—The extinction of the rights of fuel in the manor of Waltham Holy Cross and Sewardstone, which were utterly destructive to the appearance of the forest, cost £15,000, and £7000 were paid to the inhabitants of Loughton to extinguish their rights of lopping. The entire cost under the arbitration has been £109,505, besides £15,779 spent in improvements since October, 1882.

Deodar and Himalayan Silver Fir.—Most people will read with interest the following extract from a letter communicated to the *Indian Forester* by Mr. A. Smythies, from Messrs. James Backhouse & Son, York: "In reply to your inquiry, we believe that, in point of fact, there never was such a thing as what is usually called 'acclimatisation' anywhere. What has been done has been merely finding out what the constitution of each species, or variety, will bear in the way of climate. *Abies Webbiana* will not endure the casual (and especially late) frosts of low situations; but at an elevation of 500 feet or 600 feet, on well-drained hillsides, it grows very freely and forms a magnificent tree. Severe mid-winter frosts rarely injure it; perhaps we may venture to say never. The Deodar, so far as we have seen, always suffers severely, and often fatally, with a frost of great intensity, say thermometer at or below zero. In low ground therefore it is almost useless. At 500 feet it has a very good chance in many situations; 1000 feet is too high. Personally we should plant freely, and measurably fearlessly, both these conifers in the situations which we have just specialised. We think you will find as a rule that where natural hardiness is the result of high latitude there is nothing to fear, but that when supposed hardiness results from high altitude of native locality, the risk in all our low-lying ground is very considerable."

FLOWER GARDEN.

HARDY PLANTS IN YORKSHIRE.

NOTWITHSTANDING the severity of the weather and the lateness of the present spring, many plants are quite up to time as regards flowering, and never looked better, especially such as naturally push late. The *Gentians* have done well: *G. verna* has been in grand condition for a fortnight, and *G. acaulis* is fast coming on. The stout stems of the stronger growers are only a few inches high as yet, notably *G. affinis*, *G. Burseri*, and *G. lutea*; of the dwarf sorts, *G. ornata*, a free grower, *G. brachyphylla*, and *G. bavarica*, I may say that I find them, like *G. verna*, to do better in pots than elsewhere—at least they form more compact specimens. *Epigæa repens* is still in flower and has been so since early in March; it ploughs the loose surface leaf mould with its bloom spikes, which are half buried; it is very partial to shade. *Sanguinaria canadensis*, in a broad patch and well established in a moist part of a small rockery, has been exceedingly fine for a fortnight. *Viola biflora*, too, in large plantings, even if somewhat spare in foliage and small, has an effective appearance, its bright yellow flowers showing themselves off to advantage. It is a good rock plant, and increases moderately in leaf soil from self-sown seed. A score of bulbs of the *Belladonna Lily* planted exactly two years ago in the open at a depth of 9 inches are pushing satisfactorily; they were not of a first-class quality, the best having been taken for pot culture. Some of the finer varieties of tree *Carnation*, which I always winter in the open, are fresh and plump and just now making rapid growth. *Trilliums* never looked better with me, but what can have happened to the just opening flowers? They have a gnawed appearance, as if a strong-billed bird had been

picking them. We have had two distinct periods of *Hepatica* bloom; the first was checked by the March storm, and in mid-April the second came as a pleasant surprise. Now, the Apple-green foliage of the blue kinds, in bold patches, is truly effective; the leaves of *H. angulosa* are from 4 inches to 5 inches across. Tulips with heavy flowers are woeful objects just now, being broken off by the recent wind and rain. A neat belt-like tie slipped up the broad part of the leaves until all are slightly drawn together has not only saved a few in most exposed situations, but scarcely altered their natural appearance. *Hellebores*, nearly all of which were cut to the ground, leaves and flowers, in March, are again in fine condition, the leaves being well grown, some 15 inches or more high, and therefore very promising as regards next winter's flowers. The dwarf North American *Phloxes* have not got on so well; in fact many are killed; but I may add that where lime has been freely added to the soil they are all right. Irises do not seem to like my sunny situation and dry soil, and now that slugs are getting plentiful, they suffer a great deal from their ravages. It is only with much watching that small specimens of Irises can be established from one or both of these drawbacks. Just now *Narcissi* as a whole are at their best, all the sections being more or less represented. A patch of Emperor and Empress 3 feet across is a joy-giving sight, and tempts one to view it often; and how durable the flowers are! What a pleasant thing it is to find the roots of

CYPRIPEDIUM SPECTABILE as long and stout as those of plants gathered from their swampy habitats! This I found to be the case when taking up a few roots of *Primula rosea*, also grown successfully in the same compost. Many of the North American *Cypripeds* which had been nursed in pots and pans, and which had dwindled to the merest bits, were last summer turned out into the same quarters, where they have improved both in size and freshness. *C. acaule* is now quite established in a sort of half boggy vegetable soil, rendered so by conducting the water to it from a walk. It has after three years passed its dwindling stage; the roots are now very active, and the crowns quite as plump as when imported. *C. Calceolus* has been established here in calcareous loam for several years, and I find it to be increasing, too, in some large pots plunged in very cool quarters during summer. When one recalls the pains taken to establish this interesting Orchid, and finds some roots simply buried in sand two years ago to have become the finest specimens about one's garden, all such efforts seem needless. The flowers from these were very fine last year, some being produced in pairs, and they seeded so well that I decided to leave them alone, though they were in a most inconvenient position. Baring the roots, new ones were found to be a foot long and very thick. They are also now showing finer foliage than before, and stouter than I ever saw plants from well-selected Swiss-grown roots. I consider that those wishing to establish this desirable Lady's Slipper may glean a hint here, and that it is not a mere chance hit in practice is proved by planting others in the same, or nearly the same, way from some potfuls which were not doing well, but which have freshened and grown well since.

EPIMEDIUMS.—About a dozen kinds were so badly cut in March, that there will be little or no bloom. *Viola pedata* and the bicolor variety seem to enjoy our climate. They are as free as the common Pansy. *Asarum caudatum* is an interesting plant. It is in all respects similar to the European species, except the flower, which reminds one of that of some of the tailed *Cypripediums*. Iris *Kämpferi*, strong seedlings of which were left out all winter for want of space under cover, have been badly damaged, many being killed. What a pretty plant is *Saxifraga virginensis*! It is dwarf, and has tufts of spoon-shaped, viscid leaves, richly bronzed; the short, stout flower-stems are numerous, from 3 inches to 6 inches high, forked, and densely bloomed. They are nearly ruddy, as also are the calices, which

show up the white flowers to advantage. The bright lemon-yellow anthers are also a distinct feature. Herbaceous *Fæonies* had their early growths split by the intense frosts of March, and I much fear their bloom will be unsatisfactory in consequence. The Tree kinds, too, were killed back to the old wood, and though the then dormant buds are now pushing well, flowers will be scarce. *Pulmonaria dahurica* is a gem; its pretty deep blue, clove-shaped flowers are simply exquisite, and the straggling habit of the stems seems to add to its winsome beauty. *Saxifraga Vandelli*, a rare bloomer with me, has flowered this spring in a pot. The flowers are in the way of those of *S. Rocheliana*, pure white, but much larger and almost an inch across when well expanded. It is one of the most stubborn growers I know. The leafy stems resemble those of some Club Moss, being furnished with the old leaves of years back, and only showing rosetted tufts in the green state at the points. J. WOOD.

Kirkstall, Yorks.

GOLD-LACED POLYANTHUSES.

IN Mr. R. Dean's kindly notice of my new seedling Polyanthuses (p. 425) he omits to mention the red ground which was shown in London under the name of Red Exile, and which was passed over by the judges under what was, I believe, a misapprehension. Its name was unfortunately chosen, as it at once challenged comparison with Exile, and Mr. Ben Simonite fetched a plant of that grand dark ground Polyanthus from the prize stands and placed them side by side before the judges. It was pointed out by Mr. Simonite that the young flowers of Exile came red and exactly resembled in colour my new seedling, and he argued that one was merely a sport from the other without sufficient difference; and so it was passed over. If my red seedling is thus worthy to stand before such competent judges and hold its own against Crownshaw's Exile, it is indeed a grand sort, and I am abundantly satisfied. However, to prove its mettle, we exhibited it at Manchester the week following without the name which had proved so fatal to the plant in London—simply as a seedling, and it won both in the threes and in the singles. Thus, then, it has doubly won its spurs, although nameless; and as Lord Derby is one of the subscribers to our northern section, I have taken the liberty of calling it by his name. Red ground Polyanthuses are mostly delicate, and especially those sorts which are descended from Sir Sidney Smith through Lancer, from which pedigree I think Mr. Barlow's beautiful Sunrise originates. If we can get a sturdier habit into red ground Polyanthuses it will be a step in advance, and with this object we have used Exile and George IV. with Lancer successfully.

It will have been noticed by florists that Maund's Beauty of England has frequently been in the winning lists this season. Mr. Simonite challenged the name of this plant in London, declaring it not to be the true Beauty of England, as he well remembered it. What, then, can it be if it thus wins whenever it is properly shown in perfect condition? There is no brighter Polyanthus grown; and as my plants were Tom Mellor's, they came from the collection of one of our best florists, who knew as much of Polyanthuses as any man. A very old florist was here yesterday, whose father and grandfather before him had grown Auriculas. On seeing our Polyanthus frame he at once singled out Beauty of England as being the true Pearson's Alexander, and I believe it will prove to be this, if it is not the Beauty of England, as the same remark has frequently been made at our flower shows. Perhaps Mr. Simonite will give you his views on this matter.

With reference to Mr. Dean's remarks about excessive losses in named Polyanthuses, I consider the cause is twofold. In the first place the plants suffer from over-division, and in the next from being grown in pots. The Auricula, which is naturally a rock plant, and which likes a dry soil, is easily managed in pots. But the Polyanthus, which is naturally a moisture-loving plant requiring a meadow-like treatment, can never be

successfully managed by continuous pot culture, and it is from this persistence in pot growth that it becomes weakly and falls a prey to red spider in summer and to damping off in winter.

Tom Mellor always grew his show Polyanthes planted out in sod frames, only using the glass coverings during excessive rains and during winter. In this way his plants were kept cool in the hot summer weather, and they grew amazingly strong and healthy. When show time approached the best plants were carefully selected and prepared for showing, and they suffered little if lifted from the frames and potted a day or two before the show. We have followed the same system here lately with marked success, and shall continue it in future.

WM. BROCKBANK.
Brockhurst, Didsbury.

GARDEN POPPIES.

THE note of Mr. Knox (p. 425) contains a statement which obliges me to answer it, and therefore, though I have no special knowledge of the subject, I have put together a few remarks for the benefit of any of your readers who may wish to know the best varieties to cultivate. At the same time I shall take it as a favour if experienced gardeners will freely criticise and correct my statements. Poppies were amongst the earliest of garden flowers. The historian Livy informs us that they were the tallest and most conspicuous plants in the palace garden of Tarquinius Superbus at Rome, 2400 years ago. These were probably the Oriental Poppy, of which my recollection extends over upwards of forty years. When first I began gardening I knew two tall perennial red Poppies, then distinguished as *P. orientale* and *P. bracteatum*. The former was the more common in old gardens. It is about 3½ feet high, with large loose orange-red flowers, not opening quite upright, the bud when young being inverted, as in the common field Poppy. *P. bracteatum* is of a stiffer and bolder growth, often a foot taller, the colour rich dark scarlet, the flower larger and opening more evenly, the bud being quite upright from its birth. On the stalk and just beneath the flower are several large bracts. I first raised this plant about thirty-five years ago from seed purchased of Messrs. Carter, and have grown it ever since. Some of the plants were, when I left Eton five years ago, in the same spot in which they were originally planted. They transplant and divide badly, but ripen seed in abundance, being easily raised from seed, and flowering when two years old. Their habit is to rest all the summer and grow all the winter and spring, the leaves dying down in June and reappearing in November. Those to whom I gave seed generally threw the seedlings away on the first disappearance of the leaves, thinking they were dead. These two species are still common in gardens, but are partly superseded by garden varieties or hybrids of them. These are sold by nurserymen under various fanciful and unauthorised names, as *maximum*, *involucratum superbum*, *bracteatum speciosum*, *grandiflorum* and so on, but some of the varieties are very good, and certainly improvements on the species. I was especially struck with several which I saw in May last year in the nurseries of Messrs. Smith, of Worcester, who have a fine collection of them raised by themselves. I must next speak about yellow Poppies, that I may disclaim any knowledge of a yellow *Papaver umbrosum*, a plant of which I will say more presently. First there is *Meconopsis*, which is Greek for having the look of a Poppy. The Welsh Poppy, *M. cambrica*, is common in the crevices of the steep dripping precipices on the higher Carnarvonshire mountains, and is a plant I found when I came to Edge fifteen years ago established as a weed in every waste corner of the garden. It is still a most persistent weed, but pretty, and easily kept down. It is a true perennial. Another yellow Poppy-like plant is *M. nepalensis*, easily raised from seed if it can once be got above ground, and uninjured by any amount of cold, but objecting to dry soils and drought. Its life is of uncertain duration, but it generally dies after flowering. Then there is *Cathcartia villosa*, in habit and appearance half-

way between the last two, a fast increasing perennial, easily divided, but not easy to raise from seed—a plant of no special merit.

The seaside yellow Horn Poppy (*Glaucium luteum*) is well known to all. It is worth cultivating for its peculiar foliage, which it retains all the year, and seems in a garden to forget its maritime habits, and to make itself happy in any soil or situation. It is not annual or biennial, as books on botany generally tell us, but a true perennial. Two more Poppies, *Papaver alpinum* and *P. nudicaule*, complete the list of yellows of which I intend to speak. They are neat and elegant garden plants either for a rockery or a dry sunny border. In their normal and typical state with yellow flowers they are pretty, but difficult to distinguish, and are made more so by the readiness with which they vary their colour and form in cultivation, probably forming hybrids. The best varieties are the white and the bright orange. None of the colours can be depended upon to come true from seed, but they may be stored on any spare bit of sunny ground and transplanted even when in flower. They flower late the first year from seed, and live two or three years. I have tried several other perennial Poppies, but those I have mentioned are the best. For annual Poppies my soil is too cold and damp. In the sunny south some of the garden varieties of the common field Poppy (*Papaver Rhæas*) are pretty enough if well grown; but I never could admire any form of the Opium Poppy (*P. somniferum*) sold as Carnation or Pæony Poppy; there is such an untidy look about them, and the seed heads are so ugly.

But I must keep room to speak of *P. umbrosum*, the only Poppy which I make a speciality of in my garden. I hardly think I could have spoken to Mr. Knox of this as yellow, and should have been as much surprised to hear that I had spoken of Buttercups as blue. It is a plant to which justice can hardly be done by growing it as an annual, though its natural duration of life is less than a year. It is a native of the Caucasus, and was introduced by Mr. W. Thompson, of Ipswich, about four years ago. The seed of the year should be sown early in August, and care should be taken to prick out the plants in moist soil, and to keep them growing, and to give them plenty of room, for if they attempt to throw up a flower-stalk before winter they may as well be pulled up and thrown away. They should be planted in their flowering places early in November, and will grow all the winter except during hard frost. Every plant should have a clear space to itself, measured by a radius of 18 inches from its centre. By the beginning of May, if well treated, the tuft of root leaves will be 2 feet across, and the flowering stems showing, and they will be full of flower from the middle of May to the end of June.

In my soil plenty of self-sown seedlings come up where the plants have been, and these make the best specimens, whether transplanted or left. They appear in August. Sowings, especially in spring, are apt to miss. In the first place, Poppy seed keeps badly. In the second place, slugs and other garden vermin seem to have a vicious taste for opium, and clear off the minute seedlings before they have been seen. How certain individual plants escape in the open border where slugs abound is a problem which often puzzles me. If gardeners who have tried *P. ambrosum* only as an annual will grow it as I have described, I think they will never regret their change of method.

Edge Hall, Malpas.

C. WOLLEY DOD.

Anemone coronaria Empress—It is stated in THE GARDEN (p. 398) that we cannot grow such Anemones as those lately shown at South Kensington from Cannes, but their sizes are not given. I can hardly think that they were larger than the saucer-like blooms of the Empress strain which I have at present in my garden. They are of all colours—crimson, white, blue, and variegated, and many of them measure 4½ inches across. They are, however, not so bright in colour as some seedlings of my own, but the latter are not so large.—W. J. M., *Clonmel*.

SELF-COLOURED DAFFODILS.

ALLOW me a few final words upon the question of self-coloured Daffodils. When in London last week I asked Mr. Barr if the Tenby Daffodil I sent for his inspection, at the same time as that sent to Mr. Burbidge, was a self, and he admitted he considered it as such, although he thought it a faded bloom. I explained that it was cut freshly the evening before and he was satisfied. Mr. Douglas, than whom there is no better authority as a floral judge, was at Brockhurst last week, and I showed him flowers of two varieties which he said were undoubtedly true selfs, and that I might tell anybody that this was his deliberate opinion; and lastly, that renowned florist, the Rev. C. Wolley Dod, wrote me two days ago as follows: "As for self Daffodils, if I were umpire I think you would have won the kettle either with Tenby or *maximum*. *Spurius*, though it comes out perfectly self, does not retain its selfness to the last, but I think *maximum* is the most self." Our Daffodil campaign has been an interesting one this season, and we may consider the question of self Daffodils quite settled by the discussion. I think most florists consider that if a stakeholder had had the custody of Mr. Burbidge's kettle it would have now figured in my museum.

WM. BROCKBANK.
Brockhurst, Didsbury.

PANSIES IN POTS AND PLANTED OUT.

EXIT Auricula, enter Pansy, and this without any disparagement to the Auricula. Not that Auriculas are quite out of bloom, for some of the later flowering varieties are at their best, and lovely they are, but their floral beauty will soon be gone to appear no more until next spring. The Pansy, in pots under cover and in the open air, is just getting into a state of lovely floral development. As I want them to succeed the Auricula in my north house, they are only just now being put into their flowering pots. It is late for this operation in a general way, but when space is limited one must wait until opportunities offer themselves and they can be utilised. I have about thirty plants in 3-inch pots which I am shifting into 5-inch ones. They are grandly rooted, and they show this by their vigorous growth and the freedom with which they are throwing up young growths from about the base of the main stem, and they are yielding me fine blossoms—yellow grounds, white grounds, selfs of various colours, and fancies. As soon as the plants are shifted the flowers will be kept picked off until the plants are established, and then they will be allowed to bloom freely. The plants came to me in the first instance by post, and as soon as received they were potted into small pots, using a compost made up of leaf-mould, well decomposed manure, yellow loam, and sand. This made a nice, light, rich compost, and the roots soon began to work in it. I am now shifting (as before stated) into the large pots, and am using the same compost. As soon as repotted the plants will go into the north house, where there is ample shade, and here they will bloom with Mimuli, tuberous-rooted Begonias, a select collection of Fuchsias, zonal Pelargoniums, &c. It may be said that these Pansies will not flower until the middle of June, when the sun is hot and the atmosphere dry, and that such conditions are unfavourable to the perfect development of the flowers. There is some truth in this. It is a fact that the most perfectly developed and marked flowers are those which can be had in April and May, but with care in cultivation, with attention to cleanliness, by giving the plants the benefit of cool shade, and stimulating them with a little liquid manure administered at intervals, wonderfully fine flowers can be had at midsummer. On

PLANTS IN THE OPEN AIR in summer without shading the flowers will be imperfectly marked. It is always so at that season of the year unless the summer is continuously wet, and then good blooms can be had. It is in spring and autumn that we get the finest blooms in the open air. In the case of beds in the open ground, they need to be well cared for just now. Finding that the blasting,

icy winds of March had destroyed some of my plants, I recently lifted and replanted the whole of them. The wet winter and the absence of the disintegrating influences of frost had operated to cause the soil, naturally heavy, to run together and become hard and unworkable. This was remedied by digging the beds over two or three times, breaking the lumps in doing so, and working in a good dressing of road grit, soil from the potting bench and Cocoa-fibre refuse mixed together. The plants, assisted by the recent rains, are working into it nicely, and they are growing and blooming freely. This is as it should be. The next thing to do is to keep the surface soil stirred, so that it does not bake, and adding some top-dressing at times, watering freely during dry weather, but taking care when doing so to give a thorough soaking, so that the roots may be well moistened. There is nothing like top-dressing for Pansy beds. During summer free-growing plants send up young growths from the roots, and it is of great advantage to provide a rich light surface dressing so that they can have something to root into. If this be not provided the plants will dwindle away and die. There is this further advantage in encouraging these young growths, that it supplies a number of young plants when the stock plants are divided at the end of the summer. And now the question arises, what

VARIETIES OF PANSIES out of the many to be found in catalogues are best worthy of cultivation. The following from Messrs. R. B. Laird & Son's (of Edinburgh) collection will be found to comprise varieties of the highest quality. Selves: yellow—George Murray, pure yellow, very fine; Zama, yellow, of fine form, and very smooth; George Rudd, deep golden yellow, very fine; white—Mrs. Dobbie, white, with dense blotch, smooth and fine; Mrs. Goodall, pure white, very fine; and Peerless, creamy white, large and fine; blue—L. T. Fleming, bluish black, large and fine; Sunny Park Rival, dark blue, very fine; and W. J. Rawlings, azure blue, extra fine; purple and black—A. Fox, very dark glossy purple, smooth, and extra fine; Beacon, dark maroon, extra fine; Captain Elder, light purple, extra fine; David Malcolm, really black, very striking; George Keith, dark, exquisite form and texture; and Rev. D. Taylor, dark purple-maroon, extra fine. Yellow grounds: Linnæ, deep golden yellow, belted with bronzy crimson, extra fine; Lizzie, lemon-yellow, light bronze, purple belting, very good; Alexander Whammond, rich yellow, bronzy purple belting; Captain Cowan, deep golden yellow, belted with bronzy purple, very fine; Ebor, deep golden yellow, belted with dark bronze, a fine show flower; Ila Murray, yellow and deep bronze, very broad belting; Master Ord, yellow, dark bronzed belting, fine and striking; Mrs. Russell, light yellow, belted with bronzy purple, extra fine; Perfection, golden yellow, belted with dark purple, one of the finest Pansies ever offered; Pilrig King, rich golden ground, dark margin, very fine; and The Favourite, yellow, with a narrow purple belting, extra fine. White grounds: Alice Downie, light cream, belted with purple; Duchess, pure white, belted with dark purple; Ladyburn Rival, white, broad purple belting; Miss Bessy McAslan, white, light purple belting, a very fine show flower; Miss Fergie, pure white, belted with deep rosy purple, fine form and very smooth; Miss Jessie Foote, pure white, belted with light purple, fine blotch; Mrs. R. B. Matthews, large flower of exquisite form, pure ground and deep glossy purple belting; Princess of Wales, pure white, belted with rich maroon, extra fine; Sunnypark Beauty, white, with light purple margin; and Undine, white, with a very light purple belting, extra fine form.

THE FANCY VARIETIES I will leave for a succeeding paper. In concluding, I can but express my regret that the south of England generally is so unfavourable to the well-being of the Pansy in the open air during summer. It is too hot and dry, the plants get affected by thrips during a period of drought, and they suffer heavily from mildew from the same cause. Those who grow them do so under difficulty, but they were difficulties our

forefathers overcame to a great extent, and why should not we? Perhaps there is a tendency in the present day to give up the cultivation of flowers that require more than ordinary care to bring them to perfection. But there is something glorious in triumphing, and the true love for flowers is in the heart of that man who is determined to develop the best of any particular subject in spite of obstacles that may lie across his path. R. DEAN.

WATER LILIES.

MR. KINSMAN, of Warren, has written to me occasionally about Water Lilies and his manner of growing them. A letter I had from him the other day concerning them is so full of interesting information, the result of his experience, that I thought if published it would encourage and guide others in the cultivation of these beautiful flowers.

"I live," says Mr. Kinsman, "upon the bank of a mill-pond, on the Mahoning River. The rear end of my garden slopes down to the river, which sometimes rises more than 3 feet above the usual flow. The main current is on the side opposite to me, and every year deposits a rich bottom mud on my side. I set out all of the hardy Lilies, including the *Nelumbium speciosum*, leaving them to take care of themselves. I find that they are all fond of good rich earth, well mixed with rotted manure. I find my best *Nymphaea tuberosa* at the mouth of a drain from my house and barn. Two years ago the mill-dam making the pond was let down, leaving the ground bare where the Lilies were planted. I set some men in and built up a mud bank enclosing a pond at a bend in the river, next to my garden, 50 feet by 100 feet in extent. This mud bank or wall was raised up so as to make a walk around the pond at all ordinary stages of water. I built fences down to the walk strong enough to protect the pond from any floating ice, and guards at the ends of the fences to prevent intrusions on my garden and grounds, leaving the walk around next the river open. In this pond I put my choicest Lilies, leaving an abundance on the outside for the public to prey upon. I put three pipes into the embankment 15 inches in diameter, to let the water flow in and out with the rise and fall of the river. I have kept the roots of tender sorts in boxes through the winter, set in wash-tubs with a tap at the bottom to once a week draw off the water, then filled up my water tank in which they remain quietly until spring. I then take out the boxes and tubs in time to give them the heat from my hot-beds for a start for summer bloom. I have never arranged for winter bloom, but the blue Egyptian has given me some early winter bloom from the tub.

"Four years ago I procured from Chautauqua Lake a small white lily, more like *Nymphaea odorata* in size and colour more than anything else; also *N. tuberosa*, large, white, from Conneaut Lake, Pa. Of these I put out about a dozen of each kind, setting them as you would set an ordinary root on dry ground. The water was about 2 feet deep in ordinary height. Of my Chautauqua Lily, the pond is white with the blossoms in summer, and it has also spread outside of the pond. I received from Mr. Gray the Boston *N. odorata*, to compare with the Chautauqua form, but I was absent from home last year when they were in bloom, and did not see them." I do not see much said about *N. tuberosa*. It is the most luxuriant Lily I have, and I think more generally admired than any other. It luxuriates anywhere in the country, but is especially copious in the west and south. Its flowers are large, white, and showy, but they lack the delicious fragrance with which *N. odorata* of the Eastern States is so richly gifted; hence the fragrant Lily is the favourite. "*N. odorata delicata* has done well with me. It blossomed the first year I had it, when its flowers were of a pinkish shade, but it lost that in the second year's blooms. I got the Boston red (*N. odorata rosea*) last year, but it has not given me any blossoms yet. *N. alba* (the English waxen Lily) is a very desirable species; it did finely with me last year, and lasted in bloom till the frost came. *N. flava* (the Florida yellow Lily) I have had for two years, but it has

not blossomed. I put it out into the pond with the others, but it has not looked healthy. I have thought it possible that it might require the same culture as the *Sagittarias* (Arrowheads)—between land and water." As the plants advance in age they have a peculiar tendency to elevate their crowns into the water several inches above the soil in stilted-up fashion—different from most Lilies. Should these crowns rise above the water they would not have the protection of earth or water, consequently get sunburnt. This has led me to surmise that it may be a deep-water Lily; but the accounts of its growth in Florida which I have seen are too meagre to guide us in cultivation, therefore I believe that the best thing we can do is to experiment for ourselves. Its behaviour here proves that it will grow, thrive, and blossom in moderately deep water; that it is hardy if its roots are kept beyond the reach of ice; that its open-air blossoms are finer than those which it bears under glass, and that it spreads and multiplies itself exceedingly by means of runners. "*N. cœrulea*, or the blue Egyptian Lily, wintered well and came out early, but was in August attacked by aphides and musk-rats. The rats ate the blossoms, so I took it up to finish blooming in the greenhouse. Of *N. devoniensis* I had two small plants, but I did not start them in time; one failed, and the other came out right and bloomed until killed by November frosts.

"I have had *Nelumbium luteum* for three years, but it has not blossomed. I account for this by its being crowded too much, and also by its being grown in too shallow water. Last year it got into deep water and showed more than a hundred sprouts, so that I feel sure of a good bloom from it next year. *N. speciosum* has proved thus far quite hardy with me. I got a root of it in 1881 and planted it in my pond. It did finely, and gave me ten full blossoms the first year. I did not take it up for winter, and last year it came out about the last of July or first of August, and continued in bloom till frost came in November, and spread out, say 30 feet, around the main stalk. It is a very vigorous and rapid grower; last year it pushed its way through the mud embankment and came up outside. I had in the river, before I began to cultivate these Lilies, the old yellow "Spatter Dock" and two or three varieties of Arrowheads. The latter I dug up too abundantly, as now I wish I had more of them."—W. FALCONER, in *Country Gentleman*.

FLORISTS AND THEIR FLOWERS.

No one, I should think, could have seen Mr. Waterer's collection of Primroses at South Kensington without admiring them, but it is to be hoped your correspondent "J. M." is alone in the bellicose feeling which these simple flowers seem to have aroused in him. Cannot he admire garden Primroses without disparaging florist's Auriculas? That the "pip men" at all events have no such feeling was shown by the beautiful collection of Primulas and Primroses from Mr. Llewellyn, Mr. Dean, and Mr. Brockbank. "J. M." may not like the florist's Auriculas, but to speak of the splendid show of April 24 as "the poor little exhibits of the pip men" displays indifference not only to the flower, but to fact. So far from the public not caring for the Auricula of the florist, it is known that there is a yearly increasing number of cultivators who, like myself, have had no opportunity of becoming intimately acquainted with the "points" of the flower, but who have been attracted simply by its beauty as seen at these shows. What "initiation" indeed can there be needed for the appreciation of such flowers, for instance, as Colonel Taylor, or Imperator, or Charles Perry, or Heroine? Nor are the "pip men" or the amateurs alone in their attachment to the Auricula. More than one old nurseryman have I heard express his intention on retiring from active work to settle himself down with a frame of these charming flowers as his pet hobby. A flower that has this great fascination for all classes alike has clearly much more in it than seems dreamt of in the philosophy of "J. M." The florist, be he "pip man" or not, may well

feel more than ordinary devotion to his flowers. He is more often than not a dweller in or near a great town, where he finds his Auriculas, his Carnations and Picotees remain his faithful companions and his friends when nearly every other flower has refused to live with him. "J. M." says that only delicate kinds can be expected to be developed by putting a hardy plant coming from the coldest mountains of Europe in a greenhouse or cold frame. But this is not done so much with the view of shielding it from cold as to protect it from the excessive wet of our autumns and springs, which not only spoils the blooms, but constantly rots the plant. Plants put out of doors under the superior climatic conditions that may be had in the country may thrive in spite of all the rain that falls, but near town it is certainly otherwise. For my own part, I have lost so many plants of alpine Auriculas, Carnations, and Picotees, and other subjects planted out during winter and spring, that I look upon the cold frame as the sheet anchor of town gardeners.

M. R.

NOTES AND READINGS.

PLANT NOMENCLATURE.—Nobody, we presume, contends for the use of English names, except for garden flowers. To extend them further or much beyond typical varieties would lead to confusion. In orderly and intelligible arrangement the botanist has the best of it, but popular English names would greatly help to familiarise lovers of flowers with garden plants. Latin names are not, as a rule, applicable or acceptable to such people who yet feel the want of a nomenclature every day in their intercourse with one another. Classes and orders, or even species and varieties, they have not the time nor the will to concern themselves about; nor do they need. All they require to know is the name of the flowers in their borders which are familiar enough to them by sight, but totally unknown to them in a botanical catalogue; hence many amusing blunders are the result, ladies and gentlemen buying and receiving in presents plants, on the strength of a name and a recommendation, of which they may have thousands in their own garden. Popular names that become permanent are usually given on the spur of the moment.

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THE LABOURS OF THE FLORIST.—Mr. H. Bedwell, writing to the *Field*, desires to know what the florist has not done in producing marked and distinct features of difference in shade or colour in the Auricula, to which the editor replies that there are five varieties of colour. Most opportunely that king of Auricula growers, Mr. Ben Simonite, in a letter to a provincial newspaper last week, throws some light on the labours of the florist resulting in this achievement. "It has been the work of hundreds of years to bring it to its present high state of perfection," he writes. It would appear, therefore, that the progress of the florist has been as slow as his expectations have been high and his patience remarkable. According to the same competent authority, there has been a sad falling off of enthusiasm among cultivators. "Early in the present century the Auricula was a favourite everywhere, and exhibitions were held in all the principal towns in England." Mr. Simonite enumerates the necessities of Auricula culture. How to grow plants in the rockery or on the border we are not told, but the Auricula fancier must possess himself of glass frames, mats, loam, leaf soil, manure, sand, and pots; and he must drain carefully, pot carefully, air carefully, protect carefully, and smoke the plants carefully. The following compost, recommended by a once famous florist, is not considered needful nowadays: "One-half cow manure, one-sixth sound Heath, one-eighth rotten leaves, one-half coarse sand, one twenty-fourth soft decayed Willow wood, one twenty-fourth peat or moor Heath, and one twenty-fourth burnt ashes of vegetables; besides the above are recommended bullock's blood, goose manure, night soil, and sugar baker's scum in equal parts as a top dressing in the spring." The contents of the witches'

cauldron were poor compared to this, but Maddock, its author, who lived about the end of the third or beginning of the present century of the Auricula Improvement Association, could be no fool, and no doubt he recommended the twenty-fourth part of Willow wood and baker's scum, &c., for good and specific reasons. Seriously, I do not despise the labours of the Auricula man, and if he "wad only tak a thocht and mind" and give us plants for the garden instead of consumptive varieties to be from the beginning to the end of their lives in the nursery, he would be forgiven all his foibles. It is not the aid of glass and coddling that has enabled him to effect the changes he has effected in the Auricula's shape and colour.

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MR. WRIGHT, in a contemporary, says, speaking of Belgian and English leaf-soil, that leaves for leaf-mould should never be heated. This, he says, is Mr. Barron's advice, and is borne out by recent observations of his own regarding Belgian Camellias and Azaleas, the luxuriant growth of which is attributed to the nature of the leaf soil they are potted in. "Persons who endeavour to imitate the compost in which the plants arrive" find that the plants "no longer flourish as they did before, however carefully they may be tended in other respects," the writer states. Is this so, may we ask? Our experience is that very few imitate the Belgian compost, not finding it needful, and it will be admitted, we think, that if we do not propagate Azaleas as extensively as the Belgians do, we at all events grow as good, if not better, specimens. Belgian Azaleas of the trade stamp are good, because, as English growers say, the Belgians make their culture a speciality, and now grow the plants, not in pots, but planted out, the imported plants sold in this country seldom being pot-bound. The difference between Belgian leaf-soil and ours, it appears, is that the former is allowed to decay naturally, while we ferment ours, causing the "formation of acids and gases in the absence of oxygen that are inimical to plant growth."

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FINE VARIETIES OF ORCHIDS.—Abundant importations make it clear that we shall have to modify our ideas concerning the hitherto regarded splendiddissas, gloriosas, and incomparables among certain classes of Orchids. First acquaintance with new and better forms tempted growers to apply high qualifying names that left no room for the extolations of future importations, and the consequence is there is now a dearth of adjectives in the dead languages wherewith to describe the recent contributions in the shape of Cattleyas, Dendrobiums, Vandas, and the like. The cry is still they come, and nearly every batch furnishes the finest forms which improve themselves the stronger their bulbs grow. The white petalled and sepalled Cattleya Mendelli, for example, of the grandiflora type is no longer a stranger to growers—nay, it is even surpassed by others, and the same could be said of C. Mossiae, Vandas, Dendrobiums, Odontoglossums, Cœlogynes, and others. Every season the importations continue to increase in number and quality, and if Orchids increase as slowly as those who profess to know most about them would have us believe, those best localities which every collector professes to seek must soon be robbed of their treasures for some time to come; and from the way the trade and others are running after importations, this state of things seems to be realised—it is who shall have the last haul. We shall be having a duty on Orchids before long. There are now two prominent auctioneers in the field, and both appear to have plenty to do.

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THE BANNER PLANT (Anthurium).—The large-spathed varieties of this plant are highest priced, but those who are wise prefer the smaller flowered, but freer flowering, varieties, these being far prettier, as well as more useful. The varieties vary considerably in colour, some being a vivid scarlet and others crimson of intense shade, but none of the Scherzerianum variety are poor; not so the new Anthurium Andreanum, with its greater glitter, but less artistic shape of flower—sometimes

amounting to deformity. There are also visibly good and bad kinds, some of them being of a not very attractive brick-red hue. At the late Manchester show hardly one perfectly formed flower could be seen.

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DAFFODILS IN POTS.—Those pots of the Hoop-petticoat Daffodils at several shows lately attracted much attention, a circumstance not to be wondered at. It is a matter of surprise, indeed, that the Daffodils have not long ere this been added to our indoor bulbs. They have frequently been mentioned as suitable for forcing, but they have not hitherto been generally employed for that purpose. They are no novelty in April or May in pots, but we have seen the smaller varieties, including N. Bulbocodium, in flower in February and earlier in a small amateur's vinery years ago, at which season they are a treasure. The slight assistance they need in the way of heat can hardly be called forcing; and yet the Daffodils are but one of the many species of hardy plants that might be used for the winter and early spring decoration of our conservatories and rooms. Mostly all our spring and early summer flowers force freely—Primroses in variety, Arabis, Candytufts, Lithospermums, Wallflowers, Stocks, Iris, Scillas, Forget-me-nots, &c., and afford a rare reserve for those who like to have early flowers at the least cost.

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AUSTRALIAN APPLES.—We notice that very little is said about the eating qualities of these Apples. Two or three years ago, as was mentioned in these notes, the writer was struck by the extraordinary beauty and perfect appearance of examples of Apples in a well-known fruiterer's window in Manchester about this season of the year, and found on inquiry they were from Australia, but as poorly flavoured as they were good-looking—being, in fact, quite insipid and almost tasteless. The fruiterer shook his head over them.

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FLORISTS AND THEIR FOIBLES.—The Rev. Mr. Tymons should not complain of criticism, especially in reference to a writer like the one quoted in last notes, who praised a florist's flower because it looked as if it had been coloured by a painter's brush, and lectured the general public for not seeing beauty with his eyes; besides, have not florists in times past insisted that their "rules" and "standards" were perfect and all others wrong? and have they not written, and published, and lectured, and exhibited, and been generally aggressive and dogmatic whenever the merits of their favourites were discussed? Why, too, should they fear criticism? I daresay there are many amiable men amongst them; in fact they are not accused of anything but of narrow and rather contracted views that have hampered their progress from the beginning. We refuse to recognise the Auricula, Tulip, or Pansy "florist" in the Veitchs and Cannells who have given us those popular races of flowers that everybody grows and can appreciate, and Mr. Tymons knows as well as anybody that the "fraternity" have had little or no hand in such work. It was only when the work was taken out of their hands and conducted on broader lines that any great strides in improvement were made. The old florists' "points and properties" were unintelligible to the general observer, as the writer on the subject of "thrum centres" and "florists proper" tells us; whereas the modern florist tries to give us flowers the properties of which appeal to everybody at the first glance, and does not concern himself in the least about foibles.

PEREGRINE.

To protect iron and steel from rust.—Prof. F. Grace Calvert has discovered that the carbonates of potash and soda possess the same property of protecting iron and steel from rust as do these alkalis in a caustic state. If an iron blade is half immersed in a solution of either of the above carbonates, it exerts so protective an action, that that portion of the iron which is exposed to the influence of the damp atmospheric

air does not oxidise, even after a period of two years. Similar results have been obtained with sea water to which have been added the carbonates of potash or soda.

ROSE GARDEN.

ROSE PROSPECTS.

THESE can hardly be said to improve as the season advances. Neither, to be exact, can the season be said to advance, unless it be backwards, for March weather in May has hitherto been the order of the day. With the wind glued in the east or the cold north; showers of rain alternating with hail and snow-storms; the warm sunshine of the day succeeded by sharp stinging frosts at night, the resuscitation of sorely hit and crippled Roses can hardly be expected. Hardly, in fact, have they ventured to put forth a fresh green leaf till it is shrivelled and blasted by the cutting winds or stinging frosts. And this process of growth and arrestment or total destruction of growth is being repeated again and again. All this involves a serious loss of time as well as of vital force, and the danger is daily becoming more imminent that the latter may become exhausted in this zig-zag process of growth and destruction. No doubt a thorough change of the weather might do a good deal to brighten the prospects of rosarians. But of this there seems but little hope. Somehow or other May has mostly of late years proved almost the most ungenial month of the twelve to cultivators. And were it from this 7th day to prove as genial and warm, as could be desired, even such stimulating weather would fail to restore dead Roses to life again, and more and yet more plants are dying daily. It might, however, do very much indeed to strengthen and invigorate weather-beaten and frost-bitten Roses, and these are far more numerous than the absolutely dead. In fact, the majority of Roses are more or less injured, and as the season advances the injury becomes more apparent. Few things are more deceptive than the first attempts to grow of frost-stricken plants. The more deeply they are injured, often the more haste are they in to grow. This seems in accordance with a general law that haste is more frequently allied with weakness than with strength. Be that as it may, hardly had the frosts of March ceased to bind the Roses than they began to grow. But April, though less severe, was hardly more favourable than March. In some respects it was even less so, for in April 6° of frost is more potential to injure Roses than 20° in March. Hence the serious danger and augmented injury arising from frosts in May. It may, in fact, be almost accepted as an axiom that the later the frosts the more injurious. This principle has recently been illustrated with disastrous effects among our Roses. We are now engaged in what we trust may prove

THE LAST PRUNING of our Roses this spring. The majority of the Perpetuals were pruned early in March. The severe frosts pruned them a second time. Towards the end of the month they were looked over again. And now in May the dead and injured portions are being cut out. After all these prunings, mechanical and climatal, it will readily be seen that little flowering wood remains on many of our Roses. Where that little, however, is sound and healthy, there is a sure basis left for the renewal and re-invigoration of the future plants. This season severe cutting back has been rendered compulsory, with what ultimate results remains to be seen. Its immediate effects must of necessity be a later Rose season and fewer flowers than usual.

DWARF ROSES ON THEIR OWN ROOTS have had the best of it this season. These where unprotected and not earthed up may, in general terms, be said to be killed to the ground-line. But an inch or less from this magical dividing line between earth and sky the Rose collar and base of branches are absolutely safe, and from these there are springing forth such strong beginnings of giant-like shoots that promise a speedy rejuvenation of the bushes. Even most of the Teas

seem healthy from an inch to an inch and a half below the ground-line. These are, however, rendered safer by an earthing of 2 inches or 3 inches, or by a mulch of any kind ranging in depth from 2 inches to 6 inches. The only difficulty about mulches consists in knowing when to remove them. This season, for example, those that disearthed or unmulched their Roses in April have probably had their most promising breaks killed back. But in all cases where these base breaks have escaped, they appear among the most cheering prospects to the rosarian on this the first week of May. The next most gratifying prospect is the fresh and healthy state of

TEA ROSES ON WALLS. Where these were protected with Fern fronds or Spruce or Yew boughs, and the protection was kept on sufficiently long, they broke fresh, vigorous, and promising as could be desired. Teas on walls unprotected, including Gloire de Dijon, are terribly punished, nearly all of the first breaks and much of last year's wood being destroyed. As usual when Roses are severely injured by frost, the maggots are early at work among them. When food is scarce, there not only seems to be, but actually are, I believe, more maggots to devour it. Hence the special importance of vigilance and promptitude in their destruction. Aphides will also most probably follow sharp on the heels of recent frosts. There seems an abnormal sweetness in semi-frozen leaves that specially invites, increases the number, and develops the strength of these pests. Finger and thumb, an aphid brush, a dash of Tobacco juice, or a pinch of snuff are the most summary and efficient remedies. Crippled tops also develop root and stem suckers to an abnormal extent. Remove all the former and most of the latter, unless the tops are in such a bad way as to suggest the wisdom of a renewal by a fresh start, in which case one or two of the best placed stem suckers may be left for budding. Where this is done the old top should be bodily removed immediately after blooming or at once should the prospect of bloom not prove promising. Weakly Roses might often be strengthened considerably by the removal of all flower buds so soon as they show. This course obviously involves a great sacrifice of beauty. Still it is far better to lose one crop of bloom than to lose the Rose bush, or merely prolong its life in a state of weakness. Hard pruning and the removal of all flower buds from weakly plants are two of the most powerful recuperative measures at the command of the rosarian, and it is seldom that they have been more needed or would prove more useful than this season. D. T. F.

BRIERS WITH DEAD TOPS.

THE Roses are dead; up with them, root and branch, is too often the impetuous decision of the rosarian, soured with disappointment. Yet a moment's reflection would show that much root force and stem accommodation are lost by the destruction of Briers that may have lost their heads. In many cases nothing is injured but the Rose, which, in most cases, is more tender than the Brier. In many more, however, part of the upper portion of the Brier is also crippled, or has died back, partly probably in sympathy with the dead Rose, or from the biting severity of the frost. But wherever any portion of the stock is left safe and sound, the wisest plan is to cut back to this and await the result. In most cases growth is as sure and satisfactory as possible. One or many strong shoots burst forth from the stem. One, two, or at most three, of these, if placed pretty closely together, should be selected for budding. The best placed, as well as those highest on the stem, should be chosen.

In standards with frozen heads there seems an abnormal tendency to the production of rootsuckers. The sap suddenly arrested in the Rose crowns appears to rebound to the lower extremity of the plant. Not being needed there for any other purpose, it is at once expended in the production of suckers, and these need prompt and immediate suppression to secure strong and early shoots for budding. Occasionally, however, the whole Brier

stem is so withered up or blighted by the frost, that the better way is to cut it off by the ground line, and from thence a root sucker may be led up for future use. These casual suckers will at times be of such giant-like dimensions, that a Brier a yard high and of sufficient thickness for a standard may be thus provided fit for budding on in July or August. By either of these systems vital force is husbanded, and root force turned to the best account in filling up the cruel blanks made by the frost among our Roses. H. H.

TEA ROSE ADAM UNDER GLASS.

THIS is assuredly one of the most delicately beautiful and floriferous of all the Teas. It was raised by Mr. Adam, of Rheims, and sent out in 1838, and has therefore been more or less known to rosarians for 45 years. Singularly enough, however, it was rather less than more known, and in consequence was rechristened President many years after its introduction. As an old cultivator of Adam chiefly under glass, and a grower of President in the open air, I was one of the last of rosarians to admit their identity. Grown under such diverse conditions, the Roses are far more distinct than some others rejoicing in different names. But under identical conditions of soil, site, climate, culture, Adam and President coalesce into one. The final test submitted to me was a mixture of buds and expanded blooms, and inability to distinguish or separate them. Adam varies very much in size grown under different conditions. Some of the catalogues describe it as very large and full. When it reaches a state to warrant this description, this charming Rose is already spoilt. Like Devoniensis and so many other charming Tea Roses, Adam is far away most beautiful in bud. When fully opened it is globular and full. The colour in bud is a deep full rose; as it expands the colour is less deep, with a perceptible shade or touch of salmon. Though not one of the fullest scented Teas, such, for example, as Maréchal Niel or Devoniensis, it is nevertheless sweet, and altogether is an invaluable Rose.

IN THE OPEN AIR the tints are somewhat deeper and the fragrance fuller than under glass. But for bouquet and other purposes the greater delicacy by no means lessens its value. The form is also modified under glass, the buds especially becoming more pointed. The protection of glass also develops to the full the natural and extraordinary floriferousness of this useful Rose. In the truest sense of the word glass alone renders this Rose perpetual. Add sufficient heat to command a temperature of 45° to 50° throughout the season, and few weeks or days need pass without being enriched with the beauty of an Adam Rose or Roses. In an unheated passage we gather four crops a year with a good many straggling blooms between. It is our earliest and latest blooming Rose. Its first harvest of beauty appears in February or March; its last mostly amid the fogs of November. By cutting the flowers pretty closely back when almost half or three-quarters open the habit of perpetual blooming is hastened, strengthened, and more fully developed. No Rose with which I am acquainted, with the single exception of Gloire de Dijon, will

BREAK AND BLOOM so rapidly on the heels of the knife as the Adam Tea. The growth is moderate rather than vigorous, but it is prompt and perpetual, and with anything like careful culture this Rose seldom produces shoots too weakly to bloom. It so happens that our finest plant has a border about 6 inches wide and 18 inches deep to grow in. This is hemmed in on one side by a brick wall, and on the other by a stone path. True, the roots are fed with a good many sewage dressings throughout the season; but even with these the roots must have a straitened, hard time of it. No doubt the Rose would do still better under more favourable root conditions. But as it is, I should not like to give a statement of the number of blooms we cut from it during the season for fear of being accused of exaggeration. Those who have room for but one Rose under glass cannot do

better than choose Adam; while those who have space for several kinds should see that several of them are of this self-same variety. For many years I have found Adam the most useful of all Tea Roses for pot culture, running up rafters, or for the clothing of walls. D. T. FISH.

INDOOR GARDEN.

INTERMEDIATE HOUSE PLANTS.

FOR the information of "Ixion," who (p. 415) inquires respecting intermediate house plants, I may say that no absolute line separates them from stove plants such as there is in the non-ability of the latter to live and thrive in a greenhouse. In most cases intermediate house plants need more air, a somewhat drier atmosphere than stove plants and less shade, but not all, as there are some that will not do with less shading than the tenderest leaved of the stove occupants—for instance, the *Franciscas*, especially *F. confertiflora*, one of the most beautiful of all flowering plants, and which cannot bear the sun's rays to reach its foliage except in the two last and two first months of the year. As to the temperature that should be maintained in such a house, it will be best as near 50° in the night through the winter, as it can be kept without exceeding that figure, with a rise of 6° or 8° in the daytime. During night in summer it may run as near 60° as may be, but except in the hottest weather it will be better not to exceed this, giving air freely in the daytime when hot, but at the same time not subjecting the plants to direct cold draughts, especially in spring when the sun often raises the temperature when the air is yet very keen. In hot, sunny summer weather the heat will as a matter of course in the middle of the day get as high as in the stove, but the extra air given will cause the atmosphere to have a less exciting influence on the plants. It is this that makes the difference in the ability of some species to flower that under the influence of the more confined heat of the stove keep on growing too rapidly to ever get their wood solidified enough to set bloom. With intermediate plants, as with the occupants of the stove, I have found it best not to keep them so long dormant in winter as is often supposed to be requisite, as where this occurs it follows that it necessarily shortens the season of growth, and with it in a corresponding degree the season of flowering of all that have a continuous habit of blooming, or anything approaching to it. For this reason it is best to raise the temperature 5° or 6° during the day at the beginning of March, increasing it as the sun gets a little more power. Amongst

THE BEST FLOWERING PLANTS for growing in such a house may be included *Bougainvillea glabra*, in pots or planted out, and if the house is a large one, *B. spectabilis*, also planted out, but the latter species must not be pruned in before making its growth like the first named. *Anthurium Scherzerianum* does better in an intermediate heat than in the stove, always keeping the roots in fibrous peat, *Sphagnum*, and crocks, like *Orchids*. *Franciscas confertiflora*, *F. Hopeana*, *Gardenia intermedia*, *G. radicans*, and, in a roomy house, *G. Fortunei*, *Gloxinias*, *Griffinia hyacinthina*, *G. blumenavia*, *Imanophyllum*, *Lasiandra macrantha*, *Luculia grattissima*, *Macaya bella* (one of the best of all flowering plants), *Rogiera grattissima*, *Rondeletia speciosa*, *Stephanotis floribunda* (kept dry at the roots in winter), *Strelitzia reginae*, *Tacsonia Van Volkemi* (climber), *Achimenes*, most of the varieties of *Amaryllis*, most of the *Begonias* (including the tuberous-rooted kinds), *Brunfelsia americana*, *Burchellia capensis*, *Hexacentris mysorensis* (climber; kept dryish in the winter), and *Ardisia crenulata* (both the red and white-berried varieties). The above are some of the most suitable flowering plants. The following

FINE-LEAVED KINDS will do well in an intermediate temperature, viz., *Dracena terminalis* and *D. Cooperi* (kept somewhat dry at the roots in winter), *Cyperus alternifolius*, *C. alternifolius* va-

riegatus, *Panicum variegatum*, *Isolepis gracilis*, *Dionaea muscipula*, almost all the Ferns in general cultivation, with the handsomest Palms of small or medium growth, such as *Chamaedorea graminifolia*, *C. elegantissima*, *C. glaucophylla*, *Areca Baueri*, *A. lutescens*, *Cocos Weddelliana*, *Thrinax elegans*, *Pritchardia pacifica*, *Livistona altissima*, *Geonoma Seemannii*, *G. gracilis*, *Kentia Balmoreana*, and *K. Fosteriana*. Although the last two fine Palms will thrive in a greenhouse, still they have a more refined appearance when grown in a little warmth. In a house kept at this temperature all the best

HARDY SHRUBS used for forcing can be brought into bloom during the winter and spring, such as *Deutzias*, *Prunus*, *Rhododendrons*, *Azalea mollis* and the Ghent varieties, *Laurustinus*, *Hydrangeas*, and *Lilacs*, with *Spiraeas*, *Lily of the Valley*, *Dielytras*, and bulbs of the usual sorts that are forced; for although none of these can be brought into bloom so quickly as where more heat is employed, still they will look better and last longer than when hurried. T. BAINES.

ILL EFFECTS OF PLANTING BULBS LATE.

COMPLAINTS are continually made that imported bulbs of *Lilium auratum* which arrive in England in such quantities seldom survive after flowering, their whole energies being apparently exhausted in the production and subsequent development of their blossoms. Their late arrival in this country has in my opinion a good deal to do with this. Great numbers are disposed of by auction in March and even as late as April, while if they had been potted or planted at the proper season, their roots would have been in active operation by that time. When bulbs are potted late they push flower-spikes and roots simultaneously, but neither attain the vigour exhibited in the case of early potted bulbs; indeed, the roots formed at the base of the stems seem to be the principal feeders. Having a large number of bulbs last season that were potted late, I examined them after flowering and found generally that even when the pot was full of roots they were nearly all stem roots; very few issued from the base of the bulb, while in the case of others which I had grown and flowered for several years the roots from the bulb were stout and vigorous, and when potted directly after flowering were soon actively at work in the new soil.

Another point worthy of note in my case was the readiness with which these late-potted bulbs fell into ill-health. I allude to that burnt-up appearance which they present more particularly in hot, showery weather, during which the leaves at the bottom of the stem first turn yellow and then brown, the affection gradually mounting upward till the buds are attacked and drop off, when the whole plant looks as if it had been scalded. After flowering I found that, though a good spike of flowers had been produced, there were but a few partially decayed scales to mark the site of the bulb, and in every case, even if the bulb was still entire, it was much smaller than when first potted. After throwing away all decaying bulbs, the rest were potted and placed in a cold frame, where they are now pushing up spikes, but in most cases so weakly that but a small percentage of bloom will be produced. However, from past experience I am convinced that when once established they will grow and flower every year without any trouble, provided they are potted as soon as the flowering season is over.

Some years ago I obtained a small collection of the different varieties of *Lilium auratum*, among which several have greatly increased in size, while others are neither larger nor smaller than they were half-a-dozen years ago, though they flower well each season. They are all in pots kept in a cold frame during winter and placed in the greenhouse in summer. If bulbs of this Lily could arrive in England about November, and be then potted or planted out, I think we should hear much less about their mortality than we now do, as they would then be well established before the summer set in. The same remark holds good regarding all kinds of Lilies. If kept dry till February or

March their energies are exhausted; while if placed in soil, several roots will certainly be sacrificed when removed. The common white Lily (*L. candidum*), which of late years has been largely imported early in autumn, commences to grow as soon as received, and therefore should be planted at once, otherwise, like others if removed after growth has been commenced, the bulbs will be sure to suffer.

Although these remarks apply more particularly to Lilies, they might be extended to all bulbs disposed of during the spring months in a dormant state. These we frequently see lying about when their roots should be in active operation. In the majority of cases the embryo flower being in a perfect state within the bulb, the difference the first season is not very great, but flowering seems to completely exhaust the bulb, which either dies outright or dwindles away to such an extent that it is too weak to flower. In forcing such things as Tulips, Hyacinths, &c., if put into heat before they are well rooted the flowers seldom expand properly. In short, the great secret belonging to successful bulb culture is having plenty of healthy roots before the flowering season commences. H. P.

Culture of perpetual Carnations.—The

propagation of perpetual or tree Carnations is an easy matter. Cuttings put in in a hothouse on bottom heat strike rapidly in winter. When rooted and hardened for a short time in a pit or greenhouse they may in April or May be planted out in the open ground. They can also at that time stand a long journey. They must be packed in damp Moss without earth at the roots. They require a very airy situation. When planted out they must, if the sun is hot, be shaded for a few days and kept moist, and when in a growing state they should be watered from time to time with liquid manure. When they have grown about 6 inches high they should be pruned back at least one-half in order to induce the growth of side shoots and flower-buds. To have them in bloom during the following winter until April and May, when all other flowers are scarce, they should be taken up about the middle of September, potted in 6-inch pots, and placed on a slight bottom heat in a pit or stove; they should be kept close for about a week and then given air gradually, i.e., if the temperature is about 40° Fahr., as they do not require much more heat than that. Of course plants destined for this purpose must have, when potted, a good quantity of flower-buds; indeed, some will have, if they have been well treated, as many as from sixty to eighty. When the flower-buds begin to expand the plants can be moved indoors. I have had some in my dining-room more than a month, and they are still in bloom, and much admired. They must be placed as near the light as possible. Plants which do not show a sufficient number of flower-buds the first year should not be lifted from the open ground unless the winter appears to be severe. If that is likely to happen they can be taken up with a ball of earth adhering to the roots and put close together in a pit, uncovered as long as possible, and when frost sets in just protected from it, and that is all, and whenever it is possible air should be given. These plants will produce flower-buds, and may be potted in March or April. If potted and put in a stove before they have a sufficient number of flower-buds they grow straggling, lose their leaves, and bloom badly. The largest and best cultivator of perpetual Carnations is Lourt. Carle, Monplaisir, Lyons. He makes their culture a speciality, and since he succeeded M. Alégaire he has raised many good sorts. Many have failed in the culture of these Carnations; I hope, therefore, that these instructions may be productive of good results.—JEAN SISLEY, Monplaisir, Lyons.

The variegated *Negundo* forced looks well against the dark glossy green foliage of the *Camellia* and similar plants as a background. For forcing all that is necessary is to pot it early in autumn and plunge it out of doors in some sheltered spot till it is taken into the forcing house just after Christmas. This *Negundo* is generally

grown in the shape of standards, but for many purposes dwarf bushes are quite as good. Small plants of it are readily obtained by budding it on the green-leaved form, but of course they take some time afterwards to grow into plants large enough for forcing. As stocks for budding seedlings are preferred, and the operation should be performed in the same way and about the same time as in the case of Roses. The bark of the stock must be fresh and green, so that it will separate readily and heal quickly. In selecting the buds, do not take any in which the leaf immediately adjoining is nearly white, as the probability will be that in the leaves of the embryo bud the same pale hue will preponderate to such an extent that it will not have sufficient vigour to grow; choose rather buds near where there is a fair proportion of each colour in the leaf.—ALPHA.

GARDEN FLORA.

PLATE CCCLXXXVIII.

DOUBLE AND SINGLE BOUVARDIAS.*

WITHIN the last few years the popularity of the different kinds of Bouvardia has greatly increased; here and there at one time a solitary plant of this genus might have been met with, but now it is no uncommon occurrence to find a house devoted entirely to Bouvardias, and that, too, in private establishments, while some of the large trade growers produce them in enormous quantities, not only for decorative purposes in pots, but also for supplying flowers in a cut state. The latter possess a wide range of colour, and some of them are deliciously scented. They are produced freely on the small lateral shoots, especially after the removal of the terminal cluster, and last, but not least, the plants flower throughout the winter, although by judicious treatment they may be had at almost any season of the year. Bouvardias are natives of Mexico, whence a few species have been introduced at different times, but the sorts now generally grown have originated either in England or in the United States of America, from which have been obtained both of the double varieties represented in the annexed illustration. There are no very striking points of difference between the species except in the colour of their flowers and in the leaves being glabrous or pilose; they are all branching, free-flowering shrubs, and bear tubular flowers produced in terminal clusters.

The principal species are :—

B. TRIPHYLLA.—An old inhabitant of our gardens, and one still grown, but to a limited extent. Its leaves are arranged in a trifoliate manner around the stem, and are more or less hairy. The flowers are small, but borne in moderate-sized clusters, and bright vermilion in hue, a colour quite equalled, if not surpassed, by the next—

B. LEIANTHA.—This greatly resembles the preceding, but is more bushy in habit; the leaves are less hairy, and it is altogether a better grower.

B. HUMBOLDTI and *jasminoides* are two large white-flowered, sweet-scented kinds belonging to the glabrous-leaved section. The first is much surpassed by its variety—*corymbiflora*.

B. FLAVA.—This differs in no way from the ordinary type, except in the colour of the flowers, which are deep yellow, and though borne in rather small clusters, are so distinct that it is surprising it is not oftener seen than it is.

B. ROEZLI.—This is in some respects the most distinct of the whole, especially as regards its root

growth; it forms a large underground root-stock or tuber; the leaves, too, are of a firmer texture than those of any of the others. The flowers are borne in flattened corymbs, but in colour they vary somewhat from deep pink to carmine, and at times have a violet shade. Among the different hybrids or sports great variety exists, and from amongst them I would select the following as the best of the several sections that have come under my observation.

BRIGHT COLOURED KINDS.—*Hogarth*.—Individual flowers rather small, but brilliant; habit good, and one of the most vigorous in constitution. *Elegans*.—The flowers of this are larger than those of the preceding, which in general characters it greatly resembles. *Unique*.—Deep violet-carmine; the outside of the tube pure white; unlike any other variety; said to be a seedling from *B. Roezli*, but without the tuberous-like roots which that kind possesses. *Dazzler*.—Undoubtedly a very fine kind and one not yet known to the extent which its merits deserve, but from the quantities of it in the hands of some of the leading growers it will soon become more common. It is of good habit, very floriferous, the clusters of flowers being large, and in colour deep carmine-rose. It was raised by Mr. Balchin, Hassocks Gate, Brighton, and certificated at South Kensington.

WHITE FLOWERS.—*Humboldtii corymbiflora* differs from the type in the size of its clusters of flowers, which measure over 2 inches long. This kind is brought into Covent Garden Market in great quantities during winter both in the form of plants and in that of cut flowers, the latter being great favourites with bouquetists, and from their size frequently used singly. The club-shaped buds are also striking, and, moreover, the flowers are sweet scented. *B. jasminoides longipetala* is distinguished from the species by the greater length of its petals, but both are alike first class kinds. The leaves of these white-flowered varieties are dark green and glabrous, but in the following they are hairy; the flowers are smaller, nearly scentless, and borne in more compact clusters. They comprise *Bridal Wreath*, *Vreelandi*, and *Davidsoni*, the last specially interesting, as being the variety from which the double-flowered *Alfred Neuner* was obtained. The different

SHADES OF PINK are represented by *Queen of Roses*, *Maiden's Blush*, and *Rosea oculata*, a remarkably floriferous kind; indeed it will frequently continue to flower till quite exhausted. It is of a deep flesh colour with a darker eye. The latest addition to this class is *Priory Beauty*, sent out by Messrs. Veitch last year, and likely when better known to become one of the most popular of the pale tinted flowered sorts. It is of free, yet compact growth, an abundant bloomer, and both the individual flowers and clusters are large compared with those of many others. Colour a soft pink.

THE PALE SULPHUR coloured *flavescens* stands out distinct from all the others; it is said to be a hybrid between the deeper tinted *flava* and one of the white varieties, and the colour would certainly suggest such an origin.

DOUBLE-FLOWERED VARIETIES are at present confined to the two here figured. Apart from the consideration as to whether a single or a double flower is the more beautiful, the doubles certainly have one great point in their favour, and that is the blossoms remain longer in perfection than those of single kinds, and where employed in ar-

rangements of cut flowers they do not drop as the single sorts are somewhat liable to do. The double white (*Alfred Neuner*, the uppermost flower on the plate) was sent out by Messrs. Nanz & Neuner, of Louisville, Kentucky, in the spring of 1881, and was first shown in flower in this country at a meeting of the Royal Horticultural Society held at South Kensington in the following summer, and since then it has steadily advanced in popular favour. Concerning the propagation of this variety a good deal has been written, it being contended by some that only cuttings made of the leading shoots retained their double-flowered character, and that the small side branches if struck reverted to the single form. My experience, however, is that there is no hard and fast rule to be laid down in this respect; as it originated from a sport, its character is not thoroughly fixed, and therefore cuttings will occasionally bear single flowers, let them be taken from whatever part of the plant one likes, although the stronger shoots are less liable to become single than the weak ones. Plants propagated from root cuttings I find to be very untrustworthy in this respect, but in cuttings of young shoots taken from healthy plants cases of reversion are so few in number as to be of little moment. In the winter of 1881, having a large number of this *Bouvardia* in flower, I selected two or three, the blossoms of which were more or less tinged with pink and propagated from them, the result being that they maintained that character, but in depth of hue they were before long surpassed by another importation from the States, *B. President Garfield* is, strictly speaking, a pink counterpart of *A. Neuner*, and one liable to sport at times, as among those I have flowered some are of a much brighter hue than others. Both these *Bouvardias* are undoubtedly destined to become very popular.

PROPAGATION.—*Bouvardias* are all readily propagated by means of cuttings if skilfully chosen. The most satisfactory way to set about the work is as follows: After flowering keep them somewhat dryer than before; then early in February place them in a gentle heat where they can be occasionally syringed, and where a moist growing atmosphere can be maintained. The result of this will be that young shoots will be produced from all parts of the plant, and if these are taken off as soon as large enough and while they are still succulent, they will root as easily as *Verbena* cuttings. Care must, however, be taken during the operation that they do not flag to any great extent, to prevent which a propagating case must be used to keep them close till rooted. As a rule, if they have a thorough watering when first put in, and if the case is moist, they will require but little more until they have struck root. It is, necessary, however, to guard against too much moisture, otherwise they may damp off. Root cuttings are not much employed. In order to strike them all that is necessary is to cut the stouter roots into pieces about an inch long, and insert them perpendicularly in pots or pans of sandy soil, keeping them close till young shoots are produced from the top portion of the roots after the manner of seedlings. In cutting up the roots, lay the upper parts all in one direction; otherwise if the pieces become mixed, it is nearly impossible to distinguish the upper from the lower portions, and in that case the chances are that some will be put in in a reverse position. The roots should be inserted deeply enough to be just covered with soil.

* Drawn from plants in Mr. Turner's nursery, Slough, in February last.



WHITE AND PINK FLOWERS OF THE SAME
SPECIES, GROWN IN THE GARDEN OF THE
HON. JAMES M. SMITH, NEW YORK.

CULTURE.—Where cut flowers alone are required a common and successful mode of culture is to plant out in a prepared bed of soil either in a low house or frame, which can be heated at pleasure. In this way Bouvardias grow more quickly than in pots and yield a proportionately large amount of bloom. Young plants to be grown thus are potted off as soon as struck, given one shift, and then planted out. The soil should be moderately light—say one-third leaf mould to two-thirds of loam, or one-half of each according to the consistency of the loam. After this is done maintain a close growing atmosphere until they have started away freely, and when in full growth they will be benefited by a little manure water. They should be gradually hardened, so that by the middle of summer the lights may be removed altogether, and only put on in case of heavy and long continued rains. Thus by the end of August they will have well ripened their wood, and will be ready under an increased temperature to burst into bloom, when if kept at from 55° to 65° during winter they will maintain a continual supply of cut flowers. The planting-out system is also followed by many for the production of bushy plants, to be potted up in autumn in the same way in which Solanums, Chrysanthemums, and similar subjects are done. For this purpose they should be planted out about the beginning of June, and though they will grow in the open in summer without any protection, yet it is desirable to have them in a frame, as in that case the lights can be put over them when required. The middle of September is a good time in which to lift and pot them, operations which should be done carefully. When potted they must be kept close and warm for a few days till they recover from the check received; after that all that is necessary is to keep up a temperature of from 55° to 65°, or even a few degrees higher, in order to maintain a supply of flower throughout the winter. The method followed by growers for Covent Garden Market, and certainly the most satisfactory for the production of small plants, is to confine them always to pots, treating them much in the same way as regards potting, stopping, &c., as Fuchsias, except as respects the increased heat during autumn and winter.

SUMMER FLOWERING.—There is no difficulty in obtaining a supply of Bouvardia flowers throughout the summer months if the plants have not been allowed to exhaust themselves previously. My attention was first directed to this by a number of the scarlet Hogarth that did not flower much in the winter, but on being planted in the open ground when the season was sufficiently advanced produced a great quantity of blossoms throughout the summer months, when, though flowers are plentiful, such chaste subjects are always valuable. The white Humboldti corymbiflora also flowers well in this way; and last spring, having some small plants of Alfred Neuner, I potted them on, and placed them in an intermediate house, with the result that they grew away freely, and by June were in full flower. It will thus be seen that the Bouvardia readily adapts itself to the different circumstances under which it may be placed.

H. P.

Fireballs.—To make these take two parts small anthracite coal, one part clay, one part sand or chalk; thoroughly mix these together with sufficient water to make the mixture of the consistency of mortar; then make it into balls and stack them in a dry place. The fire should first be fairly started and the balls placed on the top. They will yield a strong and lasting heat.—W. C. T.

SEASONABLE WORK.

FLOWER GARDEN.

EUONYMUSES.—The variegated Japanese varieties of Euonymus are among the best of the many introductions of late years that can be effectively used for flower garden purposes, not their least recommendation being that they are all but quite hardy. The two recent severe winters somewhat injured plants of them in this district, but none were killed outright, and after such a trial it may safely be inferred that they will withstand our ordinary winters. The small-leaved kind, *radicans variegatus*, is, in habit of growth, half bushy and half climbing, and can, therefore, either be used as a covering for low walls and trellises, or with a little attention to trimming be grown as a hedge. As a permanent edging plant to large beds cut and trimmed, as is usual with Box edgings, few plants are more suitable. The varieties *aureus marginatus* and *argenteus marginatus* are stronger growers, and have large and richly variegated foliage; the growth of both kinds is somewhat loose or straggling, a defect that is easily remedied by occasionally pinching out the points of the longest or unevenly developed shoots. Plants grown in bush or standard form make excellent and permanent centres for beds of high-coloured Pelargoniums or dark-foliaged plants, and for intermixing with bright green foliaged plants in the outer lines of shrubberies they are invaluable. They strike best from cuttings made of the well-ripened wood of the current year's growth; hence autumn is the time to propagate them. Light sandy loam or peat, the cuttings well firmed in it, and the pots plunged in ashes in a cold pit protected from frost, are all that is needed to ensure a successful strike.

BEDDING OUT.—With the exception of the most tender, such as Coleus and Alternantheras, all other kinds of summer bedding plants may now be planted, and in arranging them the less elaborate the designs and the quieter the colouring the greater and more lasting will be the enjoyment of the garden. Another thing to avoid in the arrangements is excessive formality or flatness; this is easily prevented by using at regular intervals over the beds such kinds of standard plants as will best harmonise with the other plants in the beds, such as, for instance, standard variegated Abutilons in a bed of scarlet Pelargoniums or the Fish-bone Thistle as a centre to a small circle of Lobelias, or standard Fuchsias in beds of dwarf foliaged plants. These examples will suggest others, the only point to be borne in mind in selecting these standards being, as we have said, that they contrast in both colour and habit with the plants forming the groundwork of the bed. Yuccas, Australian Dracenas, Grevilleas, tree Sempervivums, and Acacia lophantha are all suitable for this purpose. Taking into account the shortness of our summer season and the consequent transitory character of flower gardening when tender plants are used, every effort should be made to do without this section, or at all events to use them as sparingly as possible. Unfortunately, the rich chocolate colour which we get in Coleus, and the bright purple and orange in Alternantheras, are not to be had in hardy plants; hence, if we must have these colours, and they are all but indispensable, we have no choice in the matter. Another consideration to be taken into account when making these arrangements is the appropriation or association of various classes of plants together. There is to our mind such an inexpressible degree of incongruity in mixing, for instance, succulents with any of the ordinary kinds of bedding plants, that one marvels that such an error should ever be perpetrated. Used in moderate proportion to other kinds of bedding plants succulents form an interesting feature in summer flower gardens, but under no circumstances should they be mixed with Pelargoniums, Petunias, &c., but only with nearly allied plants, such as Mesembryanthemums, Kleinias, Echeverias, and Sedums.

GENERAL WORK.—The tying up of plants in mixed herbaceous borders, weeding, and filling

up vacancies in the same, thinning out and planting out annuals and biennials, such as Stocks, Asters, Phloxes, Wallflowers, Pentstemons, Antirrhinums, and Aquilegias, and the planting out of spring bedding plants and those that have been forced for cut flowers are operations all of which must now receive attention. Indoors the principal work is giving abundant space to sub-tropicals, and moving out to sheltered spots all those that can safely be risked out, giving Alternantheras and Coleus full exposure to the atmosphere whenever the weather is favourable, and potting up the last batch of cuttings of Coleus and Iresine.

FRUIT.

PINES.—Now days are getting a nice length and the resting period is comparatively short, early-started Queens may be subjected to a higher temperature than has hitherto been advised, that is, assuming that very early fruit is wanted, and necessity leaves no choice, but it must be understood that express speed is not recommended or approved. To secure the greatest amount of good without doing much harm when plants are kept at 70° on cold nights, 75° when mild, and 95° after closing, they should be plunged with their heads close to the glass; some kind of covering, if only a shading blind, should be placed over the roof at night, and ventilation at this treacherous season should be confined to the apex of the house. If the fermenting beds are in good condition and the plants well plunged, root watering will not be a heavy item, but they must be regularly examined and supplied with a sufficient quantity of good liquid or guano water, and air moisture, so essential to the swelling of the fruit, must be secured by damping the walls, floors, and surface of the bed with the same, pure water being used for dewing the plants with after the house is closed for the day.

SUCCESSIONS that were shifted in March will now be growing freely, and will require careful watering and ventilation to keep them in good condition. A great number of Pine plants are much injured and often ruined by having too much water, by heavy syringing when the slightest dewing over would suffice, and by the barbarous practice of opening the front ventilators on a bright May morning, and so exposing the tender young growths to a cutting draught, when a moist, genial atmosphere would be better secured by keeping them closed and giving more air at the apex of the house. The temperature in this compartment may now range from 60° on cold nights to 68° when mild, and early ventilation, when the pipes are heated, will require attention; when the morning rise reaches 75°, gradually increase the day heat to 85°, and close in time for a temporary rise above these figures, with solar heat and moisture. If plants intended for starting in June have been kept dry and cool, the opposite extreme of heat and moisture will cause the greater part of them to throw up. Bring the soil into a nice growing condition by the use of warm generous liquid and feed the stem roots by forcing a little into the axils of the leaves with the syringe, but guard against excess, and defer overhead syringing until the plants are out of flower. Where hot-water pits are getting crowded and young plants require more room, a good fermenting bed, made of one-third manure and two-thirds Oak leaves with a deep Cucumber frame placed over it, will be found all that can be wished for the rapid propagation and growth of new stock.

FIGS.—The fruit on early forced pot trees now ripening fast will be greatly improved in colour and flavour by full exposure to sun and light, as well as by a more liberal admission of air. The latter condition will naturally tend to a general lowering of the night temperature, which will do no harm provided it does not fall below 60°, and the maximum heat is secured once in twenty-four hours. Keep the trees clear of all useless spray, and pinch the points of strong shoots where there is no room for extension. Never allow the roots to feel the want of water, as, unlike all other fruit trees, the Fig when growing is furnished

with an advancing crop in various stages of growth, which must be kept progressing. Syringe the stems and lower parts of the trees, and damp the floors every day, and after gathering all the fruit that is ripe, as we have previously directed, give the trees a thorough washing and shut up with sun-heat at a temperature of 85° to 90°. Thin the fruit in succession houses, stop or cut outside shoots and lay in leaders. Mulch with good manure, water and syringe copiously, and while ventilating freely through the early part of the day, see that the house is closed in time for solar heat to raise it to 85° on fine afternoons.

VINES.—Where late houses have been brought on in accordance with former directions, all the best winter and early spring kinds may now receive Muscat treatment until after the fruit is set, when 65° to 68° by night, and 80° to 85° by day, with a flush of sun-heat after closing, will keep them well in advance of the season, and allow time for cooler night treatment, by the admission of more air when the Grapes begin to colour. If Hamburgs are not likely to be in flower when shy setters require artificial fertilisation, a good supply of pollen may now be shaken into a box, which must be kept in a dry, warm place until it is wanted for use. Endeavour to keep the work well in hand in midseason house in which the Vines are now making rapid progress. Remove all surplus bunches from free setting kinds, discontinue stopping during the time they are in flower, and take advantage of early morning and dull days for thinning out the berries as soon as those which are properly set show signs of taking the lead. When all the bunches are thinned, give the inside borders a thorough watering with tepid liquid, mulch well with good manure, and encourage robust growth by giving plenty of air through the early part of the day, and by closing with sun-heat and moisture every afternoon. Early Grapes now ripe, or approaching that stage, may have less fire heat than they have hitherto received, but they must have sufficient to keep up a circulation of dry, warm air, and to prevent the temperature from falling much below 60° at night. Gradually reduce moisture, particularly towards night, but damp the walls and floors on fine mornings, and syringe the foliage copiously as the crop is cleared for the twofold purpose of cleansing it from dust and insects, and to induce a fresh break of laterals.

PEACHES AND NECTARINES.—As the fruit in the early house approaches ripening be very particular in the selection of pure soft water for syringing with. Turn aside any leaves which interfere with the free passage of sun and light, and give more air on fine mornings when the roof-lights can be let down without exposing the fruit to drops of rain, which bruise and spoil the delicate skin. Give inside borders the final watering, mulch with some dry non-conducting material, and litter the floors with sweet soft hay. Many people at one time used to suspend nets or canvas under the trees to catch the falling fruit, but, independently of the fact that they spoil every Peach which falls into them, they are always in the way, and unless the fruit is wanted for home use, every Peach and Nectarine should be gathered before they are dead ripe and in danger of rolling off the supports which have been placed under them. When the Peaches begin to soften, maintain a dry, warm atmosphere with a constant circulation of air; retard if necessary by shutting off all fire-heat at night. Never wrench the fruit off the trees with the naked hand, as the slightest pressure produces a bruise, but with a pad of wadding in the left hand gently grasp it near the base, sever the stalk with a pair of Grape scissors, and place it on squares of silver paper spread out in shallow-padded baskets. Remove it to a dry, warm room to ripen, or pack it at once in soft, well-beaten Moss if intended to travel.

In succession houses the growth of wood and fruit is unusually rapid, and as the numerous operations will closely follow each other, let good syringing and copious watering have the first care. If the roots are entirely under glass and the bor-

ders are well drained no one need be afraid of overwatering a healthy-growing tree, provided the water used is clear and its warmth is equal to the mean temperature of the house; neither need they allow it to carry more than a very small percentage of surplus fruit to compensate for dropping. Where the roots are outside the drenching rains we have recently had will have penetrated to the drainage, and all that is now needed is good mulching to keep in moisture and to draw the surface feeders up to the influence of solar heat. Follow up disbudding, tying down, and thinning in late houses. Syringe well about 6.30 every morning, ventilate abundantly, and ply the syringe again after closing for the day.

MELONS.—As good Melons cannot be expected where the foliage ripens before the fruit, see that the roots are well fed, and the house carefully syringed every afternoon until the most forward show signs of changing for ripening. Plants growing in pots may receive more water as soon as the Melons begin to swell, but if planted on hills, watering should be deferred until they have attained the size of large Walnuts. Carefully preserve all the old leaves, thin out all spray, and support the fruit on small pieces of board before the weight becomes a strain upon the Vines.

Melons in pits and frames cannot have too much sun and light. Ventilate with caution, and close about three o'clock with moisture when the fruit begins to swell. Attend to linings and coverings, as nights will be cold until after midsummer. Earth up successions with strong loam, and prepare fresh beds for successions by the time frames now full of Potatoes or bedding plants can be dispensed with.

STRAWBERRIES.—If good pits are available, get all the best kinds arranged near the glass, with plenty of room between the pots. Ventilate freely, and shut up with strong sun-heat and moisture when the fruit is set. Where extra large fruit of exhibition kinds is desired, thin off all side and inferior blossoms before they open, support with sticks, and give diluted liquid at every watering. Early forced plants that have been hardened off and rooted may be planted out for autumn fruiting. Soak the balls, ram the soil very hard, mulch with rotten manure, and water with the hose in dry weather.

INDOOR PLANTS.

AZALEAS.—These are amongst the most accommodating plants we possess, for with sufficient stock and a suitable selection of kinds that have a natural disposition to bloom early, with others to follow and some that will bear being kept back, there is no difficulty in keeping up a succession from the latter end of the year until the middle of summer, but to do this it is necessary to vary the season of growth, encouraging the plants that bloomed earliest to make and complete their growth correspondingly early. Although this section of Azaleas will make growth and set their buds in an ordinary greenhouse temperature, still when so treated they make slow progress in gaining size, the wood being weak compared with that which is obtainable with a little warmth and a moist atmosphere; moreover, where considerable quantities of these flowers are wanted for cutting there is much gained by keeping them warm, as so managed the season's shoots attain double the length they otherwise would do, and can be used so much longer when cut—an advantage which those who have floral decorations to arrange cannot fail to appreciate. An intermediate temperature, with a moist, moderately confined atmosphere, secured by not giving too much air, and this only for some six or eight hours in the day, is what they like. All hybrids of Indian and Chinese origin take more water at the root, especially whilst they are making growth, than most other hard-wooded plants would bear, and at the same time they ought to be freely syringed daily to keep down thrips and red spider. When those which flowered first have set their buds and got the current season's shoots well matured, they should be removed to a house or pit, where they

can be given a plentiful supply of air, so as to be quite cool. Those that have recently bloomed should at once have the seed vessels picked off, and be treated in every way like those already described.

EPACRIS.—Such of these as after blooming had their shoots cut well back, and have now made some growth, should be moved into pots a size larger, but it is well to bear in mind that none of the varieties can bear so much root room as many things; they are very impatient of the soil getting too wet, a condition that is much more likely to happen in the case of large than in that of small pots; a 2-inch shift is quite enough for any that are already in from 6-inch to 10-inch pots. Epacris will do with peat a little closer in texture than some things; but it must have a liberal addition of sand in it, for if at all of a spongy character, so as to have a tendency to hold water, the roots are sure to perish. Pot hard and do not give water sooner after potting than is absolutely necessary, to avoid which see that the roots are sufficiently moistened before potting. The liability which these plants have to die suddenly when they appear in the best of health and there is no apparent cause is in most cases attributable to too much water at the roots; they need to be allowed to get drier before water is given than Heaths. If the young soft shoots droop slightly previous to its being applied it rarely follows that much harm is done. A slight sprinkling with the syringe on the afternoons of bright days will be an advantage.

CYCLAMENS.—Young stock of these raised from seed sown last summer will now require especial attention. To bloom them well in fifteen or eighteen months after the seed is sown there must be no time lost. The old method of managing these plants with cool greenhouse treatment was slow and unsatisfactory. The best results are obtained by keeping them growing from the time the seed germinates without rest in an intermediate temperature. Now, when the sun has got much power, they must not be fully exposed to it, or they will not grow kindly, the leaves never attaining their full size and being much more susceptible than they otherwise would be to attacks from red spider. See that the soil is kept pretty moist; any that were sown late and not yet removed from the pots or pans in which they were pricked out should at once be put into small pots. Plants that have done flowering should be got together and placed in a pit or house where they can be properly attended to with water; the system of drying them off is altogether opposed to their well-being. Means ought to be taken to keep them free from insects, so as to preserve the old leaves in healthy condition. By this means when the time comes for their pushing up a fresh crop of foliage they will be much more vigorous and bloom again proportionately better.

LAPAGERIAS.—These finest of greenhouse climbing plants are to some extent exceptional in their requirements. If grown in houses where any warmth is used further than is sufficient to keep out frost, they are excited to earlier growth, and under such circumstances I have found the young shoots and leaves very impatient of exposure to the full force of the sun, which not unusually has the effect of stopping the shoots from attaining their full growth, and causing the leaves to be deformed. Any aspect seems to suit these plants better than the south, yet if in too dark a position they rarely flower, however strong they may be, so freely as when more favourably placed in this respect. Now, whilst the young growth is in its tenderest condition, a thin shade of some kind should be applied and the soil should be kept well moistened, especially if the plants are grown in pots or tubs and the roots fully occupy the soil; but where small or medium-sized examples have been recently turned out in beds of considerable extent the earth must not be made too wet, otherwise it will get into a soddened condition, under which the plants do not thrive. Syringe every afternoon, getting the water if pos-

sible well to the undersides of the leaves; if this is attended to regularly, thrips, to which these plants are so subject, will be kept down, an essential point, for though the hard texture of the leaves prevents their being killed outright, still the insects feeding on them shortens their duration—a sad mishap when used for covering back walls and similar places in conservatories, for which purpose *Lapagerias* are well adapted.

HELIOTROPES.—The small examples of these, such as are used for ordinary greenhouse decoration, are well enough in their way, but where quantities of these fragrant flowers are required for cutting late in autumn and during the early months of the year, and the houses are calculated to accommodate them, some large plants should be grown either planted out on a back wall, if such is available, or trained to a pillar, for covering either of which few subjects can be more profitably used, as grown thus they will yield a plentiful supply of flowers. Should the new large white variety, *White Lady*, prove equal in freedom of blooming to the old kind, which has hitherto not been surpassed for general usefulness, it will be an acquisition. Its large size and decided colour commend it for a trial.

HABROTHAMNUS ELEGANS AND CESTRUM AURANTIACUM.—These nearly allied plants do well on the back wall of a conservatory. The *Habrothamnus* is scarcely ever out of bloom, and the *Cestrum* flowers freely for a considerable time in the late summer and autumn. To do them justice they should be planted out, but if there is not room for this, they must have good-sized pots and be regularly supplied with manure water when their roots get full hold of the soil, otherwise the quantity of flowers forthcoming will be proportionately reduced.

PLUMBAGO CAPENSIS.—Few plants are more effective for greenhouse walls or pillars than this; and where it can be planted out so as to allow of its getting strong, it produces abundance of its lovely pale blue flowers for several months at a time. It should be grown in pots until it has attained some strength, or else the soil gets out of condition before sufficient roots exist to take possession of it. For decoration in 6-inch or 7-inch pots this *Plumbago* is an excellent plant. The present is a good time to strike cuttings of it for this purpose as they will get nicely established before autumn.

LARGE-FLOWERED AND FANCY PELARGONIUMS.—It is well to see that plants of these coming into flower are free from aphides; if not, they should be fumigated twice within six or eight days, so as to free them from these pests; for if affected with them when the flowers are expanded and fumigation has to be resorted to then, it will cause the blooms to drop in quantity. These, as well as *Calceolarias* now in flower, should be shaded from the sun, or their flowers will fall quickly. If a few cuttings of *Pelargoniums* are at the present time put in to strike, they will be good plants by the autumn, and will make large bushy specimens before the time of flowering next spring. Such cuttings can generally be obtained from the plants that are about to flower without waiting until the usual time of cutting down after they have done blooming.

ARUM LILIES.—Plants of these that have been forced, especially if large, may now with advantage be split up into single crowns, putting some into pots to be grown on in them and planting the weaker portion out-of-doors. They will do well in ordinary soil in an open situation, and if a shallow trench is prepared for them it will be found to suit them. In this way they are easily kept supplied with water, of which in dry weather they can scarcely have too much; and so treated, they make more compact growth than in pots. In autumn they must be taken up and potted singly. They will flower in succession after the pot-grown examples are over, which latter are best for forcing early.

FUCHSIAS.—If the stock consists of early flowering varieties and others that naturally bloom later, there will be no difficulty in having plants of these in bloom from the present time up

to late in autumn. Those not wanted to come in until considerably later should be no more exposed to the sun than is necessary to keep their growth stout, otherwise it is difficult to get them to grow much, so inclined are they to bloom after this time. Pinching the points once more of the shoots of the later portion of the stock helps to retard the flowering, but the plants so treated must have pots large enough to give them an increase of root room, or they will not bloom strongly. Let the whole stock be frequently well syringed. This is necessary to keep down both aphides and red spider, either of which will much interfere with their growth, as well as with the healthy appearance of the foliage.

BOUVARDIAS.—In whatever way the young plants, struck from cuttings in the winter, are to be grown through the summer, in pots, or planted out in frames, they should be attended to in the way of stopping the shoots to prevent their getting long and straggling, studying the natural habit of the sorts grown; the close-habited *B. Vreelandii* grows bushy naturally. Do not let any small stock of these suffer through confinement of the roots in little pots, as if this happens they get into a stunted state. Where there is a large conservatory to furnish, some of the old plants that have been cut back may with advantage be grown on to a considerable size, as if given plenty of root space, say 12-inch or 13-inch pots, and the points of the shoots pinched in once or twice between this and the end of June, they will make large bushes that will bear a profusion of bloom through the latter part of the summer, at which time independent of their always acceptable flowers, they will help to give variety at a season when blooming greenhouse plants are not plentiful.

KITCHEN GARDEN.

EARLY Potatoes should now be carefully hoed and earthed up at once. It is said by many that when not earthed they are earlier. Should that, however, be so, which we doubt, the large quantity of green-ended tubers occasioned through not being earthed diminishes their value; therefore, we always earth up our Potatoes, and get them early too. Fill up all vacancies in *Seakale* beds. What we use for this purpose are the roots of those taken up for forcing; cut them into 6-inch lengths and place them upright in pans or pots, and fill in with light soil; place them in a cold frame, and every piece will become a plant. Be careful to rub all the eyes away but two. These root cuttings make fine strong plants during the summer. The first fine day go through Onions, Carrots, Parsnips, &c. Our system is to use draw hoes instead of Dutch hoes, walking in one row and hoeing the other. In this way no footmarks are left, and all the weeds lie on the top of the ground; in fact, all hoeing should be done in this manner. Asparagus beds will be greatly benefited by a small sowing of salt on the surface. We never saw salt injure Asparagus after the tops appear. It, however, kills all seedling weeds, and keeps the beds clean for the summer. Scarlet Runners sow now in shallow drills 6 feet apart, and cover with burnt refuse. Early Broccoli may be planted between each row when ready. Dwarf Beans (*Osborn's* and *Canadian Wonder*) may also be sown at once.

THE LATE MR. LEEDS' GARDEN AT LONGFORD BRIDGE.

ABOUT three years ago I first became aware of the existence of an old garden rich in floral treasures within a few miles of my house. A friend told me of a very beautiful *Crocus* he called *C. Leedsii* which he had obtained from an old garden. I was aware of the *Leedsii* Daffodils, but had never heard the story of their origin, and when I now learnt that Mr. Leeds, of Longford, had been the great florist who had raised these new varieties of *Crocuses* and Daffodils, it was not long before I sought out the place. It was on the turnpike road from Manchester to Chester, near the bridge which crosses the Mersey. The event is firmly impressed on my memory. I found a

plain, roomy cottage with extensive outbuildings, quite hidden from the road by huge overgrown and neglected *Rhododendrons*, *Box* and *Laurels*, 15 feet or 20 feet high, with rounded tops and bare hollow centres, between which the pathway to the house threaded, as if through a leafy arbour. It was early spring, and the whole garden was ablaze with Daffodils, growing by thousands almost wild; but still one could trace the old beds, and the gardener had a portion of the ground fairly well kept with long Daffodil beds, where he grew the sorts, as separate as practicable, for sale. There were huge groups of *Pæonies*, and several lovely varieties of *Scilla campanulata*, white, blue, lilac, rose colour, and intermediate shades of each—evidently showing that this beautiful plant had been hybridised, and here it was in clumps a foot through of each sort, quite neglected and growing wild under the orchard trees. To the rear of the house were some old tumble-down greenhouses, and brickwork pits, with unglazed lights, filled with small pots of alpine which had overgrown the place, forming large mats of *Saxifragas* and *Sedums*. The chief treasures in the greenhouses were a lot of seedling *Amaryllises*, which had been grown from seed carefully hybridised by Mr. Leeds, and these are now blooming here, some of the varieties being very beautiful. Beyond the greenhouses were

THE **ROCKERIES**, or rather **brickeries**, where Mr. Leeds had his alpine. There were four of them, each about 100 feet long and 10 feet across, built up of bricks tier upon tier, with spaces between the bricks, each sufficient for a plant. The centres were raised about 3 feet, forming long, narrow mounds, now completely covered over with dense masses of vegetation. In some places the *Veronicas* had gained the ascendancy and covered over everything; at another *Saxifragas* had it. There were large clumps of the most beautiful form of *Orobanchus vernus* I ever saw; several of the hardy *Geraniums* had grown into large masses, and beautiful *Fumarias* formed lovely purple bases. Of the smaller *Irises* there were huge clumps. Creeping plants had strayed over the walks, and on the borders beyond were thickets of large growing sorts—*Telekias*, *Asters*, *Campanulas*, *Delphiniums*, *Heracleums*, *Veratums*, and other giants in rankest growth, the fittest having survived. On closer inspection these rockeries were found to abound with choice treasures, which appeared from season to season, and had to be marked out when in bloom for future removal. The whole was a vast overgrown wilderness, left to grow as Nature willed it, and in a few more years there would probably have been but a few plants left, and these only the rankest growers. Such was the old garden of Mr. Leeds when first I saw it.

On Friday last I went over, as usual, at the close of Daffodil time, to see if any *Narcissi* of value were to be had, and, lo, the place had gone! All the old *Rhododendrons* and *Laurels* had been cut down; the cottage was newly painted up, and had fresh tenants, and it stood boldly out to view from the road as I drove up to the gate. There were three or four spade labourers at work trenching the ground for Potatoes, and a surveyor was laying it out for building plots. All the rockeries were cleared away, the old fruit trees felled, and every trace of this famous garden had departed. During the three years I had never lost sight of this garden and its treasures, and many cartloads of plants had been transferred to Brockhurst. Mr. Wolley Dod had a consignment of the big plants sent to his collection, at Edge Hall; Mr. Barr had purchased all the selected Daffodils at Mr. Leeds' death; but many treasures remained, and amongst these were the bulbs in the two seedling beds where the hybrid *Narcissi* had been raised. All these were carefully removed to Brockhurst, and as I write there are some 1000 blooms of *Narcissi*, unnamed, but many of them as beautiful as some of the best now in Mr. Barr's list. To those who have seen this bank of Daffodils lately, it has been a sight to dwell upon for the whole year. The plants of *Scilla campanulata* have also been removed

here, and form a grand sight in June. It is pleasant thus to have been able to recover this interesting lot of salvage from so grand a wreck.

EDWARD LEEDS was a sharebroker, and died April 4, 1877. For the last six years of his life he was an invalid, and had lost the use of his legs, so that he could only be wheeled about his garden in a bath chair. When a lad at school he had a fancy for flowers, and spent his pocket money in plants, which he bought in Smithydoor Market, in Old Manchester. His father lived in Cheetham Hill, but removed to Longford, where he and his son lived for 42 years, during the whole of which time the garden was kept up with the most loving and careful attention. It was then the meeting ground for our old Lancashire florists. Tulips, Auriculas, Carnations, and Pinks were grown there as hobbies, and the wider cultivation of alpine and herbaceous plants was also pursued with ardour. The late Sir William Hooker, of Kew, corresponded with Mr. Leeds, and the herbarium formed by him was sent to Kew just before he died, and is said to have filled four cases. Mr. Leeds was one of the first to solve the mystery of hybridisation, and was especially successful with the *Narcissi*. By growing the later blooming sorts in pots under glass he was able to cross them with the earlier ones, and in this way he used *N. poeticus* with *N. incomparabilis*, and the result was the beautiful series of Leedsi *Narcissi*, the coronæ of which were thus tintured with scarlet and orange. No more remarkable series have ever been raised, and in Mr. Barr's hand they have met with full development. Two of Mr. Leeds' hybrids have almost been lost, but are now growing here, saved from the wreck of the old garden. *N. major superbus* is a fine yellow trumpet Daffodil, and *N. bicolor maximus*, a late blooming bicolor, with a longer tube than *Horsfieldi* and *Empress*, and otherwise nearly equal to those fine Daffodils, with the valuable distinction of coming a fortnight later, evidently showing that they were obtained from the *N. bicolor* of Linnaeus. These were both figured in the *Magazine of Botany*, as were also the two *Crocuses* above referred to.

WILLIAM BROCKBANK.

Brockhurst, Didsbury.

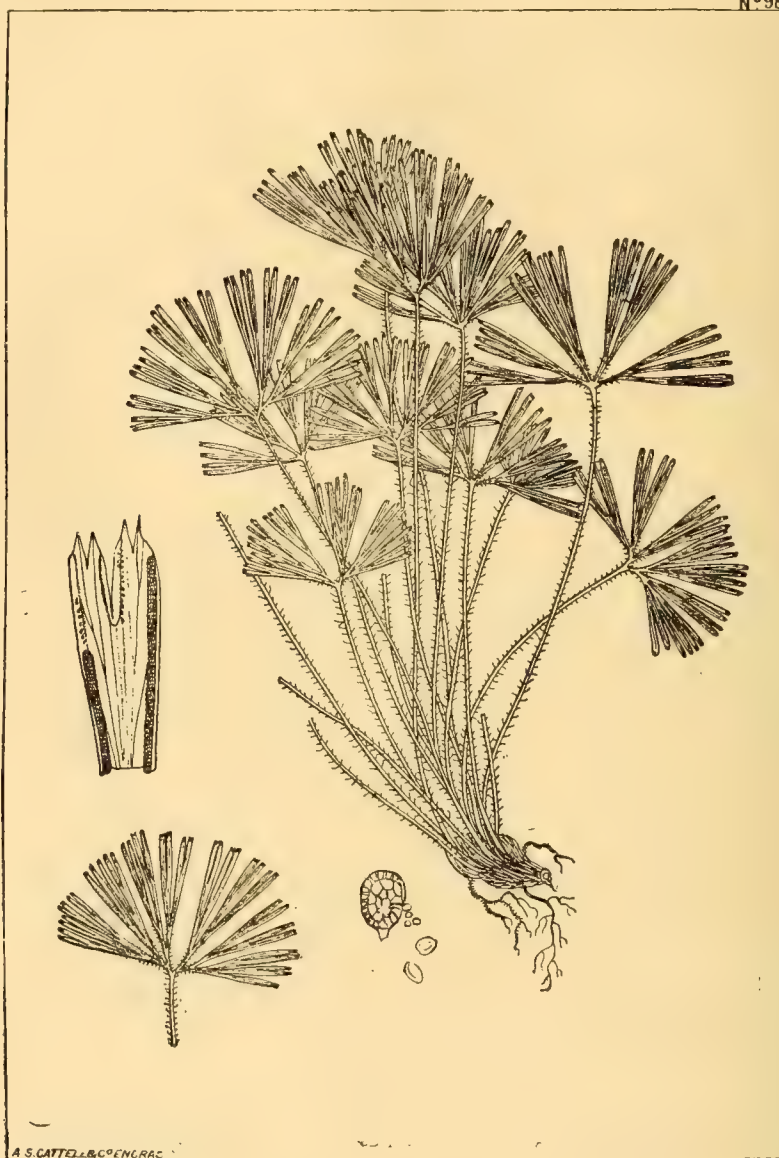
BOOKS.

INDIAN FERNS.*

THIS excellent book, which is intended to meet a want that has long and acutely been felt by all lovers of Ferns, will be all the more welcome coming, as it does, from an author whose thorough knowledge of the subject is already well known through his former works: "*The Ferns of British India*" and "*The Ferns of Southern India*," published in three volumes of large dimensions, and of which this present book is a condensed form with numerous additions, and the rectifications necessitated by the time which has elapsed between the two publications. The whole contents of the above named three volumes, besides the additions, are here offered to the public, which cannot fail to appreciate the single book—an octavo volume of ordinary dimensions. The great amount of care observed in its compilation makes it a most valuable work of reference, especially to non-scientific readers, for in preparing it as many of the technicalities as could be safely dispensed with have been left aside. The most striking feature in it is the careful division of the genera, which are set forth in a most clear and comprehensive manner according not only to the position of the sori, but also in regard to the venation, the habit, and the vernation of every separate genus. With a laudable object in view, that of avoiding the inconvenience of double generic names, the sub-genera have been raised to the rank of genera, which are represented by nearly a hundred in a

work comprising within its geographical limits the whole of British India, Ceylon, and the Malay Peninsula. The entire order of Filices is thus divided into six sub-orders. Sub-order 1, *Gleicheniaceæ* comprises only the *Gleichenias*, its distinctive characters being that the capsules open vertically and are surrounded by a transverse complete ring. Sub-order 2, that of the *Polypodiaceæ*, which is the most extensive, is distinguishable by the capsules being surrounded

Marattia, and *Kaulfussia*. Sub-order 6, *Ophioglossaceæ*, which closes the nomenclature of Indian Ferns and only comprises the three genera *Ophioglossum*, *Helminthostachys*, and *Botrychium*, has capsules also without a ring, but they are deeply bivalved and open down the side, nearly to the base. The distinctions between the genera are equally evident, and the definitions of them are so exceedingly clear, that through them anyone with a very moderate amount of know-



Actiniopter dichotoma (Forsk.).

by a jointed vertical and elastic ring. It includes twelve tribes and eighty-seven genera, the complete list of which is of too great a length to find place in this notice, but their distinctive characters are plainly shown. In sub-order 3, *Osmundaceæ*, which comprises only the genus *Osmunda*, the capsules are bivalved, opening across the apex, and furnished with a short horizontal ring. Sub-order 4, *Schizaceæ*, has also bivalved capsules, but these open down the sides, and are crowned by a complete operculiform ring, as is noticeable in the genera *Anemia*, *Schizæa*, and *Lygodium*. Sub-order 5, *Marattiaceæ*, is distinguished by the capsules being completely devoid of a ring and opening by a slit down one side or a spore at the apex, as is very perceptible in the genera *Angiopteris*,

ledge of Ferns in general will be able in a remarkably short time to thoroughly understand their classification. The subject is treated very extensively and forms a magnificent volume of nearly 500 pages, illustrated with 300 admirable woodcuts, the value of which may be gleaned from the three specimens which, through the kindness of the publishers, we have been enabled to reproduce.

The first is a remarkably pretty Fern of dwarf habit, which for nearly a quarter of a century has been known by almost every Indian traveller, as well as by all Fern growers at home, under the name of *Actiniopteris radiata*, but which the author, for reasons best known to himself, has here named *Actiniopteris dichotoma*, and described it

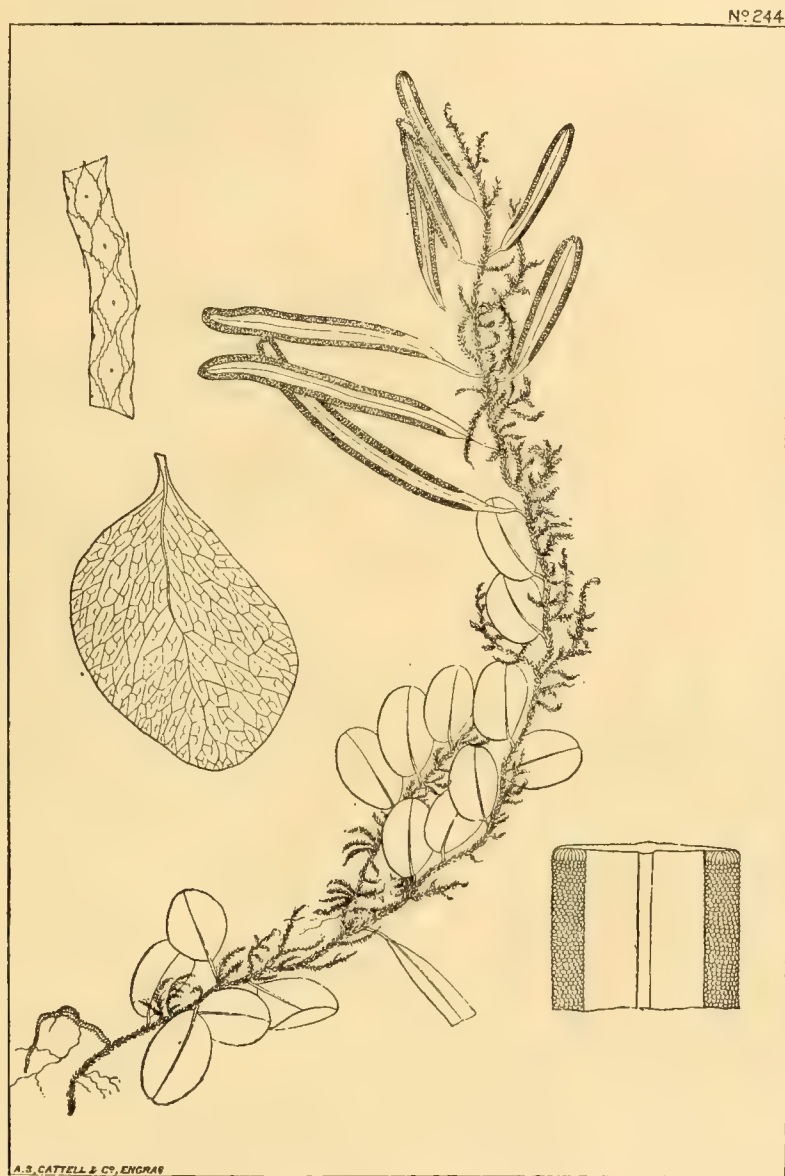
* "*Handbook to the Ferns of British India, Ceylon, and the Malay Peninsula.*" By Col. R. H. Beddome, F.L.S. London: W. Thacker & Co.

as follows: "Stipes densely tufted, 2 inches to 6 inches long; fronds like fans, 1 inch to 1½ inches deep, composed of numerous dichotomous segments, which are Rush-like in texture, not more than one-half line broad, the veins few and sub-parallel, with the indistinct mid-rib, the segments of the fertile frond longer than those of the barren one. Found throughout India, especially the peninsula, in dry rocky places, below 3000 feet of elevation." As this plant has often made its ap-

sometimes hair-pointed; stipes about 2 lines long in the sterile, often about 1 inch long in the fertile fronds; fronds dimorphous, the barren ones roundish or obovate, one-half inch to 2 inches long, three-quarters of an inch broad, very thick and fleshy, and when young more or less covered with stellate hairs, the fertile ones 2 inches to 4 inches long, one-eighth inch to one-fourth inch broad; veins immersed, areoles with copious free veinlets; sori in broad continuous marginal lines, often at

appear alive on their arrival, they have up to the present time been a source of torment to those who gathered them, and a source of disappointment as well as a pecuniary loss to whoever speculated on their successful importation. If they could only be imported in a sound and healthy condition, there is very little doubt as to their doing well here, as from accounts gathered from many different travellers they grow very freely and plentifully in their native habitats. Of *S. dichotoma* Colonel Beddome gives a clear, short, and succinct description at page 452, where it is described thus: "Stipes 6 inches to 18 inches long, firm, erect, glossy, channelled on the face above; fronds, fan-like in general outline, 6 inches to 9 inches each way, many times dichotomously forked, the ultimate divisions half an inch to 1 inch broad, with one fertile segment to each, quarter of an inch to half an inch long, the rachis often curved with four to ten close spreading spikes on each side. This plant is found principally in South India, on the western mountains, and in the Malay Peninsula, although not confined only to these two habitats, as it also comes from Tropical America and the West Indies, Australia, New Zealand, Polynesia, Philippines, and Mascareen Islands." These three illustrations, with their accompanying descriptions, which may be taken as a fair sample of the way in which the subject has been treated, will, we think, suffice to show the nature of the work, and cannot fail to convey a pretty correct idea of the amount of exertion gone through by its painstaking author.

Species already in cultivation and those not yet introduced receive at the hands of Colonel Beddome the same careful attention; and although we might make a tolerably long list of the former, we find that there would still be room left for a good selection of Ferns well deserving introduction. Among those of Indian origin already in cultivation we may note: *Acrostichum aureum*, a semi-aquatic Fern of great beauty; *Actinopteris radiata* or *dichotoma*, above referred to; *Adiantum caudatum* and *lunulatum*, both exceedingly useful species adapted for baskets; the very rare *A. venustum* (true), as the one generally found in commerce is nothing more than a dwarf form of *æthiopicum*, differing essentially from the typical *A. venustum*; *Angiopteris evecta*, a semi-aquatic of large dimensions and bold habit; *Asplenium Belangeri*, *caudatum*, *heterocarpum*, *longissimum*, and *formosum*, all species of great merit, and unequalled in their genus for their decorative qualities; *Brainea insignis*, a thoroughly distinct habited Fern, making with age a short thick stem; *Ceratopteris thalictroides*, a very interesting Fern, enjoying thoroughly aquatic treatment; the delightfully pretty *Cheilanthes argentea* and *fragrans*, *Davallia bullata*, *elegans*, *Griffithiana*, the charming little *D. parvula*, the very decorative *polyantha* and *solida* are also among the cultivated species; also the noble *Didymochlena lunulata*, the curious *Drynaria coronans* and *quercifolia*, the very handsome *Goniophlebium lachnopus*, *subauriculatum*, and *verrucosum*, all three very decorative as basket Ferns; the charming *Hymenophyllum Polyanthos*, the rare *Lindsaya cultrata*, and the equally scarce *Lygodium dichotomum*, *Microlepia platyphylla* and *strigosa*, the rare and beautiful *Onychium auratum*, which often makes its appearance in the gardens, but is never plentiful; the equally rare *Osmunda javanica*, the most distinct species of its genus; the highly interesting *Platynerium biforme* and *grande*, *Stenochlæna scandens*, the very remarkable *Trichomanes anceps*, *javanicum*, and the extremely pretty and very rare *T. parvulum*. Many more species from India are to be found in good collections, but the above named are by far the most interesting, and in many cases also the rarest, in cultivation. From the woodcuts of the book, as well as from the dry specimens with which we are acquainted, it is very apparent that many thoroughly good plants may be introduced yet with great advantage, foremost among them being *Adiantum Parishi*, *Schizæa dichotoma*, and *Matonia pectinata*, *Prosaptia contigua*, *Stenoloma chinensis*, *Schizoloma lobata* var. *malabarica*, *Cheilanthes myso-*



Drymoglossum piloselloides (Presl).

pearance in gardens, and as it has in several cases been cultivated with great success, many readers will be able to judge for themselves of the correctness of both the illustration and the description, which in our opinion are most exact.

The subject of our second illustration, *Drymoglossum piloselloides*, is one of those plants which are found in many habitats, in some cases very distant from one another. This, for instance, is a native alike of the Bengal plains, Burmah, Ceylon, South India, in the plains of Malabar, in Java, the Philippines, and Japan, in which places it covers the trunks of trees. The following is Colonel Beddome's description of it: "Rhizome, long, filiform, wiry, clothed with adpressed, diamond-shaped, peltate lacinated scales, which are

length confluent and covering the whole under surface, capsules mixed with a few stellate paraphyses." We are not aware that this species has at any time either been sent or brought home in a living state, as we have never seen it or heard of it being in any collection, but have often seen it among dry specimens.

Schizæa dichotoma, which is here beautifully and accurately illustrated, belongs to sub-order 4, which is distinguished by its bivalve capsules opening down the side, crowned by a complete operculiform ring. The three or four species which form the genus *Schizæa* are all particularly interesting from their peculiar habit, and although it is often sent or brought to this country by collectors, and although in most cases they

rensis, *Pteris Griffithi*, *Asplenium tenuifolium*, *Dipteris Horsfieldi*, *Lobbiana*, and *Wallichii*, *Lygodium polystachyum*, and many others too numerous to be mentioned here. The facilities for the introduction of these plants will be greatly increased by the present work, as it gives the habits of all of them. We have only to add that the book is printed on good paper and otherwise well got up, and further to express a hope that it may attain the popularity which it well deserves.

S.

KITCHEN GARDEN.

SUMMER LETTUCES.

EVERYONE who has had anything to do with raising and growing of Lettuces knows how difficult it is to get them good during the summer, especially when treated in the ordinary way, that is by sowing them in seed beds and transplanting, a method of treating them that is far from the best. The system I have always pursued, and it is one I can strongly recommend, is sowing the seed in drill rows where the plants are to stand, by doing which much time and labour are saved, and the young Lettuces are left with their tap roots intact. These drive straight down into the earth, and as the plants receive no check they grow very fast, and attain a large size with fine solid hearts that become well blanched, and, as a natural result, are tender, crisp, and juicy when cut up for use in the salad. Transplanted Lettuces are generally the reverse of this, the reason of which is, that they flag through transplanting; and having lost their mainstay (the tap root), they suffer during dry weather, as instead of being able to penetrate deeply into the soil and search for food and moisture below, they are entirely dependent on what they find within their reach above, where the supply often fails. Distressed and checked by sun and drought, the tissues become hardened, and the Lettuces are in consequence tough and indigestible and unfit to eat. The best place to get good Lettuces at this season of the year is on ridges between rows of Celery, as there they have great depth of soil, owing to the addition of that thrown out from the trenches, and as it is principally surface material they have to root in, and as their elevated position affords them plenty of room, light, and air, they are able to reach the fullest stage of development. If the land appears to be at all poor, it is a good plan before digging the trenches for the Celery to scatter a thin layer of rotten manure between, which manure the Lettuces will have to make use of when they begin to turn in. Stimulated by its richness, growth is expedited, and the plants have not that

TENDENCY TO "BOLT" or run to seed which they have when their supply of food fails or runs short. Another reason why Lettuces should be grown between Celery is that by having them there it economises space that could not be utilised for anything else, as other vegetables would be a longer time on the ground; whereas Lettuces reach their full size in a short time, and are off and used before the soil is required for earthing up and bleaching the Celery. To get the land in proper order for sowing, the surface must be finely raked and made level and smooth, when all will be in readiness for drawing the drills. These should be made about an inch deep, and in them the seed should be scattered regularly and thinly, or, better still, dotted in small patches a foot apart, which is the proper distance for the plants to stand when thinned out singly, which they should be as soon as they are large enough for anyone to pick out or distinguish the strongest, and they are the plants to be left. In the event of slugs assailing them, or as a preventive measure, if there are any of these troublesome insects in the garden, it is a good plan to slightly dust the leaves with soot, to get which to stick it is necessary to apply it during early morning while the dew is on the plants; but as soot is of a hot nature, the sowing it must be done with a light hand, or the tender plants will be injured. The best kind of Lettuce to grow for summer use is the old Paris White Cos, which,

cultivated after the manner referred to, is always succulent and good, and hearts in of itself without any tying.

FOR WINTER WORK there are none equal to Hick's Hardy Green Cos and the White-seeded Bath Cos, both of which will stand hard frosts and come in fit for use very early in spring, or by sowing now or soon after this, they will be large enough to cut by the end of October. As there is never any fear of late Lettuces running to flower, or suffering greatly from transplanting, they may be sown in seed beds and dibbled out from these into the ground where they are to stand for the winter. The most suitable situation for them is a warm south border under a wall, as there they get sun and shelter, and what is of equal importance they can have drier soil, which saves them from spot or other disease. Before planting, the border should be well manured and deeply dug, and if at all heavy, have leaf mould worked into it, which will help to keep it open and assist the drainage by allowing the water to pass freely through. To give proper room, the rows should not be nearer each other than 15 inches, and the plants that distance apart in the rows, which will give them room to spread and let the air through. Lettuces that are fully grown by the end of October, if needed for winter, should be lifted and stored in cold frames, where if covered during sharp frosty weather with mats, they may be drawn from when wanted.

S. D.

NOTES ON BROCCOLI.

OF all winter vegetable crops this is the most important, and during the next two months sowing and planting must have special attention. As a rule the seed for our main Broccoli crops is sown the last week in April or the first week in May, but should anything prevent us from sowing them, then we would sow up to the end of May; so if any have not yet put in their Broccoli seed, there is still time to do so. Judging from the many letters I receive containing enquiries about vegetables, I find the idea very general amongst amateurs that in order to secure a long and constant succession of Broccoli, the seeds should be put in at different times, sowing the early ones in spring and the late ones in autumn. It is not, however, through practice of this kind that a constant supply of Broccoli can be kept up from November until May. If some of the early Broccoli seed was sown in February or March, many of the plants would be liable to produce heads prematurely when four or five months old, and if the spring varieties were not sown until August or thereabouts they would fail altogether to give good returns. It is by the selection of varieties that a succession can alone be secured, and if six, eight, or ten sorts are cultivated to give a supply say from the beginning of November until the end of May or middle of June, the whole of the seeds may be sown on the same day. It may be stated, too, that great numbers of varieties are not required for a long and good supply. If it is known that one kind will produce heads satisfactorily during November and December, there is no use in growing other three or four kinds which will come in at the same time. Altogether in recent years we have grown and tested over five dozen kinds of home and Continental origin, and now our sorts are few, but really good. For convenience I will classify them thus: November and December, Veitch's Self-protecting Autumn Broccoli, an excellent sort; January, Snow's Winter White and Backhouse's winter variety; February, Cooling's Matchless; March, Carter's Mammoth Spring White; April, Cattell's Eclipse; May and June, Sutton's Late Queen; the latter, like the first-named, is indeed a queen amongst Broccoli, and should be universally cultivated, as it never disappoints, and it comes in at a time when anything in the way of Broccoli is much valued. In

SOWING THE SEED OF Broccoli any odd corner or strip of border where the soil is fairly good will answer the purpose, as the young plants will only remain in their germinating position until they become large enough for planting in their

permanent places. In forking over the seed ground before sowing we generally add a dressing of leaf soil or old Mushroom bed manure, as we find the young plants make more roots in this than in cow, horse, or rough lumpy manure. For convenience in hoeing between and also to admit plenty of light to the young plants, we prefer sowing the seeds in rows to broadcast, and to carry out this plan drills 2 inches deep and 6 inches or 8 inches apart are opened for its reception. It is sown thinly, the covering over is done carefully, and when finished the soil over the seed is left very smooth. At this season the seed germinates fast; sometimes in humid weather the plants can indeed be seen in the rows a week after sowing, and when in this stage and until they have gained strength, a sharp out-look has to be kept for snails and slugs, which are very fond of the tender young plants and devour them greedily. In damp weather it is therefore necessary to look out for them night and morning, and at the same time dust slightly every other day with soot or powdered lime. In dry weather some may be inclined to water their young Broccoli, but we never do this; artificial watering is not, indeed, wanted when the soil has been properly prepared. As soon as the plants become anything like crowded in the rows, the largest of them are drawn out and dibbled into another piece of ground 3 inches or so apart. Here they soon catch hold of the soil, and make nice bushy plants to be transferred, with a good ball of soil adhering to the roots, to their permanent quarters. Those left in the seed rows have sometimes space enough to remain and be planted out with those dibbled in elsewhere, and in any case those growing in the seed rows are always handy for making up blanks or for forming later plantations on ground which may not be vacant at the general planting time. In reference to this, I may say

THE TIME TO PLANT is not fixed by a hard and fast rule, but may extend from the beginning of June until the end of July. When the ground is empty and plants early, they may be put out at any time, but in our case the ground is hardly ever empty or waiting for them, as we have often to keep the Broccoli plants growing in the nursery beds until they are upwards of 1 foot high before the ground for their reception is cleared from other crops, such as Peas, Potatoes, &c. In dealing with large, or what may be termed overgrown, plants, a little more care is needed in transplanting than in the case of small, young material, and in July, when the weather and soil are generally excessively dry, newly-planted Broccoli is much benefited by a thorough watering. Besides, the ground which will become vacant for Broccoli two months hence we have a good deal of space ready for them now; but this is not idle, empty ground, as Potatoes have been planted on it with a distance of 3 feet from row to row, and immediately these are earthed up the Broccoli will be planted between each row. As the Potatoes develop the stems will be kept from smothering up the Broccoli, and when the tubers are lifted the soil will be spread out and levelled down around the Broccoli stems, and by September our quarters will contain as promising a crop of Broccoli as they do at the present time that of Potatoes. In planting autumn Broccoli, a distance of 2 feet from plant to plant each way will give good results, but winter kinds will be benefited by being planted wider apart, as they cannot be grown too hardy or well exposed, and 2½ feet or 3 feet should be given them. Deeply-cultivated ground will always produce the finest crops, but excessive manuring should be avoided, as this forces the plants to make soft, succulent growth in autumn, which is very liable to be injured in winter.

Margam, Glamorganshire.

J. MUIR.

Potato sets.—Will "A. D." be so good as tell me where I can lay my hands on any records that "fully demonstrate that crops are great or less just as the sets are large or small" where the sets in each case have been disbudded to an equal number of their strongest buds? I am quite well aware that the largest sets produce the

heaviest crops, because, as I have already explained, they have most eyes. But, if Robert Thompson is right, big Potatoes should produce heavier crops than small Potatoes, but for bud, for the reason, according to him, that the buds are stronger on the former than on the latter. But do they? I say they do not, because as a rule the buds—within certain limits as regards size of tuber—are just as strong on the small Potato as on the large one. This is the point; the rest follows as a matter of course either way.—J. S. W.

LATE PEAS.

"J. C. F." (p. 363) and Mr. Sheppard (p. 408) do not believe in early Peas for late sowing; neither do I. They are too tender and do not fill their pods satisfactorily in September and October, and they are not worth growing for a supply at that season when placed against some of our real good late sorts. I do not regard *Ne Plus Ultra* in the light in which it is looked upon by some. In my opinion it is neither the best, the second best, nor the third best of the many fine Peas in cultivation. As an early Pea it is nowhere; as a second early or main crop variety, it has no unequalled points; but as a late variety, I would term it one of the sorts worth growing. It is a prolific Pea at the points of the shoots, but I have never yet seen it clothed with pods from the ground upwards like some kinds that could be named. It is a very straggling grower, and in a wet autumn or in very rich ground the straw often becomes 8 feet high; large stakes, seldom obtainable by the majority of growers, are therefore required to support it, and unless these can be used, the growths double over, and this hinders the pods from forming and filling freely. Of all late Peas, I know of none equal to *Laxton's Omega* as regards general usefulness. As a rule it grows 3 feet high; it is very robust and hardy, bears most prolifically from the ground upwards; the pods fill up well late in the season, and the flavour is all that could be desired. It is altogether a Pea better adapted and more worthy of general culture as a late sort than any other kind I could name. With us it is almost useless to sow late Peas after the first week in June, as later ones do not yield remunerative returns, and we are very particular in giving the late crops a rich soil and a sunny position.—J. MUIR, *Margam, Glamorganshire*.

I have not one word to say against *Ne Plus Ultra* and the *British Queen*, recommended by "J. S." for a late crop, but I should like to suggest that he should also grow *Bruce Findlay*, a new variety sent out for the first time this season. It was sent to me for trial two years ago, and I shall be surprised if it does not take a high position as a late Pea.—J. C. CLARKE.

GARDEN DESTROYERS.

BIRDS V. SLUGS AND SNAILS.

WE all know that blackbirds and thrushes destroy many shell-snails in times of frost, or of dry, parching weather when worms are scarce, but I scarcely thank them when they tear to pieces a choice *Saxifrage* in pursuit of their prey. As to slugs, I never knew any small bird to touch them; and with regard to ducks, which are generally credited with a special appetite for such food, I do not know that my ducks are more dainty than others; they certainly pretend to be very eager in ferreting slugs out in the long grass, but when I have thrown a few in the midst of them, the onslaught seems rather one of rivalry than of preference; a few are eaten and the rest left in disgust. Even a glow-worm, I believe, distinguishes between the snail and the slug, rejecting the latter. I was not until recently aware that tame pigeons gave us any aid in our gardens. I knew that they did some mischief, not as a rule picking off the leaves and flowers so much as the seeds. Though they find the flower of the *Aponogeton* and the leaves of the *Eschscholtzia* too tempting to resist, they do not, however, injure in the same manner as ducks, whose wide, heavy feet and inquisitive bills disfigure all they touch. Then the

aid of which I speak is very great. It is true they will not touch the slugs, but in a single morning a pigeon will pick up from 50 to 100 shell-snails varying in size from a pea to a small marble. The benefit is really incalculable.—T. H. ARCHER-HIND, *South Devon*.

—Allow me to add my experience in reference to birds eating slugs. Last spring my attention was directed to a female thrush or mavis whose beak was filled to overflowing with small black slugs, evidently destined for her nestlings. Since then I have closely observed these birds, and though I have never seen them eat slugs, yet during their breeding season, in spring, I have repeatedly watched them gathering mouthfuls of small slugs. I am, therefore, inclined to think that slugs form no part of the regular food of the parent thrush, but that they feed their young with them. Like all old gardens, this is infested with slugs, and though surrounded by woods, and visited by scores of blackbirds and thrushes, they do not appreciably diminish the number of slugs, constant warfare with lime and soot alone enabling us to get seedling vegetables through their infancy. Our best friends as slug destroyers are a few pairs of domestic pigeons, which, I am told, are Jacobins. Until quite recently I was incredulous as to pigeons eating slugs, but actual observation has convinced me of the fact. Observing that these birds made it a morning practice to alight in the garden, and feeling curious to know what food they sought, I paid particular attention to them. They are very tame, and time after time I have stood within a couple of yards of them and seen them busily clearing a Strawberry quarter of slugs. In that part of the garden, too, which they frequent there is a marked diminution in the number of slugs. So useful are these pretty birds and so welcome, that we are careful to avoid frightening them in any way. I cannot say that I have seen blackbirds either eat or gather slugs, though I have watched them as closely as their shy nature will allow. I am, however, so convinced that the friendly services of these birds and thrushes so much outweigh any loss which we sustain in the way of their eating fruit, that I should be sorry now to repeat the youthful practices in which I was encouraged and rewarded, viz., searching out and ruthlessly destroying every nest found within the pleasure grounds.—A. MOORE, *Cranmore*.

I can corroborate Professor Owen's assertion that thrushes eat slugs, though the proof that they do so may be more difficult to bring forward than that they eat snails—a fact of which every observer is aware. I think, however, that the following is pretty strong evidence of their slug-eating powers. In 1881 a thrush built its nest in a Juniper close to my house. She had young ones, and at the moment I chanced to pass was engaged in feeding them. At the same instant I perceived that my cat had climbed up the tree, and was preparing to spring upon the old bird. I succeeded in catching her and rescuing the thrush, after which I examined the brood, and found one apparently dying. Much interested, I endeavoured to discover the cause of its trouble, and after a little time saw it proceeded from some large substance in its throat, which by great efforts it at last succeeded in dislodging, and which proved to be a large brown slug—not a snail. Up to this time I had never had positive proof that any living creature—not even the much-praised duck—could eat slugs, but this was certainly incontrovertible.—CHARLES NOBLE, *Bayshot*.

—Notwithstanding the opinion of Canon Elcombe of Bitton and the Rev. Wolley Dod, I could not help thinking that some direct evidence might be forthcoming to show that blackbirds and thrushes do feed upon slugs; at any rate let us credit them with this great service till we are sure of the reverse. As Mr. Dod says, the stomachs of three or four blackbirds where no slugs have been found is only negative evidence after all; but what will he make of the following note which I have just now had from the Rev. F. O. Morris, rector of Nunburnholme (the author of "British Birds") about this point? His words are these: "I have never dissected any birds myself, but I feel

sure Mr. Macgillivray, who dissected, as a surgeon, every bird that he could for his most accurate 'British Birds,' states that the blackbird and the thrush both make slugs part of their food. They are for the most part hidden from sight in the daytime, but I feel confident that they would devour all slugs they meet with, and be glad to get them."—X. Y. Z.

PRESERVING TIMBER.

THE processes of creosoting and kyanising—the two operations, according to the *British Architect*, largely carried on by the firm of Armstrong, Addison & Co., of Sunderland—are founded on the possibility of filling the pores of timber with a preserving liquid which, by a very complete saturation of the timber, affords sound protection against decay. Some have attempted to preserve timber by steeping it in creosote oil, but they have found that, whilst the outside was preserved, the heart decayed. Others have merely brushed the surface over with the preservative, but of course the result has been a failure. The course adopted in creosoting by the firm in question is as follows: The timber is placed in iron cylinders of great strength; little tramcars are specially built to run into these cylinders ready loaded, rails being fixed along the inside of them; swing doors are swung to and securely fastened by strong iron cramps, and the cylinders are ready for the commencement of the process. This consists in extracting the air from the cylinders, and also from the pores of the wood, which is done by means of a vacuum pump. Then it is only necessary to admit the creosoting liquid, which is forced into the wood by a force pump under a maximum pressure of about 150 lbs. to a square inch. This work must be conscientiously and carefully executed. First of all, the timber must be thoroughly dry, or the moisture will simply be driven into it, and, being unable to escape, will inevitably cause decay. Then the creosote oil must be of good quality, and there must be no meanness in supplying a sufficient quantity of it. There should never be less than two-thirds to one gallon of oil forced into each cubic foot of the wood, and in cases where the scantling is small, and has consequently a larger amount of exposed surface, even more than this is requisite to due preservation.

KYANISING wood which has to be subsequently painted over, and also for situations where there is especial danger from fire, is also a process to which much attention is paid. It consists in forcing into the wood a solution of corrosive sublimate, and is a more costly matter than creosoting. The kind of timber to be used is of course a matter of importance in giving full effect to the preservative processes employed. Telegraph poles suggest a large destruction in Swedish and Norwegian forests. The sleepers used by English railway companies come chiefly from Russia and Prussia. Some engineers give a preference to Scotch Fir sleepers, which, when thoroughly creosoted, become as durable as any wood that has been fairly tested. American white Fir sleepers were laid on the line from Manchester to Crewe in 1838, and a few years since were as sound as ever, and Scotch Fir sleepers, laid on the North-Eastern line in 1851, were taken up in twenty-seven years (1878) in a perfectly sound state.

The claims of creosote as a preservative are, that it prevents the growth of any vegetation, i.e., the propagation of fungus, and completely hinders the absorption of moisture into the wood. Not only does creosote prevent decay, but it repels the attacks of marine worms. For estate purposes the importance of creosoting is being felt more and more every year; owners find they can have at a small cost a fence that will not decay. Creosoted wood pavement was first laid down in Sunderland in 1867. The Corporation permitted a strip of creosoted Redwood and one of creosoted Beech to be laid across the roadway of the Wear Bridge; although a heavy traffic has passed over these for fifteen years they are still sound. The surface of the Redwood is rather uneven, but the Beech is practically as good as ever. When

measured by the Corporation in 1879, the average wear of the Redwood during twelve years was found to have been 15-16ths of an inch, and of the Beech only 3-8ths of an inch—less, in fact, than some granite setts laid down four years later. The wood paving, as laid down by Messrs. Armstrong, is as follows: A concrete bed is laid over the road formation, properly graded; the wood blocks are laid in a thin bed of sand at the top of this, and they measure 6 inches deep, are 3 inches to 3½ inches wide, and 6 inches to 12 inches long; the joints are run with asphalt and small gravel in proper proportions. By means of a machine specially designed for pavement work four blocks are cut at once. Redwood blocks from Memel, Dantzic, or Stettin timber are said to be more durable than those from Swedish wood.

SOCIETIES.

MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.

MAY 11 TO 18.

THE annual Whitsuntide show held by this society was opened on the 11th. On this occasion an important feature was the handsome roomy exhibition building recently completed to take the place of the old structure which has so long done duty for the accommodation of the more tender productions at these annual gatherings, and which has unmistakably had no small influence in creating the wide-spread taste for displays of this kind that exists in Manchester and the surrounding districts, as proved by the vast crowds that each year attend these exhibitions. The new building is considerably larger than the old one, being some 25 feet long by 54 feet wide, and it is well adapted for the purpose intended, having ample heating accommodation. The greater portion of the plants, in fact all except those at the back furthest from the eye, are arranged on the floor level, a way in which it is needless to say they are seen to better advantage than they otherwise could be. There was a slight falling off this year in one or two of the leading classes for Orchids and large flowering hard-wooded plants, consequent on the absence of several exhibitors who have before been contributors. And no doubt to some extent the severe weather experienced during the whole of the spring has also had an influence in retarding the blooming of many things ordinarily in flower at this time; the effect of this was to be seen in several departments, notably in that of hardy herbaceous plants, many of which gave signs of having been kept warmer than is desirable in order to bring them into bloom. Orchids, as usual here, were well shown both as to size and condition. In the amateurs' class for fifteen, Mr. Holmes, gardener to O. Schneider, Esq., was first, and Mr. G. Swan, gardener to W. Leech, Esq., second. In the class of nine Orchids Mr. Mitchell, gardener to Dr. Ainsworth, was first, with large well-grown, and finely-bloomed plants; and in the class of six Orchids, Mr. Goodall, gardener to Mrs. Leech, was first, his best examples being *Dendrobium nobile*, *Cattleya Mossiae*, and the old, but effective, *Oncidium sphacelatum*. A class exists here for Orchids not made up; any collection shown with a plant put together to increase its size, in the way so often practised, would be disqualified. In this class Mr. Holmes was first, and Dr. Hodgkinson second. In the nurserymen's class for sixteen Mr. James, Castle Nursery, Lower Norwood, took the lead with a medium-sized, nicely bloomed collection, Mr. Cypher, Cheltenham, being second. Other nurserymen's classes were also well sustained. Stove and greenhouse flowering plants were not quite equal to what they usually are here, most of the collections containing some very good and others inferior ones. Mr. Cypher took the lead in the nurserymen's class. Mr. Paul, gardener to S. Schloss, Esq., Bowdon, was first among amateurs. Fine foliaged plants were contributed in large quantities and in good condition by Mr. Cypher and others. Dra-

cænas were contributed by Messrs. F. Ker & Sons, of Liverpool, who had twelve plants alike remarkable for their size and the magnificent colour of their foliage. Of Roses, Messrs. Paul & Son, Cheshunt, had a fine group of medium-sized plants, well flowered, and in their way more beautiful than larger specimens. Mr. J. Hooley, of Stockport, also showed some well bloomed plants, showing that even in the smoky neighbourhood of this manufacturing town Roses

Mr. Cypher was likewise first with eight Azaleas, medium sized plants well clothed with large flowers. With Pelargoniums, Mr. C. Ryland, Ormskirk, was first.

New plants were shown by Mr. B. S. Williams, Holloway, who staged, amongst others, *Selaginella grandis*, the finest of all the Lycopodiums; *Nepenthes Mastersiana*, *Aralia Kerchoveana*, *Davallia feniculacea*, a grand new Fern not yet in commerce; *Aralia Chabrieri*, *A. undulata*, Dra-

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Schizra dichotoma (see page 453).

can be fairly well grown. Nothing in the exhibition was more attractive than the large groups of plants staged for effect. In the amateurs' division Mr. Smith had a beautiful collection, noteworthy alike for cultivation and the effective way in which the plants were arranged. Mr. Paul, who was second, also had a very pretty group, in which were a couple of dense, bushy plants of a fine form of the white *Marguerite* about 4 feet in diameter, and so profusely flowered as to almost hide the foliage. In the nurserymen's class for groups of a like description Messrs. Ker were first with plants well chosen and skilfully arranged. Cape Heaths were nicely shown by Mr. Cypher and the Liverpool Horticultural Company, the latter having an evenly flowered half-dozen.

cæna Lindeni, *Croton Excelsior*, and *Dalebachia rupestris*. Messrs. Ker furnished *Anthurium splendidum*, *Selaginella grandis*, *Croton Nieumani*, *Ficus elastica albo-variegata*, a fine and distinctly variegated plant, likely to become a popular favourite; and a hardy double white Azalea named *alba plena odorata*, a variety of great promise, a decided advance over everything in its way we have seen. Mr. James had *Panax Veitchi*, *Selaginella involvens variegata* and *Cymbidium Devonianum*. Amaryllises were shown in fine condition by Mr. B. S. Williams, who also had some good Pitcher plants, and so had Mr. Entwistle, gardener to J. Broome, Esq., and Mr. Paul, the latter having several large pans of *Sarracenia purpurea* bearing the largest pitchers that have

come under our notice, and a beautiful example of *Cephalotus follicularis*.

HARDY HERBACEOUS PLANTS were well represented, Mr. Entwistle being first with a group in which were *Trillium grandiflorum*, *Lychnis Viscaria*, *Anthericum Liliastrium*, *Funkia ovata*, *F. Sieboldiana*, and *Thalictrum purpurascens*. Mr. Entwistle was also awarded a first prize for thirty alpine, well grown and nicely shown. In the nurserymen's class for sixty herbaceous and bulbous plants the first prize went to Messrs. Dickson and Sons, Chester, whose plants were beautifully grown and nicely grouped; second, Mr. Brownhill, who also had a good collection, in it being a remarkably handsome form of *Primula intermedia* named *purpurata*. Forty alpine came from Messrs. Dickson and Sons, who showed among others *Saxifraga muscoides atropurpurea*, *S. lantoscana*, *S. pyramidalis*, *S. Wallacii*, *Corydalis nobilis*, *Primula intermedia*, *Delphinium nudicaule*, *Viola pedata alba*, and others of equal merit; second, Mr. Brownhill, who likewise had an even group.

CUT FLOWERS.—These came from Mr. Cypher, the only exhibitor. Bouquets were beautifully shown, artistically arranged, and not too large. Three equal first prizes were awarded to Mr. Cypher and Mr. J. Mason, Manchester. Both colour and materials in Mr. Cypher's examples were alike faultless, the charming *Pancreatium fragrans* being conspicuous in each. Mr. Mason's three were mostly composed of yellow, red, and pink Roses, with a little *Stephanotis* and *Gardenia intermedia*. Second, Mr. G. Foster, Stretford, and third, Mr. C. Wilson, Kendal, both staging handsome arrangements. The prizes in the amateurs' class for two bouquets went to Mr. Elphinstone, gardener to Mr. J. Heywood, Mr. R. P. Gill, Ashton-on-Mersey, and Miss Johnson, Ascot, in the order in which their names stand. A fine group of Orchid flowers was staged by Messrs. Thomson & Ireland, Craigleith Nursery, Edinburgh, comprising some fifty species, in which were beautiful spikes of *Vanda suavis*, *V. insignis*, *V. tricolor*; *Odontoglossum crispum*, *O. Pescatorei*, *O. vexillarium*, *O. Andersonianum*, *O. Roezlii*, *Lælia purpurata*, *Cymbidium Lowianum*, *Cypripedium caudatum*, *C. lævigatum*, *C. Lowii*, *C. villosum*, *Dendrobium thyrsiflorum*, several varieties of *Masdevallia*, and others; with these were some flowers of *Anthurium Scherzerianum*, the largest we have met with. It should be added that a large miscellaneous collection of flowering and other plants was shown by the Liverpool Horticultural Company, including most of the popular species and varieties of hard and soft-wooded stove and greenhouse plants.

FRUIT.—Mr. McIndoe, gardener to Sir J. W. Pease, Hutton Hall, Guisborough, was the only competitor in the class of eight dishes. They consisted of Black Hamburg and early Frontignan Grapes; Lord Napier Nectarines, very fine; Bellegarde, Barrington, and Royal George Peaches; President Strawberries; and McIndoe's Scarlet Premier Melon, all in nice condition. Two bunches black Grapes—for these Mr. McIndoe was easily first with well finished examples of Black Hamburg; and Mr. Bruce, gardener to Mrs. Ackers, Congleton, second. Two bunches of white Grapes—First, Mr. McIndoe, who showed early summer Frontignan; second, Mr. J. Fildes. Two Pines—First, Mr. Bailie, gardener to the Earl of Wilton; second, Mr. Bruce. Single Pine—First, Mr. Goodacre, gardener to the Earl of Harrington; second, Mr. Bailie.

Messrs. J. Waterer & Son, Bagshot, received the Society's gold medal for a very fine collection of Rhododendrons and hardy shrubs, comprising a large and varied group of the best evergreen species and varieties. Messrs. Rodger, McClelland, & Co., of Newry, had an extra prize for a group of hardy plants in flower consisting of about a hundred species and varieties in beautiful condition.

Extensive collections of miscellaneous plants not for competition were contributed by Mr. B. S. Williams, whose exhibit contained Orchids, Palms, *Amaryllis*, Ferns, *Crotons*, *Dracenas*, &c.; Messrs. F. and A. Dickson, Chester; Messrs. Ker, and Mr.

Cypher, all of whom had varied and interesting groups. From Messrs. Cutbush & Sons, of Highgate and Barnet, came a very complete collection of hard-wooded plants, including most of the best spring-flowering Heaths and New Holland and Cape species, a large proportion of which were in bloom; these were intermixed with Palms, *Dracenas*, and others of like description, collectively having a nice effect.

ROYAL BOTANIC.

MAY 16.

THE first summer show of the season held in the Regent's Park Garden on Wednesday last, was considered to be decidedly below the average of corresponding shows of recent years as regards the quality of the exhibits. Taken collectively, too, it was singularly destitute of interest, there being comparatively few real novelties and no new departure in any direction. The same old plants were arranged in the same stereotyped manner, though there was no lack of brightness; in fact, we thought the *tout ensemble* of the tent too glaring, a matter which might have been improved by bringing into view the groups of foliage plants hidden in the recesses, and setting back some of the garish *Azaleas* always masses of unrelieved colour. Every projecting bank was a mass of blossom. We should like to see the practice discontinued of placing a long straight row of pyramid *Azaleas* on the crest of the Orchid bank, thus utterly destroying the effect of the quieter colours of the Orchids, which, instead of brilliantly toned *Azaleas* or other showy plants, should have a background of elegant foliage, with which the delicate hues of the Orchids would harmonise. With the exception of these little drawbacks, the show was attractive as regards effect, and the subdued light of the tent lent an additional charm to the gay colours. The classes in which there was a conspicuous falling off in quality were those for Orchids, Ferns, fine-foliaged plants, and hardy plants; but, on the other hand, stove and greenhouse plants were well represented. *Azaleas* have rarely been better, and the same may be said of *Pelargoniums*, *Roses*, and *Clematises*.

NEW PLANTS were rather numerous, and, as usual, there were large numbers considered worthy of certificates.

BOTANICAL CERTIFICATES were awarded to

DAVALIA BRACHYCARPA.—An extremely elegant Fern, with long recurved finely divided fronds reminding one of *Asplenium Fabianum*. It is one of the choicest of the cultivated Hare's-foot Ferns. Shown by Messrs. Veitch, Chelsea, who introduced it from the New Hebrides.

WORMIA BURBIDGEI.—A Bornean shrub of erect growth, with noble foliage and bearing large, clear yellow flowers on short racemes from the upper part of the stem. Introduced by the exhibitors, Messrs. Veitch, from Borneo.

BEGONIA GOGOENSIS.—Remarkable for the rich velvety tones of the shield-shaped leaves, which measure about 6 inches across. They are vinous purple on their under surfaces, and of various shades of green on the upper sides. Messrs. Veitch.

ACANTHOPHIPPIUM CURTISI.—An Orchid more curious than beautiful. It has large plicate leaves like those of a *Phaius*. The flowers, borne in loose clusters on short stems, are a reddish purple and curiously shaped. Messrs. Veitch.

CATTLEYA IRI-COLOR.—A very distinct species, having flowers about the size of those of *C. Skinneri*. The sepals and petals are creamy white, as is also the labellum, which has a yellow throat and a band of carmine near the margin. It is a pretty Orchid, though not so showy as some of its congeners now in bloom. Messrs. Veitch.

CYPRIPEDIUM RECURVIPETALUM.—A new species in the way of *C. Veitchii*, but differing in having a larger pouched lip, deflexed petals more profusely and minutely spotted, and by the dorsal sepal being rather larger than in *C. Veitchii*, and edged with creamy white, as in *C. Mastersianum*. In foliage it is not much different from *C. Veitchii*. Messrs. Veitch.

OCHNA MULTIFLORA.—A curious and elegant ornamental stove shrub of neat growth, and remarkable for its bright red and green fruits and yellow flowers borne on the plant at the same time. Mr. B. S. Williams.

EPIDENDRUM FREDERICI GUILIELMI.—A rare species belonging to that section of the genus, having tall leafy stems terminated by a loose cluster of blossoms. In this species the flowers are larger than usual and of a dark rose-pink. Mr. Williams.

MAXILLARIA LUTEO-ALBA.—A handsome Orchid having large flowers, the sepals of which are arranged in a triangular outline. Their colour is a brownish yellow tipped with white, rendering it distinct from other species. Mr. Williams.

CALADIUM LUDDMANNI, with large leaves, having a rich pea-green ground, copiously blotched with pure white and reddish crimson, making the plant extremely ornamental; **CARDINALE**, ground colour reddish pink, traversed by veins of a deeper hue, and, moreover, semi-transparent; **ORNATUM**, a kind with deep green leaves, veined and streaked with rich crimson-red; and **VERDI**, with leaves wholly of a deep rich red except a broad margin of emerald-green. All these were exhibited by Messrs. Laing & Co, Stanstead Park Nurseries, Forest Hill, and comprise the choicest new varieties.

IMPATIENS SULTANI.—A new Balsam from Zanzibar, bearing a profusion of rich carmine flowers on neat habited plants. It will doubtless become a popular plant for affording winter and spring bloom. Messrs. Veitch.

PRUNUS PISSARDI.—A new variety of Plum, remarkable for the coppery purple tinge of its foliage, which resembles that of the ordinary Plum in size and form. It is a very ornamental deciduous tree, and will, no doubt, become popular. It was exhibited by Messrs. Laing under the name of *P. Pichardi*.

DENDROBIUM LEUCOLOPHOTUM.—A very pretty species and distinct from most others. From its tall pseudo-bulbs it bears long racemes of blossoms on slender stalks springing at right angles from the bulb. The flowers are pure white, much resembling those of *D. barbatulum*. Messrs. Veitch.

FLORICULTURAL CERTIFICATES were awarded to

AZALEA MADAME VAN HOUTTE, a variety of *A. indica*, having large single flowers of a salmon-pink colour, edged with white. Exhibited by Mr. Turner, Slough.

AMARYLLIS STAR OF INDIA.—A splendid variety with flowers of large size and perfect form, and of a brilliant carmine-crimson. One of the finest of the twenty-two that have been certificated from Messrs. Veitch's nursery this season.

COLEUS CANARY BIRD.—A neat growing sort with small leaves of a pale yellow prettily edged with green. It is quite out of the ordinary run of *Coleuses*. Shown by Messrs. Laing.

AZALEA BARON N. DE ROTHSCCHILD.—A variety of *A. indica* with large double flowers of a bright reddish purple, abundantly produced, and *A. Souvenir de Prince Napoleon*, a single variety with flowers of a rich salmon tint edged with white, distinct from and superior to others of a similar colour. Shown by Messrs. Veitch.

AURICULAS WILLIAM COOMBER, RESPLENDENS, RICHARD GORTON, OUIDA, ROB ROY.—All alpine varieties, having yellow centres and richly shaded grounds mostly of a maroon-crimson, and perfection as regards size of flower, symmetry of outline, constitution, and other points that constitute a perfect alpine Auricula. Shown by the raiser, Mr. Turner, Slough.

ROSE MERVEILLE DE LYON.—A Hybrid Perpetual with large and full flowers, almost a pure white, there being but the faintest suggestion of a blush tint in the petals. It is undoubtedly one that will have a bright future. From Messrs. Paul & Son, Cheshunt.

BEGONIAS (double tuberous) **LITTLE GEM**, large flowers, pure white; **CANARY BIRD**, flowers perfectly rosette-like, of a sulphur-yellow; **PRINCE OF**

WALES, SIR GARNET, CLARINDA, all with large flowers, perfectly double, and of various brilliant shades of vermillion; and DR. DUKE, with enormous large double flowers of a bright scarlet-vermillion. These represent the finest double Begonias that have yet been raised. Exhibited by Messrs. Laing & Co., Forest Hill.

ORCHIDS.—We were sorry to see such a perceptible falling off in the numbers of these beautiful plants, which usually form such an attractive feature at these summer shows, the "Orchid bank" being almost bare. This was particularly noticeable in the amateurs' class, which as a rule is well represented, and by such celebrated connoisseurs as Sir Trevor Lawrence. There was but one collection of a dozen plants. This came from Mr. Southgate's garden at Streatham, and was admirably shown by his gardener, Mr. Salter. This group was a very creditable one, and among the most prominent were *Dendrobium nobile*, a fine specimen, 3 feet or more through, and densely flowered, particularly having regard to the late date; *D. Wardianum*, also a large well-flowered plant; *D. thyrsiflorum*, with six large drooping spikes; *D. Jamesianum*, a huge potful; *Masdevallia Harryana*, with some scores of flowers; *Oncidium concolor*, with seven fine spikes; the rare *Cœlogyne elata*; a splendid variety of *Cattleya Mendeli*, with four blossoms; another of *C. Warneri*, *Odontoglossum Ruckerianum*, *O. citrosum*, and *Vanda suavis*. The two collections of twelve from nurserymen were from Mr. James, Lower Norwood, and Messrs. Jackson, Kingston. Mr. James' first collection included some choice things, such as *Lælia Schilleriana* and well grown specimens of *Cypripedium Stonei*, with five spikes; *Burlingtonia fragrans*, well flowered; *Dendrobium Jamesianum*, *Cattleya Mossiae*, and *C. Mendeli*. These with small, full, well-flowered specimens of *Dendrobium fimbriatum*, *D. nobile*, *Lælia purpurata*, and *Odontoglossum vexillarium* were among the other prominent plants in this group. In Messrs. Jackson's collection was a plant of the rarely seen *Schomburgkia tibicinis*, the Cow's-horn Orchid of Honduras. The flowers, borne on a cluster terminating a long slender stem, are something like those of *Vanda teres* in colour, but are smaller, and the sepals are wavy. Other conspicuous plants in this group was a *bona-fide* specimen of *Masdevallia Harryana*, with several dozen flowers rising from a fine healthy tuft of foliage; *M. ignea coccinea* was also good, likewise *Oncidium ampliatum majus*, *Odontoglossum triumphans*, and *Saccolabium guttatum*.

STOVE AND GREENHOUSE PLANTS were shown as usual in perfection both by nurseryman and amateurs, but there was but little novelty among them, and habitual visitors could probably recognise the majority of the huge specimens shown. Among nurserymen Messrs. Jackson were invincible, as they generally are. Their collection of a dozen plants was a grand one. The most noteworthy plants were *Rhododendron Countess of Iaddington*, profusely flowered; *Hedera fuchsoides* and *H. Tulipifera*, both the pink of perfection in every respect; *Erica Webbiana*, *Lindleyana*, *Cavendishi* were likewise grand examples, and also *Aphelexis macrantha*, *rosea*, and *purpurea*. These, with *Dracophyllum gracile*, a monster *Azalea* or two, and a superb specimen of *Anthurium Scherzerianum*, made up a fine dozen. The second best dozen came from Mr. Tudgey, who hitherto has shown among amateurs, but is now a nurseryman at Waltham Cross. His group was excellent also, and contained marvellous examples of *Anthurium Scherzerianum*, a huge specimen profusely flowered and in perfect health, and representing a good variety; *Erica ventricosa magnifica*, 5 feet through, *E. Cavendishi*, and smaller, but excellent plants of such varieties as *Aphelexis macrantha*, *Hederaura*, *Azaleas*, and *Clerodendron Balfourii*. In Messrs. Peed's group was a plant of the pretty *Boronia pinnata*.

The amateurs' stove and greenhouse plants were scarcely inferior to the nurserymen's. The best ten from Mr. Spode's garden near Rugeley. It contained a grand specimen of *Tremandra ericæfolia*, the best we have ever seen, being some

5 feet through, and completely smothered with its small purple flowers. Other notable plants were the difficultly-managed *Acrophyllum venosum*, *Dracophyllum gracile*, *Erica depressa major*, and *E. affinis*, both monster plants, dense masses of yellow flowers, *Statice profusa*, *Hederaura Tulipifera*, *Ixora Williamsi* and *coccinea*, and a plant of *Anthurium Scherzerianum*. Mr. Spode's gardener (Mr. Chapman) also showed the finest half-a-dozen plants which were as noteworthy for excellent culture as his larger collection. He had in it another superb plant of the pretty *Tremandra* and a huge *Anthurium Scherzerianum*, with a profusion of spathes; *Ixora Dixiana* and *coccinea*, and a large dense bush of *Erica Cavendishi*. The second best group of six, from Mr. Rann, Handcross Park, contained a wonderfully fine specimen of *Dendrobium nobile*, a dense mass of bloom; *Erica Lindleyana*, and *Aphelexis macrantha rosea*, both well grown. Heaths were admirably shown by Messrs. Jackson, who make such a speciality of hard-wooded plants and always show so finely. The six plants shown were *Erica ventricosa coccinea minor*, as perfect as could be; *E. ventricosa magnifica*, *E. depressa*, *E. Cavendishi*, *E. Lindleyana*, and a seedling of the gummy-flowered section of a bright red colour.

THE CLEMATISES from Messrs. Jackman, the only exhibitors, were perhaps the most beautiful feature in the show, and one that attracted more attention than any other. Every plant was a grand specimen, 4 feet or 5 feet high, and profusely flowered. The selection of varieties were, among white and light-tinted sorts, *Mad. Van Houtte*, *Gloire de St. Julien*, *Languinosa candida*, *Henry*, *Fairy Queen*, *Duchess of Edinburgh*, with lovely white rosettes. The purples and blue included *Mrs. Hope*, *Lawsoniana*, *Blue Gem*, *Duke of Norfolk*, *Lady C. Nevill*, *Sensation*, and *Purpurea elegans*. This was as fine a dozen as could possibly be chosen. The plants occupied a sloping bank in an isolated group, and in such a position produced a fine effect, and one uncommon at flower shows.

THE ROSES from the Cheshunt Nursery were magnificent, and, of course, were a centre of attraction. In the class for nine Messrs. Paul showed some gigantic specimens, all in superb condition. A plant of the pale yellow *Céline Forestier* could not have been far short of 9 feet in diameter and 6 feet high, and thickly studded with bloom. The other plants were *Edouard Morren*, *Anna Alexieff*, *Madame Victor Verdier*, *Charles Lawson*, *Madame de St. Joseph*, *Camille Bernardin*, *Comtesse de Serenye*, *Marquise de Castellane*, and *Beauty of Waltham*. This fine group occupied one of the projecting mounds, where it could be seen to advantage. A collection of twenty plants from Mr. Turner, Slough, were models of what small plants in 8-inch pots should be; they were in rude health and superbly flowered. The most conspicuous sorts were *La France*, *Marie Baumann*, *Mons. E. Y. Teas*, *Marie Van Houtte*, *Star of Waltham*, *Mad. Margottin*, *Charles Darwin*, *Miss Hassard*, and *Innocente Pirola*. Amateurs do not seem to care for growing pot Roses for exhibition, for the class provided for them was not represented, and there was only one other collection of nine plants from nurserymen, but these were poor. A grand display of cut blooms was contributed by Messrs. Wm. Paul & Son, Waltham Cross, and proved a source of attraction. Every bloom was of good quality, and the selection was excellent. *Baroness Rothschild* was as fine as outdoors in July; likewise *La France*, *Dr. André*, *Charles Lefebvre*, *François Michelin*, the new Queen of Queens, *Solfaterre*, *Captain Christy*, *Rêve d'Or*, and *Mad. Levet*. This collection comprised some twenty boxfuls; each contained some two dozen trusses, and a silver medal was appropriately awarded to the exhibitors.

FINE FOLIAGED PLANTS were on the whole not so well represented as is usual at these shows, though a grand group of six was shown by Mr. Rann for the first prize in the amateurs' class. The plants were quite up to the usual standard of excellence, Mr. Rann's plants being of gigantic proportions and in vigorous health. They were *Areca sapida*, *Latania borbonica*, *Cycas revoluta*, *Croton Hendersoni* 6 feet through and well coloured, *C.*

interruptus similarly fine, and a grand plant of *Gleichenia Mendeli*. Some uncommonly well grown Palms were the next best group, from Lady Goldsmid's garden, and in the third group were also some fair specimens of Palms and Crotons. Among nurserymen there was not a brisk competition, there being but three collections. The best came from Mr. Tudgey, and contained a well specimen of *Pritchardia pacifica*, one of the noblest of Palms; *Thrinax elegantissima*, *Cocos Weddelliana*, and *Cycas circinalis*. The Ferns were not nearly so fine as usual, and a third-rate group of six was first on this occasion. It included two *Alsophilas* and a fair plant of *Davallia Mooreana*. A large plant of the pretty *Davallia bullata* and a good plant of the elegant *Adiantum Williamsi*, one of the best of the Maiden-hair Ferns, were among the others.

PELARGONIUMS were shown well by the two great cultivators of these flowers, Mr. Turner and Mr. Little's gardener (Mr. Wiggins). Those from Slough were very fine. In the collection of six were such superb sorts as *Viscount*, *Digby Grand*, *Illuminator*, *Modesty*, *Venus*, and *Sappho*; and the equally fine six from Mr. Little included *Isabel*, *Prince Leopold*, *Jeannette*, *Miss Bradshaw*, *Duchess of Bedford*, and *Digby Grand*. The fancy varieties were likewise shown admirably by these two exhibitors. The best six, from Mr. Turner, included *Miss Porter*, *Mrs. Hart*, *Helen Beck*, *Thomas King*, *Fanny Gair*, and *Princess Teck*, an excellent half a dozen for exhibition. Mr. Little's plants included, amongst others, good specimens of *Roi des Fantaisies*, *Duchess of Edinburg*, *Lucy*, and *Mrs. Hart*.

AZALEAS were numerous and gave colour to the exhibition, and on the whole were well represented. The chief prize-winner was Mr. Turner, who in the class for six plants had a grand group, all huge specimens, profusely flowered. The sorts were *Chelsoni*, *Duc de Nassau*, *Reine des Fleurs*, *Madame Cannart d'Hamale*, and *Etendard de Flandre*, all superb varieties. The best collection of twelve plants, in 12-inch pots, was also from Mr. Turner, and the plants he showed were perfection, and the selection of sorts was good. It included *Apollon*, perhaps the best of all the single whites; *Roi de Holland*, *Duchesse de Nassau*, *Ferdinand Kegeljan*, *Cordon Bleu*, *Jean Vervaene*, *Mons. Thibaut*, and *Mrs. Turner*, most all single sorts and representative as regards colour. Mr. Child, of Garbrand Hall, was the chief prize-taker among amateurs, and he certainly had a marvellously fine half-a-dozen huge pyramids smothered with bloom. The sorts were *Iveryana*, *Criterion*, *Concinna*, *Duchesse de Nassau*, and *Model*, the pretty and distinct colours of which combined to make an attractive group.

HARDY PLANTS were only represented by one collection—that from Messrs. Carter. These were chiefly mossy Saxifrages, *Aubrietias*, *Phloxes*, and *Iberises*. Exhibitors seem to overlook such lovely things as the *Gentians*—*G. acaulis*, *G. verna*, for example, the alpine *Dianthus*, the alpine *Silenes*, alpine *Lychnis*, alpine *Forget-me-nots*, alpine *Primroses*, *Anemones*, alpine *Cheiranthus*, alpine *Poppies*, and many others all in flower now, and which, if grown and presented in perfection at these shows, would create quite a sensation. But it seems as if we shall never see the beauties of the alpine flora at a flower show—we see weedy plants instead.

THE MISCELLANEOUS CLASS was a numerous one. A large silver medal was awarded to Mr. B. S. Williams for an extensive group of plants which occupied one of the central banks in the tent. It consisted mainly of fine foliaged plants interspersed with flowering Orchids, chiefly *Cattleyas*, *Vandas*, *Dendrobiums*, *Odontoglossums*, and *Masdevallias*, and other bright flowering plants, such as *Amaryllises*, *Azaleas*, all tastefully arranged. A silver medal was also taken by Messrs. Cutbush and Son, Highgate, for a large group of plants, consisting for the most part of New Holland plants, the speciality of the firm, and which are grown to perfection. *Boronia elatior*, *Tetartheca verticillata*, *Azalea mollis*, and various Heaths were prominent features in the group.

Another central group consisted of a large and bright array of Azalea mollis and Rhododendrons from Messrs. Lane, Berkhamstead, who were awarded a silver medal. The fourth central group was one from Messrs. Laing, Forest Hill, which was comprised of Palms, Ferns, Crotons, Dracænas, Caladiums, enlivened by numerous double and single Begonias, Azaleas, Heaths, the whole admirably arranged in a bold effective group, one that was much admired. A large silver medal was awarded to the exhibitors. Mr. Turner took a large bronze medal for a fine collection of alpine Auriculas, chiefly seedlings; and Messrs. Carter & Co., High Holborn, were awarded a silver medal for a very numerous collection of seedling Dracænas, among which were some of exceptional merit, but hardly in condition to show their true character. Calceolarias were numerous shown. A splendid collection was shown by Messrs. Carter, and smaller ones by Messrs. Cannell, Swanley; Messrs. Dobson, Isleworth, to each of whom a bronze medal was awarded. An effectively arranged group of plants from Captain Patton's garden was a much admired feature, it being distinct from anything else in the show, and Mr. Young, the gardener, was deservedly awarded a large silver medal. We could wish that such groups were encouraged at these shows, for they are effective and interesting. Messrs. Paul, Cheshunt, showed a large basketful of Bromeliaceous plants, which also formed a distinct feature in the show, and, moreover, quite an uncommon exhibit. The formal growth of the Bromeliads was in a measure relieved by a few plants of the feathery Asparagus plumosus.

A list of awards is given in our advertising columns.

ORCHIDS.

A flaked Cattleya Mossiæ flower has been sent to us by Messrs. Thomson, of Clovenfords, distinct from any we have hitherto seen. The flower is of the largest size, with broad sepals and a wide, shallow and frilled edged labellum. The ground colour is a deep rosy purple, conspicuously streaked and flaked with white, giving the flower a singular appearance.

Special prize for Orchids.—At the summer show at South Kensington, next Tuesday, the prize of £10, offered by Sir Trevor Lawrence for twelve plants of distinct species, will be competed for. The plants must be all *bona-fide* specimens, and any made-up plants will disqualify the collection in which it is shown.

Highly coloured Odontoglossum Pescatorei.—At Messrs. Veitch's nursery, Chelsea, we saw the other day a spike of an exceptionally fine variety of *Odontoglossum Pescatorei*, from Mr. H. Powell, Drinkstone Park, Bury St. Edmunds. With the exception of the unique variety *Veitchianum*, in the possession of Baron Schroeder, we have never seen such a richly marked form of *O. Pescatorei* as this. The flowers were of fair size and well formed as regards breadth of substance of the petals and sepals, which were pure white heavily marked with large irregular blotches of purplish crimson, while their exterior surfaces were deeply flushed with the same hue. There seems no limit to the variation or these *Odontoglossums*, for we constantly meet with new forms, but rarely such handsome ones as this.

Masdevallia bella.—An uncommonly fine bloom of this strangely beautiful Orchid has been sent to us by Messrs. Thomson, Tweed Vineyard, Clovenfords. It measures 12 inches across the long outspread tails. The high colouring of the flower, moreover, marks it as no ordinary variety, and the open, pure white labellum serves as a contrast to the intensely deep crimson blotches of the triangular formed perianth.

Masdevallia cucullata.—This extremely rare species may now be seen in flower in Messrs. Shuttleworth & Carder's nursery, Park Road, Clapham, by whom it has recently been introduced from South America. Its habit of growth and foliage much resembles that of *M. macrura*, but the flowers are quite different. They are solitary, borne on

stalks overtopping the foliage, and have narrow attenuated sepals 2 inches or 3 inches in length, and of a shining blackish purple. Owing to its sombre tint, Mr. Shuttleworth tells us that it has received the name of "Widow flower" from the natives of New Granada.

Varieties of Odontoglossum vexillarium.—Among some forms of this lovely Orchid sent us by Mr. Fowler, Ashgrove, Pontypool, are two which represent the extremes of variation as regards colour in the flowers of this species. One is identical with that shown last week by Sir Trevor Lawrence under the name of albicans, and which received a first-class certificate. The flowers are large and almost pure white. In contrast with this Mr. Fowler sends an exceptionally dark variety with flowers of a deep rosy violet tint, the deepest we have seen. Every intermediate shade between these extremes exists in this *Odontoglossum*, but it would not be wise to attach names to each.

Sale of Orchids.—Last week the collection of Orchids formed by the late Lord Egerton, of Tatton, was disposed of at Stevens's Rooms, King Street, Covent Garden. There were some 350 lots, and the total amount realised amounted to above £650. The following were among the highest-priced plants: Three plants of the true autumn-flowering *Cattleya labiata* fetched respectively 15 guineas, 13½ guineas, and 12½ guineas; a fine specimen of the rare *Vanda Lowi*, with three breaks and twenty leaves, fetched 50 guineas. Six plants of the lovely *Lælia anceps Dawsoni* realised good prices; one with five strong bulbs fetched 25 guineas, two others with six bulbs each 13½ guineas and 14 guineas, two more with five bulbs each 15 guineas and 12 guineas, and two good plants 16 guineas. A grand plant of *Masdevallia Harryana* with 200 leaves fetched 15 guineas; *Odontoglossum nævium majus*, 15 guineas; *Cattleya Dominii*, 10½ guineas; *Odontoglossum Edwardi*, 10½ guineas.

The Orchid collection at Selborne, near Streatham Hill Station, belonging to Mr. Southgate, always contains some plants of an interesting character in bloom; but just now the flowering season is at its height, and the various houses are quite gay, particularly those in which the *Odontoglossums*, *Masdevallias*, *Cattleyas*, and *Cypripediums* are placed. Among the *Masdevallias* we noted small plants of the charming *M. Shuttleworthi* fairly bristling with flowers, and the same may be said of the gayly-tinted *M. Harryana*, *Lindeni*, and *Veitchi*, which contrast strikingly with the quieter tones of the *Odontoglossums*, likewise crowded with flower-spikes, particularly *crispum*. Never before have we seen *Masdevallia Chimæra* so well bloomed as here; on a comparatively small plant, growing in a suspended boat-shaped trellis basket, there are no fewer than sixteen flowers, most of them fully expanded, weird-looking, and strange in appearance. Others of the same section are also remarkable for their vigorous health. In all cases they are grown in an intermediate house in boat-shaped trellis baskets suspended close beneath the roof. Along with these *Masdevallias* is the rare *Cœlogyne elata* in flower, a plant with tall evergreen foliage, amidst which are produced slender stems carrying crowded spikes of pure white blossoms about 1½ inches across. *Warcewiczella discolor*, with violet-purple flowers, and *Maxillaria nigrescens*, with flowers of a blackish crimson colour, were also noteworthy. In a warmer house we observed an exceptionally strong plant of the uncommon *Cœlogyne Massangeana*, a species bearing a dense drooping raceme of blossoms upwards of a foot in length. The flowers individually have white sepals and petals and a bronzy tinted labellum. It makes an admirable basket plant and companion to the *Phalenopsis*, of which several were in bloom, one of the most noteworthy being the ever-flowering *Luddemanniana*. Among *Cypripediums* (evidently favourites with Mr. Southgate) the somewhat rare *C. Druryi* was in bloom. It is a species in the way of *C. insignis*, and a native of Further India. The foliage has much the same character as that of *C. insignis*, but the colour and markings of the

flower partake more of the character of *C. villosum*, and, as in that species, the petals have the dark medial line running through each, and the flowers, too, shine as if varnished.

Sobralia macrantha.—A magnificent flower of this Orchid has been sent to us by Mr. Peacock, Sudbury House, Hammersmith. It is remarkable for its unusual size and brilliancy of colour—a rich rosy purple. The lip measured between 3 inches and 4 inches in width, and the entire flower upwards of 6 inches in length. Mr. Peacock certainly possesses a wonderfully fine variety of this *Sobralia*.

Vanda teres.—One of the most interesting exhibits at the Regent's Park Show on Wednesday last was a boxful of plants of this lovely Indian Orchid from Sir Nathaniel Rothschild's garden at Tring Park. The plants, numbering some ten or a dozen, were planted in a long box about 9 inches in depth filled with light Orchid compost and surfaced with green Moss. The plants were about a yard in height, and each bore from the upper part of the stem a raceme of large flowers of a beautiful deep rose colour. A cultural certificate was awarded to Mr. Hill, the gardener, who seems to be particularly successful with this class of Orchids, for not long since he first flowered the rare *V. Hookeriana*, another of the cylindrical leaved *Vandas*. From the Tring Park collection there was also shown a flowering specimen of the pure white variety of *Cattleya Skinneri*, one of the loveliest of all Orchids, and as yet extremely rare in cultivation. It bore two fine spikes, and the plant had the appearance of being in vigorous health.

FRUIT GARDEN.

Coverings for Vine borders.—Theoretically "J. S. W." (p. 403) may be right in reference to flagstones on Vine borders not generating heat, but from a practical point of view the result is the same as if they did, as I could show him were he here. Even a wooden plank placed on a Vine border will attract roots to the surface. I do not, however, advocate covering Vine borders with any kind of material—whether it be a generator of heat or not—except in the case of narrow borders, and where the subsoil is of a cold, unkindly character.—J. C. C.

Black Prince Strawberry.—This variety is of much longer standing than even Mr. Sheppard (see p. 403) claims for it. It was raised over fifty years ago by a market gardener at Strawberry Bank, in Aberdeenshire, and sent out under the name of Black Seedling; afterwards it appeared in Edinburgh as Malcolm's Seedling. Through Mr. Kay, of Norwood Hill, it reached the neighbourhood of London, and got into the hands of the late Mr. Cuthill, who again sent it out as the Black Prince. Being interested in Strawberry culture, when up at the great exhibition of 1851 I visited Chiswick and paid special attention to the Strawberry marked Black Prince which I had known as Black Seedling about fifteen years before, and I found both to be the same. This Strawberry I still grow, and find it to be my best and only kind.—R. FARQUHAR, *Fyvie Castle*.

Origin of the Blenheim Orange Apple.—We find the following note, by Prof. Westwood, on the origin of the Blenheim Orange Apple, in the *Gardeners' Chronicle* (xviii., 142): "Mr. George Kempster, tailor, who resided at Old Woodstock, and died there September 15, 1773, was the first grower of the Blenheim Orange Apple. When a young man, he observed a plant growing close to the wall of a house, and, liking its appearance, he removed it into a flower-pot, where it became so large that he transplanted it into the garden. In due time it produced two Apples, which proved remarkably fine. The tree continued to thrive and bore fruit regularly, one year its produce amounting to 21 bushels. Every one was desirous of possessing a Kempster Pippin, as it was at first called; and such was the eagerness to obtain grafts, that large branches were repeatedly torn

off in the night time. In 1811, Mr. Whitman, the Duke of Marlborough's gardener, prevailed on his Grace to allow them a place on his table, and the Duke highly approving of them, they have since obtained the name of the Blenheim Orange. In 1820, Mr. Cook, fruiterer in Covent Garden Market, sold a bushel of them for 14s., they being before this period unknown in the market. The original tree was standing in 1826. On September 21, 1822, five of these Apples gathered in the garden of Mr. Farrow, of Woodstock, weighed as follows:—No. 1, 1 pound $\frac{1}{2}$ ounce; No. 2, 1 pound $\frac{5}{8}$ ounces; No. 3, 15 ounces; No. 4, 1 pound; No. 5, 1 pound; total, 5 pounds $4\frac{3}{8}$ ounces; when first gathered their total was 88 $\frac{1}{2}$ ounces. They were exhibited at the October meeting of the horticultural Society, where the Banksian silver medal was awarded for them. In the same year Mr. Griffin, surgeon, of Deddington, gathered one of these Apples weighing 24 ounces. Of the largest of these a model in wax was made, which is now (1882) in my possession."

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

May 19.—Crystal Palace: Great Summer Show.

22 and 23.—South Kensington: Great Summer Show of the Royal Horticultural Society; Meeting of Fruit and Floral Committees.

25.—Exeter: Show of Devon and Exeter Horticultural Society.

PRIZES FOR MELONS.—The competition for the prizes offered by Messrs. Carter, High Holborn, for the best fruits of their Blenheim Orange and Emerald Melons will take place at the meeting of the Royal Horticultural Society at South Kensington on May 22.

LIBRARY OF THE LATE M. DECAISNE.—We learn that the sale of the library of the late M. Decaisne, the celebrated French botanist, will take place in Paris at 28, Rue des Bons-Enfants, from Monday, the 4th, to Saturday, 23rd of June next. The catalogue enumerates 3264 lots of books on botany, horticulture, floriculture, agriculture, natural and physical sciences, and miscellaneous works in nearly all the European languages. Copies of the catalogue can be obtained of M. Labitte, 4, Rue de Lille, Paris.

AMONGST THE FLORAL DECORATORS at the opening ceremony of the International Fisheries Exhibition on Saturday last we may mention the following as having taken part, viz.: Mr. B. S. Williams and the General Horticultural Company (J. Wills), who each exhibited fine groups of tall Palms and foliaged plants to the right and left of the dais, the dais itself being furnished with magnificent groups of Roses, Rhododendrons, and Azaleas, from the nurseries of Messrs. H. Lane & Son, Berkhamstead, who, we understand, will maintain a continuous supply throughout the season. At the other end of the long gallery, Mr. James Aldous, Gloucester Road, exhibited two fine groups of plants put up in his usual tasteful style, which will remain throughout the season.

VARIETIES OF RHUBARB.—In exhibiting a collection of the different kinds of Rhubarb at South Kensington the other day, Mr. Barron was hopeful that he might thus do something to clear up that superfluous nomenclature with which even such a common plant has become encumbered. I fear, however, that little is to be hoped for in that direction, and the blame must be laid upon the shoulders of some of the trade who send out as new kinds those which have been in commerce for years and universally grown. There does not seem to be above four really distinct garden kinds in cultivation if we put aside an old green stemmed pointed-leaved kind, the only good one ere the present superior sorts were raised. We find, for instance, that the kind so widely grown for market work at once the earliest and best of all, and known originally as the Early Red, has some twelve or more aliases, including Johnson's St. Martin, Crimson Perfection, and others. This comes in

very early, has tallish, richly coloured stems of a moderate size, is of good flavour, and all round the best table variety which we have. The Champagne seems to be identical with the old Early Linnaeus, and is small as compared with the Early Red. It might very well be allowed to drop out of cultivation. Then there remain the Victoria, which also has been sent to Chiswick as St. Martin's, and under several other names, and the huge green-stemmed kind known as Stott's Monarch. This latter seems to have no desirable feature, the size of the stems rendering it too large for ordinary use, and such huge stems are always less tender than the smaller kinds. The Victoria is a valuable late Rhubarb and very productive. The stalks are long, straight, rich in colour, and handsome, and the sort is better fitted for poor soil than the Early Red, because there it is early and produces good moderate sized stalks. If our gardens are amply supplied with the Early Red and the Victoria, we want no more in the way of good Rhubarb.—A. D.

OPEN-AIR VEGETATION in the Royal Botanic Garden, Edinburgh.—Mr. Lindsay reports that during the early part of April vegetation made fairly good progress; westerly winds were prevalent until the 19th, when a change occurred. A succession of cold east and north-east winds had prevailed since that date, which, along with a small amount of rainfall—a most unusual occurrence for April—had been the means of retarding outdoor vegetation considerably. On the rock garden 108 species and varieties of alpine and dwarf herbaceous plants came into flower during the month, making a total of 193 since January 1; while at the same date last year 286 species were recorded as having flowered, showing that this season is still a fortnight at least later than last. With the present month no improvement in the character of the weather has taken place, but the reverse—east winds, occasional showers of hail and sleet, and on the 6th inst. 7° of frost were registered, which has done great injury to many plants. Those which have suffered most as yet are Roses, Dielytra, Astilbe, and Spirea palmata. The young fronds of Osmunda and Athyrium, which were well advanced, are completely blackened and destroyed. Even some species of Thorns have had their leaves browned.

Lawn mowers.—Last year I made careful trials with a 14-inch Excelsior machine against two others of the old type of 18 inches and 30 inches respectively, both by the same maker, and I find that the Excelsior is by far the best mower, except as regards time, when brought into competition with the 30-inch horse machine. In mowing our lawn I find that the time of one man is wholly saved since I dispensed with the horse machine. Two men used to do the work with the 18-inch mower in three days, while now with the small Excelsior, one man does the same work in precisely the same time. This results no doubt from the superior handiness and easy working of the machine. The work which takes the 30-inch horse machine $3\frac{1}{2}$ or 4 days to perform, is done by the 14-inch Excelsior in 15 $\frac{1}{2}$ days, the result being a saving of three shillings. Cost of horse machine for 3 $\frac{1}{2}$ days, £2 4s. 4d.; cost of Excelsior for 15 $\frac{1}{2}$ days, £2 1s. 4d.; in favour of Excelsior, 3s. The work of the Excelsior appears as good as that of the others, and it has the advantage that it cuts long Grass. I find that it cuts Grass averaging 6 inches in length fairly well, but I must say this length is rather too much for it, the machine appearing likely to become strained if kept at it. I observed that at the Manchester trials the Invincible had the highest number of marks, and if it is superior in the proportion there indicated it must be a wonderful machine indeed. I want to have the experience of someone who has had both the Invincible and Excelsior at work together for a considerable time. I may add that the Excelsior was constantly at work here during the whole of last season, and at the end of it the knives only required sharpening, work which can be done at

home, I think, by an intelligent man; at any rate I shall have it tried.—R. IRWIN LYNCH, *Botanic Garden, Cambridge.*

—I repeat that if "An Old Lawn Mower" will communicate with me, I will arrange with him as to a trial of the Excelsior mower. I should like indeed to see a thoroughly representative trial of lawn mowers at some place open to the general public. If, therefore, makers or vendors of lawn mowers of all makes will communicate with me as under, not later than June 1, I will endeavour to arrange for such a trial.—W. J. MAY, *Walton-on-Thames.*

OBITUARY.

THE LATE MR. ADOLPHUS STRAUCH.—Mr. Meehan has sent us a circular announcing the death of Mr. Strauch, late superintendent of the Spring Grove Cemetery, Cincinnati. Elected superintendent in 1854, in his thirty-second year, he would have reached his sixty-first birthday on the 30th of August next. Mr. Strauch originated the landscape system for cemeteries, gradually developed its important details, and demonstrated its superiority so clearly that it has been generally adopted, and become the type of many others which have been established in America within the last ten years. It was clearly the creation of genius, a rare genius, but an eminently practical one, made successful by his great industry, tact, and personal popularity. The execution of his plans required years of patient labour, but he lived to see the work accomplished and the cemetery spoken of with pride as the sylvan park of the living as well as the dead, now perhaps the most important possession of the people of Cincinnati. The more private relations which he occupied to the employes of the Association were a sure test of his character. They were honourable, friendly, and durable. To his children he leaves the heritage of genius and the legacy of a good name, to be honoured both at home and abroad.

Tar-varnished pipes.—Allow me to thank your correspondents for their kind advice. Turpentine was the medium that helped me, and by its aid I am nearly out of my difficulty.—SUBSCRIBER, *Maldon.*

Hose-in-hose Cowslip.—I send you a flower of this plant, believing it to be rare, if not new. It was found in a meadow near Lyme Regis.—J. M. [A curious form of the Cowslip, having the calyx almost of the same texture and colour as the corolla. We have not seen it before.]

Exhibits at the Agricultural Hall.—In our comments on these (p. 416) we inadvertently omitted to mention those furnished by Messrs. Richardson, of Darlington. They consisted of a garden frame of improved construction, also their Parisian greenhouse blind, a wall-tree protector, their patent hooded boiler, and models of various houses, and other things of interest to gardeners.

Names of plants.—*G. Bishop.*—*Lastrea quinqueangulata.*—*Ireland & Thomson.*—*Ixia maculata.*—*R. Jeal.*—*Eupatorium ageratoides.*—*E. Peters.*—The Anemones are double varieties of *A. coronaria*, but we know no distinctive names for each of them.—*Subscriber.*—1, *Anemone nemorosa* fl.-pl.; 2, *Narcissus poeticus*; 3, *N. biflorus*; 5, *Muscari racemosum*; 6, *Symphytum tuberosum.*—*S. K.*—*Dendrobium crystallinum*—*A. K.*—1, *Cypripedium parviflorum*; 2, *Orchis Simia* (Monkey Orchis); 3, *Symphytum caucasicum.*—*West Highlands.*—*Saxifraga oppositifolia.*

Books (*West Highlands*).—Hobday's "Cottage Gardening." Crosby, Lockwood & Co., Paternoster Row.

CATALOGUES RECEIVED.

F. & A. Dickson's (Chester) Select Bedding Plants.

W. Richardson & Co.'s (Darlington) Horticultural Buildings and Appliances.

J. Cheal & Sons' (Crawley) Florists Flowers and Bedding Plants.

F. W. & H. Stansfield's (Sale, Manchester) Ferns.

J. Dickson's (Chester) Stove and Greenhouse Plants.

J. Veitch & Son's (Chelsea) Bedding and Soft-wooded Plants.

H. Hooper's (Bath) Florists' Flowers.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

FLORISTS AND THEIR FLOWERS.

TO THE EDITOR OF THE GARDEN.

SIR,—Referring to the note by "M. R." (p. 444), I wish to say a few words. He asks me, "Cannot I admire garden Primroses without disparaging florists' Auriculas." My answer is, that as the florists by their rules and ways have helped to take the beautiful and hardy Auricula out of the category of garden flowers—they give me no chance. The Primrose, in all its splendid range of colour for the outdoor garden is little grown compared with what it deserves. But the Auricula is a noble flower for the open air, easily grown, and with a fine variety of form and colour never seen on the exhibition bench at all. It is hardy everywhere, and there is scarcely a garden it is not fitted to adorn; yet few know this, and to a great extent it is because of the feeble products of the pip men. I call them "pip men" because they confine their attention mainly to the pip, and, taking a very narrow view of its form and colour, appear to pay no attention at all to such all-important qualities as hardiness, vigour, freedom, and duration of bloom as tested in the open air. I yield to none in admiration for these men, but see a world of loveliness from the same mountain flower of which they (the pip men) take no notice, though it is of infinitely greater importance for the embellishment of our gardens. An exhibitor at the Auricula show told me the flower, even in its stronger and not fine-bred forms, could not be well grown out-of-doors—a piece of nonsense! To-day I spent an hour or two among many hundred strong plants raised and grown in the open air, amazed at their glory and variety of rich, as well as delicate, colours. Cutting away plants of colours I did not desire, some of them had rootstocks like Turnips, showing their strength and freedom in the open air. The colours could be thrown into nearly twenty groups; the forms, too, might be classified, some of them in their rich fringes, quite out of the range of what one sees at shows. To increase the finer varieties of these, so that the garden artist can use each in a group or colouring, is the next step, and so treated an idea might be gathered of the rare value of the flowers for the open garden. It seems to me no question of argument this, but one of fact, that the way of arranging these florists' flower shows does harm. It is proved in this case by the almost total absence of the Auricula in a well-grown state from our open gardens, although it is as valuable for them as any flower in cultivation. Surely a society devoted to the culture of a flower does its work very imperfectly if it only narrows our view of that flower and its capacities. As to the boasted perfection of form, the educated artist, who is best fitted (from the human standpoint at least) to judge of form, usually tells us the forms chosen by the "brethren" are bad. But were they not, and were the kinds and pips they set their hearts on the finest in form, why should we allow them to limit Nature's abounding variety and beauty by setting up their limited notions only as those we are to be led by in our use and study of this noble flower?

While they exclude charming forms and colours, the variety they do allow is sometimes in the direction of the monstrous. What is a "green-edged" Auricula but a monstrosity? A society for the advancement of our knowledge of this flower might fill our gardens with a world of beauty now unknown to them without interfering in any way with what I call the "hard-shell" florist, meaning by that name the narrow school. Individuals will, I hope, succeed in doing so. I know one that will try. When we ask for bread, the florists give us a stone. Let us leave them happy among their pots and pips and monstrous and delicate creatures that so often die off (so we read and hear notwithstanding all the care and greenhouse and frame coddling) and see what we can do without them. J. M.

ORCHIDS.**THE HOME OF LÆLIA ELEGANS.**

THE following account of collecting *Lælia elegans* from its native habitat has been sent to us by Mr. Jens Sand, plant collector for Mr. Lourenço Hoyer, of Rio de Janeiro, and as the identical plants spoken of are in London at the present time, and will be sold by Messrs. Protheroe & Morris next week, additional interest attaches to the statement, which runs thus: "I long had a desire to explore a high mountain, called by the natives the Morraô, which rises abruptly from the rocky coast near Rio de Janeiro, as I thought it a likely place to find some choice Orchids. I accordingly set out one day with my usual companion, a strong, muscular Brazilian, Profério by name. Providing ourselves with cocoa and dried meat enough for a few days' journey, we started, and after a few days' rough travelling arrived at a little village, where we passed the night. Resuming our journey at daybreak, a small but very deep river laid between us and our proposed track, so there was no alternative but for each of us to strip and swim across, and float our clothes across on large Palm leaves. The bath refreshed us and gave us more zest for our journey, which was through primitive forest abounding with birds, monkeys, and other animals, which, however, we did not molest, as we did not want food; we were, however, under the necessity of killing a few snakes which lay in our path, and did not seem to have any inclination to make way for us. Unhappily, we lost our way, or rather the direction in which we intended to steer, and there being no sign of a habitation of any kind, and night drawing near, we made up our minds to sleep in the woods.

"Rising refreshed at daybreak, we again started after breakfast on our way, cutting our path through the wood till we came to a cabin, the occupiers of which directed us on our road to the Morraô, near which we arrived in the evening, and took up our lodging with fishermen. Next morning we set out with a few men in a canoe and reached the opposite side of the bay, where we landed and collected some plants of *Cattleya guttata*, Leopoldi, Harrisoni, some species of *Catasetum* and *Epidendrum*, *Oncidium*s, and *Bromeliads*, but these did not repay my journey, and I was determined to press on and reach the mountain, which I intended to explore, so we pitched our camp here and intended to stop a few days. At sunrise next day Profério said he could espay plants in bloom on the side of the Morraô, but I could detect nothing with the naked eye; on looking through my telescope, however, sure enough I saw clearly that there were flowering plants, and by the leaves and habit of growth I could see that they consisted of *Lælia elegans*, and by the unusual whiteness of the flowers I knew that they must be of the rare white variety. The plants were seemingly growing in crevices on the face of a steep cliff rising to an immense height directly out of the sea, which dashed furiously against its base. Our first thought was to reach the plants by climbing the cliff, but we were dissuaded by the fishermen, who said that none but flying things could reach

the spot. However, we were determined to get the plants, so I started one of the party back to the village for a man who had been on the top of the mountain some years ago to act as a guide. We took with us provisions for four days, a quantity of rope, and commenced the ascent on the lee side. After much difficult climbing we at length reached the top of the Morraô, the prospect from which I shall never forget, and the mountain itself was clothed with luxuriant vegetation, including *Bromeliads*, whose pitcher-like rosettes of foliage afforded us water to drink.

"We camped for the night on a platform near the top, and next morning commenced to descend towards the cliff on the sea-side where our coveted prize was growing. This descent was the most dangerous I ever had, and never did I experience such strange feelings. Below was the Atlantic, the mighty waves of which dashed with thundering force against the foot of the rocky cliff which we meant to descend, and we fancied the very rocks shivered under us. What made matters worse, too, we had no trees or scrub to lay hold of, only the bare rocks under our feet, and heartily glad were we to reach a little ledge where we could safely rest. In order to further descend we were obliged to make use of our ropes. Descending still, we came to a point beyond which we could not go, for the face of the cliff was literally perpendicular; after a little hesitation, however, Profério volunteered to be let down by ropes, so we tied them round his waist and fastened the other end round the waists of the rest of the party. He began to descend, and was soon swinging in the air in front of the cliff with the sea beneath him. It was quite as much as we could manage to hold him, and soon he was both out of sight and hearing. However, he reached the plants, got a footing where they grew, collected a quantity, gave a signal to be pulled up, when, joyful to behold, he landed safely a bundle of the white *Lælia elegans*. This gave us heart to begin our dangerous and wearisome ascent. We again reached the top and descended the other side with our gathering, which we safely landed in Rio de Janeiro. Two new Orchids, the finest that exist in Brazil, were the fruits of this adventurous undertaking. Besides the *Lælia elegans* there was another *Lælia*, stout in growth, and having very thick bulbs, with large flowers of a tender lilac colour, streaked with crimson and yellow. We have never seen this before and are unacquainted with the species." Mr. Jens Sand also tells us that the beautiful and rare *Cattleya labiata* grows on trees of enormous size, which it is impossible to climb owing to their being inhabited by snakes, which are attracted to them by the water held in the vasiform tufts of leaves of the *Bromeliads* with which they are clothed. The only way to get the plants is to fell the trees, when it is a singular sight to see the snakes decamp in all directions.

Monstrous *Odontoglossum crispum*

—A spike of this Orchid has been sent to us by Mr. Gordon, gardener at The Knoll, Shipley, on which every flower is deformed. The columns are the abnormal parts, each being very much swollen and distorted, and having in the place of stamens petaloid expansions on the top. It shows plainly that even in Orchids the stamens may become transformed into petals, and probably in course of time we may have double flowered varieties, which, however, will not, we think, be an improvement on the single kinds, judging by that now before us. Other organs in the flowers sent are perfectly normal, and the variety is a fine one, the blooms being large and prettily marked.

***Cattleya Mossiae*.**—Some splendid varieties of this Orchid sent to us by Sir William Marriott include some of the richest forms of it we have ever seen; one in particular is remarkable for size, being $7\frac{1}{2}$ inches across and possessing a large shallow labellum of a glowing orange-yellow and exquisitely frilled. It is impossible to intelligibly describe the differences in the forms of these lovely Orchids, which need to be seen to

be properly appreciated. The bright yellow and deliciously scented *C. citrina* also comes to us from Down House, the twin-flowered spikes now sent having been cut from the same plant as the spike which was figured in THE GARDEN last year—the best variety we have yet seen. Flowers of *C. guttata* are likewise sent, representing an uncommonly fine variety, with a deeply-spotted and richly-coloured labellum.

Dendrobium Lowi.—Of this very handsome new Orchid Mr. Denny sends from Down House, Blandford, a spike containing five flowers with beautiful buff-yellow sepals and petals and a lip having a conspicuous bristly crest of a reddish buff colour. It is indeed a beautiful and showy Orchid, and well worth, as Mr. Denny remarks, being better known than it is. It is distinct in colour from that of any of the host of Dendrobes now in cultivation.

Epidendrum vitellinum majus.—A remarkable example of good culture as regards this Orchid is sent to us by Mr. Denny from Sir William Marriott's garden, the Down House, Blandford. The spike sent is just a foot long, and carries eighteen expanded flowers and four buds. It represents a fine variety both as regards size of flower and richness of colour. From the same collection also comes the lovely white *Epidendrum bicornutum* with five flowers on one spike, also an evidence of skilful culture; and a spike of a remarkably fine variety of *Odontoglossum gloriosum* having larger flowers than usual and more heavily and deeply spotted.

Orchids in flower at Hoole Hall, Chester.—There are at present in flower here *Oncidium Marshallianum* with fifty-eight flowers, *Odontoglossum Alexandræ*—several grand varieties with flowers 4 inches across, *Odontoglossum niveum majus*, *O. Pescatorei*, *O. nebulosum*, and a grand plant of *O. Edwardi*. *O. maculatum*, *O. Roezli*, and *Roezli album* are also in bloom, as are likewise *Ada aurantiaca* with eight spikes, *Cymbidium eburneum*, *Leptotes bicolor*, *Dendrobium Jenkinsoni*, *D. Wardianum*, and *Devonianum*, *Cattleya Mossiæ*, *C. intermedia*, and several others, also *Lycaste Skinneri* and *L. Harrisoniæ*.—JAMES FINALON, *Royal Botanic Gardens, Manchester.*

The Brentham Park Orchids.—We learn that Mr. Robert Smith, of Brentham Park, Stirling, intends to give up the culture of Orchids on account of ill-health, and that his celebrated collection will be sold by auction at Stevens' rooms, King Street, Covent Garden, on May 30 and 31 and June 1. The catalogue numbers nearly 800 lots, many of which include several plants. The collection comprises some of the rarest and choicest of species and varieties, and, judging by what we have seen, it must be in excellent condition. As examples of the varieties to be sold we might mention very fine specimens of *Lælia anceps Dawsoni*, *rosea* and *alba*, *Oncidium Ornithorhynchum album*, *Lælia Jonghiana*, *L. Wolstenholmiæ*, *L. elegans Hesperia*, *Cattleya Skinneri alba*, *Masdevallia Dayana radiosa*, *Cypripedium Druryi*, *Odontoglossum polyanthum*, *O. nevadense*, *Vanda Parishii Marriottiana*, *Cattleya bogotensis alba*, *C. Trianae Brenthamensis*, *C. Trianae alba*, *C. labiata*, *Cypripedium caudatum roseum*, *Oncidium splendidum* and *Aerides virens Dayanum*, *Odontoglossum nævium majus*. There are also some exceptionally fine specimens of the Chatsworth variety of *Vanda suavis*, *Dendrobium Schröderi*, *Cypripedium Stonei*, *Celogyne cristata Lemoniana*, *Angræcum sesquipedale*, *Cattleya crispa superba*, *C. Skinneri oculata*, *Odontoglossum Londresboroughianum*, *O. cristatum*, and *O. citrosum roseum*.

Pear Amedee Thirriot.—This, of which a coloured plate is given in the *Bulletin d'Arboriculture*, appears to be but little grown, but is said by M. Burvenich to take rank with such kinds as *Conseiller à la Cour*, *Soldat Laboureur*, and *Bonne Louise d'Avranches*. It is of vigorous growth and very productive, doing well on the Quince or free stock. Its season commences in November.—J. C. B.

PLANTS IN FLOWER.

ERINUS ALPINUS and the varieties *hispanica alba* and *purpurea*, all pretty and distinct, have been brought to us by Mr. Gumbleton; likewise pretty variegated *Forget-me-not* called *Myosotis picturata* different from *elegantissima*, the other variegated sort, and a double cream-coloured *Daisy* from Algiers; a variety of *Chrysanthemum coronarium*.

AGERATUM PERLE BLEU.—A fine new variety has been brought to us by Mr. Gumbleton, who received it from M. Bruant, Poitiers. It is remarkable for its brightness and the dense character of its flower heads. There is nothing, however, to indicate its habit of growth, an important matter in the case of *Ageratums*.

ALLIUM OSTROWSKIANUM.—This new species, in the way of *acuminatum* and *Macnabianum*, has dense umbels of reddish purple flowers. Mr. Gumbleton brings blooms of it with the major form of *Anthericum Liliago*, also called *algeriense*, and flowers of two species of *Arctotis aureola* and *arborescens*, both with large showy blossoms, which make them desirable greenhouse plants.

CEANOTHUS VELUTINUS is very distinct from the rest of the species belonging to this genus which we have in gardens, and moreover a very pretty shrub. It has roundish shining leaves of thick texture, and bears feathery clusters of white blossoms on the extremities of the branches. Some beautiful sprays of it have been brought to us by Mr. Gumbleton from his garden at Belgrove, Queenstown.

HARDY PLANTS in flower in Mr. Ware's nursery Tottenham, include, besides many others, *Iritenax* (true), *I. missouriensis*, *I. lutescens*, *I. Chamæiris*, *Trillium discolor*, *Cypripedium pubescens*, *Anemone palmata alba*, *Panocratum illyricum*, *Ixiolirion tataricum*. The new *Iris Leichtlini*, a hybrid between *I. susiana* and *iberica*, has also flowered during the week at this nursery. It is a singular flower and strikingly handsome.

RHODODENDRON KEYSI is so unlike an ordinary *Rhododendron*, that few would suspect it to be one. Its flowers more resemble those of some species of *Aloe* both in form, colour, and in the peculiar dense clusters in which they are borne. They are tubular, about an inch long, orange-red in colour, and, being produced abundantly, are very showy. Mr. Gumbleton brings us a twig or two of it covered with blossom. He also brings a double Ghent *Azalea*, named *Bouquet de Flore*, a pretty pink variety.

PAULOWNIA IMPERIALIS.—A fine flower-branch of this noble tree, carrying numerous large tubular flowers of a rich deep purple, is sent us from the Channel Islands, by Mr. W. Lee, of the Vineyard Nursery, Hammersmith, who says that the tree from which he cut the specimen was 20 feet high and 30 feet across, and bore some thousands of blossoms, forming one of the finest objects he ever saw. Would that we could get this tree to flower with us in England as it does in the genial climate of Guernsey.

MYOSOTIDIMUM NOBILE.—The Chatham Island *Forget-me-not* may now be seen in flower in the York Nurseries, some twenty years having elapsed since other specimens of it flowered there. Two spikes, neither of them strong, *i.e.*, compared with those to be seen in its native haunts, give some idea of the appearance of this remarkable plant. The root leaves are very coarse, almost Cabbage-like, deeply ribbed, and of a shining green. Each single flower is about half an inch across, set on a short pedicel, thereby giving the spike a compact appearance. The colour is very rich blue in the centre, margined with a pale band of whitish blue, the flower being in other respects like that of a *Forget-me-not*, except that the corolla is not so thin as that of most of the family. This plant will not be of much use in England, because it is not quite sufficiently hardy for outdoors, and it is difficult to cultivate without the growth getting too coarse, to the detriment of the flower-spikes. One plant had a spike which bore crimson-centred

flowers, but this, though unusual, is attributed to the very drawn condition of the spike, as when withering the centre of so gorgeous a blue at first changes to a pinkish crimson, and when first discovered this plant created quite a sensation on account of its curious combination of flower and leaf.

THE FIRE BUSH (*Embothrium coccineum*) seems to thrive uncommonly well with Mr. Gumbleton, near Queenstown, for again he brings us some fine flowering twigs of it which at once reminds one of a scarlet Honeysuckle. It is a Proteaceous shrub from South America, introduced long ago, but still an uncommon plant in gardens, doubtless on account of its not being perfectly hardy in England and a difficult plant to flower under glass. It is also very difficult to propagate. It was figured in THE GARDEN in the latter part of 1876.

A NOBLE DAFFODIL (*Narcissus bicolor maximus*—Leeds).—Of all the *N. bicolor* varieties of the Daffodil this is certainly one of the finest and best. It is dwarf and vigorous in habit. The perianth segments being of greater substance than in *N. Empress* or *N. Horsfieldi*, and the tube being shortened, and the crown or trunk proportionately lengthened, give quite a distinct appearance to the flower. It flowers with *N. bicolor*, and so comes in after *N. Empress* and *N. Horsfieldi* are well nigh past. As seen growing together by the hundred in good rich sandy soil it is most effective. All lovers of Daffodils should make a note of this variety as one of the very finest of all bicolor Daffodils.—F. W. B.

IMPATIENS SULTANI.—Of this new Zanzibar Balsam the finest specimen that has yet been seen in this country was shown by Messrs. Jackson, of Kingston, at the South Kensington Show this week. It was certainly a marvellous production, being over a yard through, of symmetrical rounded outline, and profusely covered with brilliant magenta blossoms rivaling in brightness those of *Masdevallia Harryana*. Such a specimen as this showed well to what perfection a plant may be brought by such a skilful cultivator as Mr. Puttick, who is so well known for his skill in specimen plant growing. The plant, he assured us, was only eight months old. The exhibitors were deservedly awarded a silver Banksian medal for this plant.

FINE LILY OF THE VALLEY.—Messrs. Hawkins & Bennett's Lily of the Valley is, if anything, larger and finer than ever this season. The flowering stems are 14 inches long, and the foliage attains about the same height from the root, and in many cases 4 inches across. They are grown in beds in the open, those cut in May and April being protected by boards and lights as the weather may require; usually they are covered at night. A quantity is grown in the open to come in at their natural season. The variety grown does not run much at the root, but forms strong plants and bulbs that require little or no thinning. They grow in a rich loamy soil and in an open situation. They like a good bit of manure when planted out at first, and a dressing of short manure on the surface every year. They are grown in Messrs. Hawkins & Bennett's grounds at Twickenham.

SPIRÆA REGELIANA.—This is a species we had not seen before the other day, when Mr. Stevens, of Byfleet, brought a fine flowering branch. It seems to be an ally of *S. hypericifolia*, but the leaves are more woolly and larger. The flowers are white, and produced in the same corymbose manner all along the young shoots, so as to make a beautiful white wreath. Other specimens of attractive hardy shrubs from Grasmere are *Prunus pumila*, a very twiggy dwarf-growing Plum, with every shoot covered with clusters of small white flowers; the double white Cherry (*Cerasus Avium*), also very pretty; *Cytisus purpureus*, an extremely elegant dwarf shrub; and *Buddleia globosa*, branches of which carry numerous globose heads of golden yellow flowers. Some uncommonly fine sprays of *Azalea mollis* likewise accompany these, which plainly shows how well this beautiful shrub thrives with Mr. Stevens in the open air.

FLOWER GARDEN.

CORN MARIGOLD AND OX-EYE DAISY.

ALLOW me to inform "A. D." that, so far from seed of the Corn Marigold not being offered for sale, it has for some time been advertised at 2s. 6d. per packet—a tolerably good price, one would say, for a plant which in many parts of this country is one of the farmer's greatest foes. This bright yellow-flowered weed has so much real merit, that it is well worthy of attention, but it is scarcely fair to call it "the new golden Marguerite," a title which is calculated to deceive such as are not acquainted with its botanical name. "Why, you don't mean to say that is the 'Yellowby,'" said a friend of mine who is more noted for his love of flowers than his knowledge of botanical nomenclature; "our Pea fields were smothered with it last year." Truly the corn lands were last summer quite a mass of brilliant colour with "Yellowby," as it is here called; and, strange to say, for the first

little else is; I have even noticed gay patches of it in December—the flowers not so large nor so bright perhaps as earlier, but still fresh and cheerful looking. By the way, have any of your readers tried it as a winter bloomer? it is good for spring, and I know of no yellow flower which can compare with it at that time of year. The flowers come extra large and bright in the genial climate of a warm house. J. C.

Byfleet.

THE VIRGINIAN LUNGWORT.

(*MERTENSIA VIRGINICA*.)

ONE would scarcely believe that such an old and beautiful hardy flower as this is but little known in ordinary gardens, but such is the case, and even in good gardens it is rarely to be met with. Its beauty is unquestionable. It bears large clusters of bell-shaped blossoms varying from a reddish mauve to a delicate porcelain-blue, and the bluish glaucous hue of the broad foliage



Flower spray of Mertensia virginica (flowers blue).

time it found admirers. Although in previous years Corn Marigolds have abounded to an unlimited extent, no one thought of plucking a bloom from that "coarse yellow weed;" now all is changed, and many a blade of Corn was trodden under foot last summer in gathering the lovely golden blossoms. Probably few flowers have better illustrated the fickleness of fashion than this. Another native flower which I never remember to have seen gathered until last summer is its near relation, the Ox-eye Daisy, the fair white blooms of which are much superior to the Paris Daisies; it is, indeed, one of the finest single white flowers we have. The great pity is that it does not bloom throughout the season. Those who have meadow land which is fed down and wherein the Ox-eye Daisy grows not should establish it. Cattle do not touch it and the extra amount of food at the disposal of the plants imparts additional vigour to them, with a corresponding effect on the purity and size of the flowers. One of the prettiest of sights is a meadow where this plant grows plentifully; the starry blooms dance in the summer breeze, and their purity is well shown off by the green Grass. Returning to the Corn Marigold, we find it in bloom when

blends beautifully with the tints of the flowers. It grows, as a rule, from 1 foot to 2 feet high, but varies considerably in stature according to its vigour. The chief reason, no doubt, why this Lungwort is an uncommon border flower is on account of its culture—a precarious matter; in many gardens one never sees it making the slightest progress, while in others it grows rankly. The finest plants we have seen of it were grown in moist, sandy peat, in somewhat sheltered beds, conditions that evidently suited its requirements. It is a plant that everybody should at least try to cultivate, for it is very beautiful in the early days of May, quite unlike any other hardy plant that blooms at that season of the year. Other desirable species of *Mertensia* are *M. sibirica*, *paniculata*, *oblongifolia*, the two latter natives of the Rocky Mountains and perfectly hardy. *M. paniculata* is a particularly desirable plant—considered indeed when well grown to be the finest of the genus. It has erect much-branched stems $1\frac{1}{2}$ feet to 2 feet high, bearing an abundance of bright Bluebell shaped blossoms for several weeks in succession during early spring. Our drawing of the Virginian Lung-

wort was made from specimens brought to us a week or two since by Mr. J. Stevens, who grows it admirably in his garden at Grasmere, Byfleet.

ALPINE AND HERBACEOUS PLANTS AT MANCHESTER.

By far the most interesting item at the exhibition at Old Trafford last week was an admirable collection of hardy and alpine plants sent from Newry by Messrs. Rodger, McClelland and Co. Several large baskets were filled with Irish Anemones in all their glory, and such as had never before been seen in these parts. It will not be the fault of our local amateurs if they do not grow the same next year, as the order book of the firm would testify, but I very much doubt if it be possible in our climate. These Irish Anemones are grand, solid-looking flowers, 3 inches or 4 inches across, singles and doubles, of every shade of red and purple, and of the most brilliant hues. In Ireland they can be raised from seed and flowered the year following, and it appears to be possible to accomplish this here by using movable frames, which would protect the buds during the winter months to be removed in spring. Mr. Smith, Messrs. Rodger, McClelland, & Co.'s manager, explained that Anemones could be grown by planting the tubers, but that they never thus attained the beauty of freshly-grown seedlings, and that even these should never be transplanted, but the seed should be properly spaced out, and the plants grown on without a check. This Irish collection was rich in many ways, and was besides this a lesson to our home exhibitors, both professional and amateur, as the plants were shown naturally, not having been forced artificially, and they had a brilliancy and freshness beyond any other exhibits of the sort. *Viola pedata* was shown in all its forms, and some interesting hybrids from seed were amongst the groups of it. Several varieties of miniature Daisies were also very noticeable, and large masses of the Newry varieties of yellow bunch Primroses were greatly admired. Amongst choice alpine plants were *Mitella prostrata*; *Dodecatheon integrifolia* var. *splendens*, with rich red flowers; *Euphorbia epithymoides*, the most showy I have yet seen; *Dianthus glacialis*, *Romanzoffia sitchensis*, *Tradescantia pilosa*, a pretty dwarf form, and a grand example of the Bayonet plant, *Acephylla squarrosa*. There were a hundred in all, and a more choice and interesting lot could scarcely have been selected. I fancy we shall have the pleasure of seeing Mr. Smith again, and some of our other florists would find it worth while to make a show of this sort. Not only would it result in full order books and new clients, but the growing taste for hardy plants would be fostered, and if well grown plants are shown the amateur would have an example which he could emulate.

The contrast was great indeed between the Newry plants and those shown in competition at the other end of the tent. Last year your columns contained communications from several valued contributors—Mr. Harvey, Rev. H. H. D'Ombrian, Mr. Dean, and others—on the subject of the award at the Manchester show, when the prizes had fallen to huge plants flowered by artificial heat, to the exclusion of honestly grown hardy plants and alpine plants of a similar class to those from Newry; this year it was the same. The following was published in the *Manchester Guardian*: "As to the grounds of judgment, what is to be taken as the chief point of merit at a show like this? Certainly not botanical rarity, but the effect produced by the plants as an integral part of the exhibition." One of the successful exhibitors of last year immediately published in a floral paper his method of forcing *Spiraea Ulmaria*, and here again we had it shown 4 feet high, and as unlike its beauteous self as possible. Every exhibitor took his cue from the dictum just quoted, and we thus had staged collections of greenhouse-grown hardy and alpine plants, effective enough as a display, and thus forming an integral part of a popular show, but a melancholy sight to the true florist, and a sorry object for a Royal Botanic Garden to give its patronage to and to reward by its

prizes. Even the choicest alpine did not escape this tropical preparation. *Anemone sulphurea* was shown with a white flower and thin lanky stalk, about half its true size, and without its lovely primrose-yellow. *Phyteuma comosum* was shown with a tiny truss as big as a shilling, mounted aloft on a stalk 4 inches above its yellow-green leaves, instead of with a sturdy Holly-like foliage, and a stout full rosette of deep purple flowers nestled down close amongst them. If this is to be the future manner of exhibiting alpine, the Royal Botanic Society will certainly not foster a healthy love of Nature in our midst. It would have been easy to have taken a far more showy and better lot from any good collection of alpine, flowered naturally and in proper character, and this ought to be a criterion in judging as well as rarity and beauty of bloom.

Brockhurst, Didsbury. WM. BROCKBANK.

CULTIVATION OF THE PANSY.

I WAS pleased to see in THE GARDEN an article on Pansy culture by Mr. Geo. Henderson, of Southwell. He seems to have studied the Pansy (which is also a great favourite in this district) for a long time, and I do not think he has left much room for criticism, although I grow my Pansies in a different way. For a good many years I manured my ground very heavily and had large blooms, but I was always pestered with wireworm and other grubs. Last year, therefore, by way of experiment, I tried my ground without manuring it previous to planting out my Pansies, and used liquid guano ($\frac{1}{2}$ lb. guano to every 2 gallons of water) instead. With this I watered my ground, but not the foliage, once a week for three weeks previous to the day of show, and when the show day came round I had very fine blooms and at the same time healthy plants, free from any sort of grub. This year (also by way of experiment) I have planted my Pansies (about 500 plants) in rotten turf and light loam mixed, and will continue my previous plan of using liquid guano. The following sorts I consider well worth attention, viz.: Fancy varieties—Mrs. Jamieson, Mrs. Barrie, Mrs. Goodwin, Alex. McMillan, Catherine Agnes, Robert Congleton, William Dickson, William Cuthbertson, General Scarlet, Earl Beaconsfield, Miss Bliss, and Mrs. Weightman. Show varieties—David Malcolm, Alexander Watt, Robert Black, dark self; Lizzie H. Bowie, primrose self; Mrs. Dobbie, Mrs. Galloway, white self; Lizzie Bullock, David Dalglish, Mrs. Downie, yellow grounds; Mrs. J. G. Paul, Miss Meikle and Miss Jessie Foote, white grounds. JAMES BOWIE.

Wilderhaugh, Galashiels.

WALLFLOWERS.

THE writer on Wallflowers (p. 426) is mistaken when he says they are grown in nurseries. They are grown in market gardens, and specially in orchards, where, under the overhanging trees, they bloom so early and so well. The writer, too, is at fault in saying that the Wallflower is so hardy. I have often seen very large breadths seriously injured when growing in exposed places. The Wallflower is commonly regarded as a hardy biennial, but now and then, as with Stocks, a sharp winter plays sad havoc with it. Then there is rather too much mixing up of the true indigenous Wallflower (*Cheiranthus Cheiri*), a very inferior plant indeed at the best, with the fine blood-red market variety, the latter being a long way ahead of the former in richness, robustness, and beauty, even though it be less hardy. Only the most persistent selections through generations could have made the garden Wallflower what it is. Then I must take exception to the singular statement that the Wallflower is often the sweetest and finest in cottage gardens. How could it be finer than it is in our market gardens? and how possibly can it be sweeter? Not in one cottage garden in a thousand are to be seen such fine plants, such big heads of bloom, and such superb self colours as may be seen in numbers of market gardens in West Middlesex any spring. It is amusing, too, to read that the Wallflower, "which blooms in the open," is

more highly prized than are the most gorgeous productions of the hothouse, when a dozen huge bunches are sold for a shilling, and as much has to be paid for a single Gardenia. Wallflower blooms are popular because they are cheap and abundant. Sell a handful of Roses or Gardenias or any other hothouse flowers at one penny per bunch, and Wallflowers would soon be relegated to the gutter. To say that is to seem very unsentimental, but it is the truth none the less. Let me add that the gardener's art is not at all employed in striving to produce unpopular hues. We are trying to keep the blood red, the most popular of all hues, as red as possible, and the golden as pure yellow as possible, and reject variegated flowers, because they are in the Wallflower at least unacceptable. A. D.

Golden leaved Heracleum.—I send a leaf of a golden Heracleum which I found by the roadside three years ago. It is from its large foliage and bright colour one of the most conspicuous of border plants here, and comes true from seed.—J. M., *Charmouth, Dorset*. [Apparently a form of the common Cow Parsnip (*Heracleum sphondylium*), with foliage of greenish yellow, similar to that of the golden-leaved Valerian. It is doubtless an effective plant at this season in a border.]

Hollyhock fungus.—Are the enclosed leaves infected with the Hollyhock disease? and if so, what would you recommend me to do with the plants? They are in pots as they arrived from the nursery a month ago, and have been in a cold frame with the lights open night and day ever since.—T. E. F. [The leaves are very badly attacked by Hollyhock fungus (*Puccinia malvacearum*). When the disease has reached this stage it is like confluent smallpox in the human subject, and cure is almost out of the question. It is unusual to receive infected plants from nurseries. As a rule the greatest care is taken by nurserymen to avoid sending out either cuttings or seeds from tainted Hollyhock plants. Your plants may have contracted the disease from the common Mallow, upon which weed the Puccinia is extremely common this year.—W. G. S.]

Christmas Roses.—In the pages of THE GARDEN there have been of late many notices of the varieties of this valuable winter flowering plant, and a good deal of discussion regarding the relative merits of the different kinds in cultivation, all very instructive and interesting, but, like most discussions of this sort, if no one offers a test to the disputants year after year we may have the same claimants in the field and the same disputations. Supposing a practical turn is given to the articles in question by the formation of collections in different parts of the country, so that we may be able to judge whether St. Brigid's Christmas Rose, Miss Hope's angustifolius, and Mr. Brockbank's angustifolius are the same, or if different, their relative value for in or outdoor decoration, and to cut for bouquets and flower vases—an important point, and of most interest to the great mass of readers, while to the few who are collectors the results would be valuable information. On Whit Monday I devoted part of the day in arranging two beds of the different varieties of *Helleborus niger* (Christmas Roses), commencing with H. niger from various sources, home and abroad, collected and cultivated plants, selecting from the collected plants the tallest and the most dwarf, those with the broadest and others with the narrowest leaves, and following these H. niger major, then Mr. Brockbank's H. niger angustifolius, Miss Hope's H. niger angustifolius, and the Aberdeen H. niger intermedius, leaving space for three specimens of St. Brigid's Christmas Rose and H. niger variegatus, which I hope soon to see filled up; following these is H. niger maximus (altifolius), and the last row of the second bed is occupied by H. niger minor. Should any readers of THE GARDEN have varieties of H. niger of special interest, I shall gladly form a third bed from such, and those who desire to make a study of the various Christmas Roses will have free access at all times to this collection. Now

that I have the various sorts on one bed I can venture to say at present Mr. Brockbank's plant appears very different to Miss Hope's, which is a plant of nobler growth, and the foliage of a more pleasant shade of green than Mr. Brockbank's.—PETER BARR, 12, *King Street, Covent Garden*.

Circular Pansies.—On reading the note in THE GARDEN (p. 422) on circular Pansies, I went at once to a bed of a very fine showy belted variety named Bronze Beauty much grown in this district as a decorative or border kind, and gathered a good average flower. This gently pressed on paper formed a circle $2\frac{1}{2}$ inches one way and $2\frac{3}{8}$ inches the other. This will suffice to show that there are Pansies nearly round, if not absolutely so, and these not even florists' selected kinds. The huge flowers which come from Vilmorin's and other Continental strains are generally deeper than broad, and therefore not so much valued for their form as for their size and rich colouring. Their drawback is found in their great size, causing them to "flop," to use a common, but expressive word; hence they are not so striking and effective in a bed or border as many smaller flowered varieties. Moreover, they are not nearly so floriferous, and they have nearly all a sprawling habit. For cutting for nosegays they are, however, very beautiful; but at what a sacrifice if to employ them a big piece of the wood is to be cut with them. It is right to say that these huge Continental varieties are almost the only ones of the big fancy section that will come freely from seed and do well as border plants. The beautiful fancy kinds shown by Messrs. Hooper, Downie, Cocker, and others somehow seem never to get into commerce by means of seed, at least no one appears to be able to get them here in the south. Inferior kinds of course seed most freely and these come freely, but if we want really hardy free growing, large showy flowers we have to fall back upon the rich coloured, and yet cheap, Continental strains.—A. D.

Planting Pampas Grass.—Although to all appearance a very hardy plant, and likely to bear a good deal of rough treatment, the Pampas Grass is much more easily injured than its appearance would indicate. In the first place, it is not a hardy plant in the strict sense of the word. A severe frost may not perhaps injure it, but cold north and east winds do. Even in Somerset the plants suffer severely from this cause, and the older the plants, the more they suffer. Even now the north sides of all our old plants are sadly disfigured. This evidently shows that a somewhat sheltered spot is the best for them. Intending planters, therefore, should bear this in mind, and select for them positions where they can have shelter from the quarter indicated. Then as to treatment. There is nothing particular in that after they get established, but it is pretty well known that it is not so easy to get them established, as they do not like being removed. The best time to transplant them is undoubtedly the month of May; they will then quickly form new roots, and take kindly to the soil if prepared for them as it should be, by being broken up fine and pressed firmly about the roots. In all cases of doubt as regards the natural soil of the locality it is best to prepare stations for them by removing any of an unkindly character, and replacing it with new material of a better description. The soil that suits them best is a deep friable loam resting on gravel. It is quite true that they grow fairly well in other descriptions of soil, but there is a great difference in the appearance of plants grown under exactly the conditions that suit them and those not so grown. The same remarks apply to the after management. Few think of supplying the Pampas Grass when in active growth with liberal supplies of manure water, yet few subjects are more benefited by it; and as to results, there is no comparison between those that have been so treated and those that have not.—J. C. C.

Bluebell and Hailbell.—What is the difference between these two plants?—ROSA. [A wide one. The first is the popular name for *Scilla nutans*, a plant of the Lily family; the second is applied to several kinds of Campanula, usually those with slender stems and small, thimble-like flowers as in *C. rotundifolia*.

ROSE GARDEN.

NEW YELLOW ROSE WANTED.

OUR Rose Canon, when describing in his own felicitous way the unparalleled merits of Maréchal Niel, is compelled to add, by way of caution: "This Rose is somewhat capricious, and liable to sudden and mysterious decay, so that it is best to have a young plant coming on, and to keep up a sure succession." "S. D." says (p. 427) many complain that the Maréchal goes off at the union between stock and scion. That is bad enough, but not all that can be said against the Maréchal. It not only goes off at the point of union of scion with stock, but anywhere and everywhere else likewise at times. Climbing Devonians stock is "S. D.'s" remedy for this. By all means let it have a trial. I believe that Maréchal Niel has been strangled through constricting stocks. On the climbing Devonians, or on any other free-growing Rose it would have more freedom; but we have tried most stocks, from Gloire de Dijon, one of the best, to the white and yellow Banksian, and found a tendency to gout in plants worked on all these stocks, therefore it must be concluded that this troublesome disease is neither cultural nor climatal, but constitutional. Canon Hole seems to have come to the same conclusion. Hence he says nothing about budding, grafting, or growing this grand yellow Rose out of this weakness. But accepting the disease as more or less inevitable, he urges growers to keep up a succession of plants. Were this gangrene or gout in the stems a matter of stocks only or wholly, it follows that plants on their own roots would escape. But this is so far from being the case, that not a few of these have suffered most. In worked plants the disease is mostly confined to the point of union between the scion and the stock. But in those on their own roots a huge gangrenous wart not seldom attacks and destroys the main stems or all the leading branches either abreast or in detail one after the other. The Maréchal being somewhat tender, were it only attacked in the open air, the disease might with good reason be supposed to originate in sudden chills or checks of the sap. Being a vigorous grower, any sudden arrestment of growth might readily so powerfully affect the tissues of constricted parts of the branch, as to produce extravasation of the sap. Then by a process somewhat analogous to that of gumming, the disorganisation, swelling, and total destruction of the wood follows. But this disease is equally or more destructive under glass as in the open air, so that the arrestment theory is untenable. As a rule

THE LONGEVITY of Maréchal Niel is greater in the open air than under glass. If I am not mistaken, the first, or one of the first, to arrive in England is still alive in the open air. And until the cruel havoc made by the past two winters among our standard Maréchals we had some veterans in the open with wide-spreading heads that never failed to yield us two crops a year. These were by far our oldest plants, and they were killed not by gout in their stems, but by frost. Once this gouty swelling appears on a main stem or branch, the plant or part affected is doomed. The whole of the life goes out of it. Not only does the bark swell and dry up, but the wood also, the whole becoming light, dry, and lifeless as a sponge. And yet the first step of the disease seems to arise from constriction rather than enlargement. There is in the first stage a hard dryness about the affected part as if it had been burnt with a hot iron. From this stage swelling, disorganisation of tissue, and death speedily follow. Many of the

ABNORMAL ABORTIONS bear what seems to be traces of insect agency, but most likely this succeeds the disease, and may not be in any degree responsible for its cause. These gouty swellings are generally most numerous and destructive on the dormant part of the main branches or main stems. When breaks have been forced near to these the gout has seemed to be less destructive. This dormancy of base is one of the penalties we must often pay for the laying-in of

those monster shoots with which the Maréchal Niel has done so much to familiarise us. One has hardly the heart to recommend their being shortened, seeing that they may break in showers of golden beauty along the greater part of their length. But when practicable, it is wise to bend them round, as one does Vines, to force the shoots to break regularly back to their bases. Otherwise the tremendous flood of sap needed for the sustentation of such masses of foliage and solid weight of flower-buds may prove too bulky for its channel, and result in distension and final disorganisation and disease. This guess at the truth is merely advanced for what it is worth, and one thing is certain, that whether this theory regarding the disease proves right or wrong, no Maréchal Niel Rose can be the worse for the possession of one or more free-growing shoots near its root-stock or the base of its main shoots.

WEAK FLOWER STEMS.—One thing more is wanted to make the Maréchal perfect—a stronger neck or stem. It is singular, and so far unfortunate, that such a giant in vigour, and such a prodigal in the use of golden petals to build up such masses of fragrance and beauty, should deal out stem material so sparingly that few of these magnificent Roses can hold their heads erect. Wiring is all very well; but how much better for the plant to do its own work, and set its cups of gold on footstalks, say, as stout and strong as those of Gloire de Dijon. Maréchal Niel has now about attained his majority, and the time seems opportune for suggesting a match that may result in originating a golden Rose that shall neither hide his head in his bosom, nor die of gout in the very beginning or heyday of his glory. Surely it would be well worthy of the National Rose Society to offer a prize of fifty guineas for a golden Rose equal or superior to Maréchal Niel, but without its defects.

D. T. FISH.

GLOIRE DE DIJON ROSE.

To the many other good qualities belonging to this grand old Rose may be added the facts that it seems disease-proof, and probably the longest lived Rose which we possess. In these two admirable qualities it presents a striking contrast to some of the finer Tea and other Roses. Unless smitten or killed by frost, which it rarely is, there is seldom anything amiss with the Gloire de Dijon. The older it grows the more freely it flowers, and that is about the only effect of old age on the Glory. But in the best sense Roses of the style and habit of Gloire de Dijon never get old. They are constantly undergoing a process of regeneration. The strong shoots that they seem ever ready to throw forth on the gentlest hint from the cultivator virtually form young plants on the broad foundations of the old stools. And these recuperative processes are constantly going on, especially when Gloire de Dijon is grown as it ought to be, on its own roots. But our purpose now is merely to emphasise the value of the advice given by "S. D." to plant this Rose on different aspects for a succession of bloom. I have already strongly recommended it as probably the best of all Roses for the clothing of walls, and the best of the Glory is that it will grow with almost equal freedom on walls of any and every aspect. On south walls early stray blossoms may be gathered early in May, and sometimes earlier in favourable seasons. It is rather singular, however, that the Maréchal Niel, though much more tender, is also earlier in the open air on a south wall. East and west aspects seem equally welcome to Gloire de Dijon. Some of the finest formed and sweetest scented blooms of this fine Rose ever gathered by the writer were grown on an east wall with several points of north in it. And this leads us to state that, useful as this Rose proves grown on the three most favourable points of the compass, it is yet more useful grown

ON A NORTH WALL. In the cool shade of such a position the Roses lay on a colour and a fullness of fragrance which they seldom or never acquire when exposed to the midday sun's broad glare. The effect of shadow on the colour and fragrance of

Roses is one of those points that has not yet received the attention it deserves. Gloire de Dijon Roses gathered from off southern and northern aspects could hardly be believed by the uninitiated to be the self-same variety. Nor does the sun merely dispel colour—it dissipates sweetness. The difference in fragrance in favour of Roses grown on a north wall is far more pronounced than in regard to colour, great though the latter is. Few Roses can equal the Glory in its rich diversity of colour. Almost every possible shade of yellow, fawn, orange, salmon, buff, saffron are illustrated in the varied colouring of this splendid Rose. On the whole it is much darker as well as richer coloured from a north wall. And neither is the improvement effected by coolness and shade confined to a heightening of its colour and an increase of its fragrance. The form of the Rose is also greatly improved. Unless in bud, few rosarians go into raptures over the form of the Glory. It is a style of Rose in which form is partly dispensed with on account of its many other sterling qualities. But grown on a north wall, the blooms of the Gloire de Dijon seem to find time to reconstruct or remodel their material and greatly improve their form, so that altogether we get something like a new Glory among our Roses by simply growing the old one on a north wall. For the comfort of those who have no wall to spare, even for Gloire de Dijon, it may be added that most of the above advantages may be scored by anyone who will simply grow this fine old Rose, either as a dwarf or a standard, in different sites. The Glory is not simply the best wall Rose, but also as a standard or for forming beds or masses as a dwarf. Treated thus it will produce a profusion of bloom, most of them of the very highest quality. One of the most successful methods of treating the Gloire de Dijon as

A BEDDING ROSE is to plant strong plants from 1 yard to 5 feet or 6 feet asunder. Encourage a vigorous growth in from six to a dozen shoots; permit these to ramble wild and free the first season. In the following autumn or spring cut away the whole of the old wood that may have bloomed the previous year, and peg down these strong shoots regularly all over the surface of the bed. These will flower with the utmost profusion, while the strain put on their base by being sharply bent down will cause other strong shoots to break forth. These should be treated as before, and the flowering shoots again removed. In this way the plants are really renewed every year, while the constant demand for and furnishing of successive flowering wood keeps the roots in full swing and the plants in vigorous health.—D. T. FISH.

— This grand Tea Rose for all round use has no equal, more especially as regards the many ways in which it can be grown and profusely flowered. We have here growing up the rafters in the greenhouse four plants of it, and from these I have already cut ninety dozen lovely blooms. I began cutting on March 3, and I have cut on an average ten and twelve dozen weekly. It may be mentioned that the same plants have nearly completed a second growth, which will furnish a second supply of bloom. The season being unusually late, outdoor Roses will be some time before they open. The plants alluded to are growing in a border on each side of the house, round which a stage runs. The house is kept constantly filled with plants, so that the Roses have the advantage of a greenhouse temperature. On the same roof Lapagerias, Plumbago, and other climbers are growing and flowering equally well. I would advise anyone possessing a greenhouse to plant Gloire de Dijon, it being sure to flower where other tender kinds would fail.—J. CLARKE, *Brynkinatt*.

GUANO FOR ROSES.—The best way to apply guano is to sow it on the surface, choosing a moist time, and rake it in. Good Peruvian guano is an excellent manure for Roses, and if the soil is at all impoverished, a good dressing of it should be given, and the rains will carry its nutritious properties down, so that the roots can utilise them by the time the plants come into growth.—J. C.

LEAVES FROM THE SOUTHERN ALPS.

All places that the eye of Heaven visits
Are to the wise man ports and happy havens.

Richard II.

My leaves are gathered this time very far from the Southern Alps, in fact, 1200 miles from Mount Cook, but then they are holiday leaves, and have a licence to be erratic. I am going to concern myself in this bunch with the botany of Tasmania, where in the course of a ten days' stay I came upon some interesting novelty almost at every step. This delightful island is so full of charming flowering plants, that in the course of my short visit—although I was seldomly—I was able only to gain a good general idea of its vegetable wealth, and to obtain specimens of the more noteworthy plants. As for carefully investigating the ground over which I passed, to that I make no pretension, for my stay was too short, and I covered far too much ground to have carefully botanised it. My experience in and around Hobart were such as to leave with me a strong desire at some future time to have three weeks' botanising in the neighbourhood, when it would be possible to investigate a considerable area of very varied conditions with some degree of thoroughness. On December 12, then, we are at

Hobart, as this little city is now called, the "town" being dropped, and, sick of the sea, for it had been far from kind, we rise in the grey morning about four o'clock and take a walk abroad, full of that curiosity which every one feels, but more particularly he whose hobby is his garden, on first sighting a new country. Tasmania on this particular morning does not reveal much of herself. The hills that rise all round Hobart are clad in a very sober livery of grey cloud. From the warm earth rises the fragrance of a shower that has fallen in the night, and every flower and weed has a newly washed appearance, very refreshing to the eye. It is very pleasant to walk along the streets of this quaint little town on a morning of this kind. Two features of Hobart more particularly strike a visitor at first sight; one is its cleanliness, and in this respect it may be contrasted with its rival in commercial importance—Launceston. Its streets have a washed, almost scoured appearance, and the houses and public buildings have the same clean look. This is probably in a great measure owing to the very general use of a fresh sandstone for building purposes. The other noteworthy feature—and to one who has lived long in a colonial town a very charming feature—is its decidedly Old World air. Hobart was evidently not born yesterday. It has not the temporary run-up and raw look of most colonial towns. The houses have a solid, thick-walled appearance, as if they had been built to exclude summer's heat and winter's flaw, and were meant to outlive generations of tenants. Each house—of course I speak in general terms—has its garden in character with its architecture—old Box-edged walks, sometimes a growth of Ivy (they have not the abominable grub that destroys ours), a verandah draped with a glow of creepers, *Dolichos*, *Solanum jasminoides*, *Fuchsias* (bushes of a small red kind, something like *globosa*), *Honeysuckle* of a beautiful amber yellow, *Lonicera confusa*, I believe, *Abutilons* 6 feet high, occasionally a tall *Cactus*, a *Passion-flower*, or a *Tacsonia*. Some gardens are surrounded by high stone walls, which are actually old and crumbling—a rare sight in this quarter of the world—and from the cope sprout growths of red and white *Valerian*, *Mignonette*, rock *Roses*, and such things. In praise of the

TOWN GARDENS—with one honourable exception, the Royal Society's Gardens, of which more anon—not much can be said. They have, as a coach companion remarked to me, a "broad-cast" sort of look, just as if the owner had a recipe for some patent mixture. Candytuft, red and white, half an ounce; *Clarkias*, half an ounce; *Lupines*, 1 ounce; *Pansies* (of a very weedy kind), 6 ounces. Mix well together, season all with yellow *Everfew ad lib.*, and sow broad-cast before a shower of rain. This gives a sort of glare of colour, but the effect on close inspection is not satisfactory. Neither are the gardens well kept; indeed, this style of gardening does not consort with trimness. Scarlet

fever is, I should imagine, always prevalent in Hobart. Look in any direction you please, the eye is sure to rest on masses of bright scarlet *Geraniums*—scarlet, scarlet everywhere till the eye gets sick of it. Indeed, in Hobart you have only to stick in a piece of *Geranium* and you have a mass of scarlet growing and growing in perpetuity. In walking along the quiet streets, however, the eye occasionally lights on a plant that arrests attention. In every second garden the *Solanum jasminoides* clambers about hanging, its festoons wherever it can get a peg to hang them on, and bearing a fine crop of clusters of pure white blossoms. Another *Solanum*, too (*S. orientale*, an African species, I think), seems a great favourite, and it is certainly a very striking plant. It is about 4 feet high, has large leaves with undulating edges covered with a thick tomentum, which gives the whole plant a pretty frosted appearance, and bears small white inconspicuous flowers, which are succeeded by a yellow fruit like a small Orange. One of the prettiest plants I saw grew in a little garden a few yards square in front of a tavern. It was a single white *Hollyhook*, very tall, and set all the way up the stem with large blossoms of a pure colour and good substance. Single *Dahlias* may be very pretty and fashionable, but not many of them could match the beauty of this single *Mallow*. The favourite shrub seemed to be the New Zealand *Laurel* (*Corynocarpus laevigata*), or *Karaka*, as the Maoris call it. It has broad, coriaceous, glabrous leaves of a light green, and is one of the most beautiful of *Evergreens* when well grown. It is very remarkable that, although there are so many beautiful native flowering plants about Hobart, including a large variety of herbaceous plants and hard and soft-wooded shrubs bearing charming blossoms and often succeeded by equally charming berries, yet its gardens are mostly stocked with weedy, third-rate annuals and florists' flowers. If the Hobart gardens were filled with the more beautiful plants that grow within a radius of six miles from the city, their shrubberies, borders, and rockeries might compete in interest with those of the best English gardens. Instead of this, however, native plants are rarely to be seen, their places being taken by blotches of *Geraniums*, or whatever else will give the greatest amount of colour with the smallest expenditure of labour. In Hobart itself the most interesting quarter is, no doubt,

THE DOMAIN, which lies to the east of the town. This is a large extent of ground reserved for public recreation; the surface very undulating and covered with moderately large-sized specimens of *Eucalyptus*, chiefly the *Manna Gum* (*E. viminalis*). This Gum, which is very abundant throughout Tasmania, is not one of the gigantic species, seldom exceeding 60 feet in height. The leaves are narrow and sharp, and the branches somewhat drooping. The whole tree has a somewhat twisted and irregular shape, and the bark, as is the case with so many of the Gums, comes off in flakes. This *Eucalyptus* gets its popular name from the deposited excretion of a hymenopterous insect which sometimes infests it. I observed that the trunks of many of the trees in the Domain were charred about one-third of their height, but could get no information as to how this happened. Probably, however, the dry Grass round their roots occasionally catches fire from a burning match thrown carelessly amongst it, and, spreading, at last kindles the dry and very inflammable strips of bark that hang from the trees. At any rate, the appearance of the trees is not improved by the traces of fire. Amongst the Gums are various other trees, and on the ground, creeping amongst the Grass, a variety of pretty wild flowers.

THE COMMON WATTLE is plentiful through most of the Tasmanian forests. *Acacia dealbata* ("Silver Wattle," as the colonists call it) is a tree of some economic value, the bark, under the name of a "Mimosa bark," being a very considerable article of export. It is well known as a foliage plant in English greenhouses, but, of course, from pot specimens only a very imperfect idea can be formed of the appearance of this pretty Wattle when it grows to the dimensions of a forest tree

and covers large tracts of country, loaded with millions of its fluffy primrose blossoms, and filling the air with its rich perfume. By the time I saw it in its native habitat the blooming season was pretty well over, and only an occasional tree—for evidently some individuals are later than others—was still in flower. Sir J. D. Hooker says that the Silver Wattle in deep, dark forests reaches the height of 100 feet; but although I saw large areas filled with it, I remarked no tree of any great size, the most common form in which it appears being as an undergrowth for Gums. Occasional specimens, however, reached respectable dimensions—some 40 feet to 50 feet. Taken singly, the Silver Wattle is a pretty, graceful tree, the trunk rising lithely up, and the branches with their light green *Mimosa* foliage projecting lightly and airily from the main stem. The massed or distant effect is, in my opinion, not so good. The glaucous green and the silvery pubescence of the foliage give a greyish neutral tint to an *Acacia* forest, which on longer acquaintance might come to be agreeable, but which to the unaccustomed eye has an unsatisfactory, mouldy effect. All aspects of Nature must be beautiful to those who have a sufficiently long acquaintance with them, and I have no doubt that with familiarity the eye grows to be delighted with sights which, like an *Acacia* forest, fail at first to impress it. As for such a forest in the full flush of bloom, it must be a ravishing sight; but, unfortunately, as I have said, only an occasional late tree carried bloom when I saw the Tasmanian Wattles. Here and there through the Domain are dotted specimens of a large shrub called

BURSARIA SPINOSA, the general appearance of which in full flower has the effect of a tree of English May. The *Bursaria*, sometimes called the Christmas Tree, from its being in bloom about that time, is exceedingly common throughout the island. In the course of a sail about 40 miles up the Derwent great numbers of this tree may be seen along the banks of the river, and they serve very pleasantly to enliven the generally sombre character of the *Eucalyptus* scenery. The short lateral branches are sometimes changed into strong sharp spines, whence the specific name. On that side of the Domain which runs down to the Derwent a good many specimens may be seen of the quaint

SHE OAK (*Casuarina quadrivalvis*), an extremely interesting representative of an extraordinary family. This species does not grow to any great height, 20 feet being about the maximum growth. Its branchlets droop something after the manner of the cassowary's feathers, whence the generic name of *Casuarina*. The common name of "She Oak" illustrates that curious grouping of popular nomenclature after some significant sound, which has changed the Rose Quatre Saisons into Quarter Sessions Rose, and Gloire de Dijon into Glory de John, and which has translated the unpronounceable *Bellerophon* amongst sailors into the more manageable Billy-ruffian. The *Casuarina* bears no relationship to the *Quercus* family, although she is a distant cousin of the Birch and Alder. The name "She Oak" is said to be the corruption of a North American word "sheack," and colonists have even gone so far as to name another plant (*Casuarina suberosa*) in contradistinction the He Oak. There is a remarkable resemblance in the whorled and fluted character of the twigs of the She Oak to the habit of growth of the common British Horse-tail.

THE CHERRY TREE OF TASMANIA (*Exocarpus cupressiformis*) is another domain tree, or rather shrub, for it seldom reaches the dignity of a tree. Anything more unlike a Cherry could hardly be found in the tree world, for it has no leaves, but instead has beautifully translucent pale green branchlets, resembling more the finer varieties of Cypress than any other tree. This shrub has the drooping habit of the She Oak. The resemblance to the Cherry comes in in the fruit, which has a swollen scarlet edible peduncle. I was not, however, fortunate enough to see it in fruit, neither, although young plants were plentiful, could I secure a specimen with a good root or

ball of soil. Some pretty native wild flowers grow amongst the Grasses that carpet the Domain. Prettiest amongst them is

THE AUSTRALASIAN HAIRBELL (*Wahlenbergia gracilis*), our representative of *Campanula rotundifolia*, the Bluebell or Hairbell of Scotland. It is a very widely distributed plant, occurring in Australia and New Zealand as well as in Tasmania. But although it is one of our most common plants, I had never been able to admire it much until I saw it in Tasmania, forming patches of blue under the trees just as if flakes of sky had fallen on the earth. The bell is wide and shallow and divided into a variable number of lobes. It differs from the Scottish *Campanula* in having the bell not depending, but upright—the mouth not facing the earth, but the sky. This is one of the most variable of plants in size, habit, and colour. With us in New Zealand it is small and generally of a very pale lavender or pure white. In Tasmania, on the other hand, it is very large—three-quarters of an inch across the mouth, and of a very rich, clear lilac-blue—though I observed that there was a difference of shade in different individuals. Those who are fond of the *Campanula* family would find the *Wahlenbergia*—of the Tasmanian strain—a valuable addition to their collections if they can get it to come at all true, which I fancy it would

forth so fair a fruit. This little fairy flower is the very Ariel of Bindweeds—a wreath wherewith to crown Puck withal. The corolla is about a quarter of an inch broad, and of a lovely flushed pink; the leaves are of two forms, the lower ones being deeply lobed, the upper ones reduced to mere lines. Sometimes the pink sprays fall over the edge of a bank, sometimes lie prostrate, and sometimes they twine round a stalk of Grass or bind two stalks together. The polymorphous character of this Bindweed makes it a puzzle to botanists. It is a great traveller, appearing in Tasmania, Australia, and New Zealand, Africa, Europe, Asia and America under a host of aliases and disguises. I secured good ripe seed of the Hobart form, and will have much interest in seeing what forms will come from it. PAKEHA.

GARDEN IN THE HOUSE.

SWEET-SCENTED GERANIUMS.

SOME of these should be grown wherever cut flowers or hand bouquets are in demand, the fragrance of the foliage and its pleasing form rendering it suitable for the choicest of floral combinations. In the case of flowers which are mounted with wire, the individual leaves may be used with



Basket of cut flowers.

do. Those who wish to get a supply of this or any other Tasmanian seeds obtainable in the neighbourhood of Hobart would find their orders attended to by Mr. John Latham, of Liverpool Street, whom I myself found most obliging and attentive as well as reasonable in his charges.

THE CHEERY OXALIS CORNICULATA is another cosmopolitan little fellow, opening its varnished yellow florets whenever it gets the least encouragement from the sun. Like the *Wahlenbergia*, it is also a native of New Zealand and Australia, and is our representative of the charming little *Oxalis* of the British woods, with its delicately veined, pearly white flowers—"Birdie's Biscuits," as we used to call them. The corniculata flower is followed by long, narrow pods of seed, which when ripe are of a most excitable temperament. In collecting the seed the pod must be handled in the most gingerly fashion, or puff! the walls burst and the seeds go helter-skelter in all directions. The Protean little

BLUSHING BINDWEED (*Convolvulus erubescens*) creeps along the ground of the Domain, opening its ruddy little corolla if the day is only bright enough. There is not much use in describing this flower, for it runs through a whole gamut of forms, the extremes of which it is difficult to believe to be forms of the same plant. The Domain form is one which I subsequently found growing in great abundance on the Melbourne racecourse. It seems to me, since I have come to compare it with other specimens, to be a depauperised form of the plant. But never has poverty brought

excellent effect. Supposing the flower to be mounted is a *Camellia*, three good-sized leaves are arranged round it and fixed in place by a turn of the wire. The same may be done with other flowers, such as *Azaleas*, *Primulas*, *Violets*, &c., the smaller blooms being mounted three or more together according to their size. The form of the leaves of scented *Geraniums* better fits them for this purpose than those of any plant I know, as they clasp the flower naturally and seem to fix and hold it in place, and if so arranged that their much divided ends project a little, the formal outline which many choice flowers present is much relieved. When the plants are liberally grown throughout the summer, good strong shoots will be available, which cut entire will be found very serviceable for informal floral arrangements. In a trade establishment where bouquets were largely in demand we used to grow a considerable quantity of sweet-scented *Geraniums* for the sake of their foliage, which was used in the manner above described, only employing Maiden-hair Fern for finishing off round the outside of the bouquet. Bouquets made with these scented *Geranium* leaves have a very neat appearance and are withal most gratefully perfumed. Every year in June we used to fresh pot the stock, which consisted of some hundreds, many of them veterans from which thousands of leaves had been cut; we discarded a portion of the old soil, and gave them a free, tolerably rich compost, rather richer than it is the custom to give *Geraniums* generally, the object in this case not being to induce a floriferous habit, but rather a luxuriant growth with some exuberance of leaf development. Were I again to grow any number of sweet-scented *Geraniums* for the sake of their foliage, I would certainly plant them out, as if carefully lifted they do not appear to suffer, the leaves not damping off as is the case with zonals. The plants above alluded to were wintered in a cool house along with a collection of show *Pelargoniums*; they occupied the back portion of the structure, needing less attention than anything else therein; and if an account of what they brought in during the year could have been kept, it would, I think, have been found that they were among the most profitable plants, either tender or hardy, grown in the establishment. From November to June they might be said to be daily earning money. J. C. B.

FILLING FLOWER BASKETS.

THE accompanying illustration of a flower basket which was awarded a gold medal at a recent flower show in Germany may perhaps afford a suggestion to those who have to arrange cut blooms in that way. The basket shows tasteful arrangement in some respects, but it is somewhat too flat, rather overcrowded, and perhaps displays too much variety as regards kinds of flowers. Had more Tea Roses been employed and more elegant foliage, the effect would have been better. This reminds us of a charming flower basket which we saw the other day, and which contained nothing but the yellow *Maréchal Niel* and the blush-pink President Roses associated with their own foliage, and to relieve the flatness a few sprays of the new feathery *Asparagus* (*A. plumosus*), more elegant even than any Fern, and lasts so much longer in perfection. As in most other floral arrangements, nothing is better than simple and light arrangement, using a few kinds of flowers only. If a mixture of many kinds is employed the result is seldom artistic or pleasing. At this season the open-air garden contains, or should contain, ample material, and that of the best description with which to arrange flower baskets and vases. The *Daffodils* just past have yielded a long and plentiful supply, and the stragglers, the double and single *Poet's Narcissi*, are still in beauty. The managers of flower shows, particularly in the country, where professional floral decorators seldom make their appearance, should encourage simple arrangements of this kind instead of the mixtures which one often sees arranged apparently without regard to either harmony of form or colour.

NOTES FROM SCARBOROUGH.

I SEND you a few of the naturalised *Scilla campanulata*, which grow in myriads on our cliff, and also a few of what seems to me an intermediate variety between it and the common wild *S. nutans*. If I am not mistaken, this is a large and early form of *S. campanulata*. The typical form with narrower leaves and smaller flower-spikes is hardly open as yet, and this is at the very height of its beauty. It will be interesting to me if you think it a distinct variety, as we knew of it on our cliff for something like 100 years, and it always keeps larger and earlier than what I imagine to be the type. [The intermediate form to which you allude is probably the same as that named *S. cernua*—merely a variety of *S. nutans*.]

Cypripedium pubescens is in great beauty, and seems thriving in its third season; to me it is even more charming than *C. spectabile* and easier to grow, as it does not require so much wet. *Aralia Sieboldi* has proved more impervious to bitter sea blasts this last season than even *Acubas*, and *Olearia Haasti* is the only shrub that can boast that not one leaf is browned; it is of the greatest value in a seaside garden. *Veronica* bushes and *Dracæna Veitchi* are making fresh growth, but have suffered much. *Choisya ternata* is now in nice flower in company with *Pittosporum Tobira*, both having escaped injury in a sheltered corner, and are consequently to be recommended.

Eucryphia pinnatifolia again has made fresh leaves without pushing an inch of growth, and I

hear of its being stunted elsewhere. Can anyone tell us of this shrub thriving in the open air? For once, where so many complain, we can say our Roses look better than usual; both Teas and Hybrid Perpetuals are pushing strong growths and making fine foliage—the precursor of fine flowers, let us hope. The wet and cold of the winter have done great damage among bulbs and tender Lilies. Clumps of *Hyacinthus candicans* that had thriven for years outside are all dead. I only see one weak shoot from patches of *Ornithogalum arabicum*. *L. Humboldtii*, *Parryi*, *Szovitzianum*, *tigrinum splendens*, *Washingtonianum*, *candidum*, and *longiflorum* are all very much weakened or killed outright—a most disheartening sight. *L. giganteum* is, however, thoroughly happy, and seems to thrive as readily as a *Funkia*. I wonder why this Lily is not generally called hardy and grown commonly.

E. H. W.

INDOOR GARDEN.

INTERMEDIATE HOUSE.

THE intermediate house (see p. 415) being, as its name implies, for plants that require somewhat less heat than a stove and yet more than a greenhouse, should, as far as heat is concerned, be kept at a temperature midway between the two, say at 55° night temperature during the winter months, allowing it to rise gradually as the season advances, till by midsummer a night temperature of about 70° with a proportionate rise during the day is reached. In the hottest weather no fire will be needed, and even should it turn out chilly, which in our variable climate frequently happens, a good deal may be done by shutting up early, and thereby husbanding the sun heat. Select flowering plants for a house of this description should include *Begonias*, such as *semperflorens* and its deep-coloured variety, *valida*, *manicata*, *pruinosa*, *Moonlight*, *Welltoniensis*, *insignis*, and others; also *Pentas carnea* and *kermesina*, *Plumbago rosea*, *Linum trigynum*, *Sericographis Ghiesbrihtiana*, *Libonia floribunda*, *Poinsettia pulcherrima*, *Eranthemum*, *Bougainvillea glabra*, *Clerodendron fallax*, *Luculia gratissima*, *Lagerstroemia indica*, *Lasiandra macrantha floribunda*, *Pleroma elegans*, *Rogiera gratissima*, and *Magnolia pumila*, which flowers freely in a small state, and when in that condition would fill the house with delicious fragrance. The greenhouse *Rhododendrons* of the Princess Royal type would also in such a temperature continue to grow and flower more or less continuously throughout the year. The following are good and distinct kinds, viz., *Princess Royal*, pink; *Princess Alexandra*, white after a time slightly suffused with blush; *Taylori*, rich pink, white tube and throat; *Duchess of Teck*, buff yellow, shaded with rose; *Duchess of Edinburgh*, bright orange-crimson, and the pure white *Jasminoides*. Such a house would also serve to maintain many greenhouse plants in flower during the winter for which additional heat at that time of the year is necessary. Amongst them should be *Salvias*, *Heliotropes*, *Bouvardias*, tree *Carnations*, *Epiphyllums*, *Hebeclinium inianthum* and *atro-rubens*, and zonal *Pelargoniums*. *Achimenes*, *Gloxinias*, *Gesneras*, and *Tydas* might likewise be successfully grown, and in summer *Torenia Bailoni* and *Fournieri* continue to flower a long time in succession. *Clerodendron Balfouri*, *Hoya carnososa*, *Manettia bicolor*, *Stigmaphyllon ciliatum*, *Rhynchospermum jasminoides*, and *Thunbergia Harrisii* would be found to be good climbing plants. No better place could be found in which to propagate most greenhouse plants than a house of this description; the few degrees higher temperature would greatly hasten the emission of roots, especially in the case of soft-wooded plants inserted in spring.

H. P.

PREPARING AZALEA MOLLIS FOR FORCING.

Few will question the adaptability of this *Azalea* for forcing, but it is not always convenient to give it the special treatment which it requires for this purpose. In order to meet the difficulty, it may be useful to say that there are two ways of dealing

with the plant, applicable to both large and small gardens, and with no great difference as regards results. In the case of those who have sufficient house room, no doubt the most satisfactory way is to grow the plants always in pots. This is our own way of dealing with them, and we have no cause to complain of the quantity of flowers which they produce. Our plants are taken to the forcing house early in December, where the temperature is maintained at about 45° by night and 55° by day, and the plants are generally in flower by the middle of January. As soon as they go out of bloom they are turned out of their pots, their roots are examined, and if they require more room they are at once shifted into pots one size larger, the soil which we use being peat and sand only. As soon as shifted they are taken to a cool Peach house, where they are kept just secure from frost, and where they remain until they have completed their growth, which is generally by the end of May. They are then placed in the open air, and at this stage they require rather careful watching. If the flower buds are at all prominent, the plants must be set in a cool shady place, or some of the buds will flower prematurely in September; but if the flower buds are not visible when taken from under glass, they should be set in an open sunny position and allowed to remain there all the summer. In other respects this *Azalea* is very easy to manage, for it is quite hardy. It is not troubled with insects and only wants a reasonable amount of attention as regards watering. For gardens in which there is not much room, or where it is not desired to cultivate them in pots, two sets of plants are required, and a piece of ground containing a suitable soil must be set apart for them. In this case there should be one set of plants forced every year, that is to say, the plants which were in flower at the beginning of the present year will now be planted out, and allowed to remain so until the autumn of 1885. This will give them one season's growth made under natural circumstances, which will, in the ordinary course of things, be in just the right condition to produce plenty of flowers when taken up and forced. Under this treatment they are forced one season and rested the next, and there is no reason why, under careful management, they should not last for many years. If it is desired to keep them from getting too large, they do not object to being pruned, but the pruning must be done in the winter succeeding that in which they were forced. In the case of plants grown in pots, pruning must be dispensed with if the plants are expected to flower every year. If the sacrifice of one year's flowers is of no importance, then moderate pruning may be resorted to; but it must be done in winter, when the plants are at rest.

J. C. C.

HEATED WALLS.

THERE are many good gardeners who believe that, in discarding the old-fashioned flued walls, as has been generally done, they parted with one of the best helps to a good crop of Peaches outdoors that they ever possessed. Cheap glass, permitting the erection of glasshouses instead of walls, very largely accounts for the neglect into which heated walls have fallen, and for our part we should prefer a glass roof to a wall at any time; but glasshouses are more expensive at the outset, and need constant management and looking after to render them useful, and there are many people who can have the walls, but not the glass, who would like to grow Peaches if they could, and with the least trouble and expense. Besides it is an open question yet whether walls that are merely covered by glass, but not heated, are any better than heated walls. Our own opinion is, that any glasshouse for Peaches should have the means of excluding frost and damp in spring and autumn, for reasons that have frequently been given in the *Field*, and need not be repeated here. We are acquainted with numerous examples of large unheated Peach cases, and we are not prepared at present to admit that they are one whit better than the old heated wall. As for glass copings, we are sure they are not so good, for in frosty or cold weather they make scarcely any perceptible difference to the tem-

perature. A few degrees of frost are fatal to Peaches in flower under protectors 2 feet wide or more. They keep off wet, but a 9-inch board does this equally well. We have never yet met with a gardener possessed of experience of heated walls who would admit that they are useless; and there are those who will tell you that in many gardens outdoor Peach culture has become a dead letter since they were discontinued, the crops on these structures having been invariably excellent for many years. Some say that it is the climate that has deteriorated and prevented crops; but it is not so, for fruit can yet be had from warmed walls as it used to be. In some of the coldest districts in Yorkshire Peaches used to be a famous crop on heated walls. These were done away with, and it has been found since to be quite impossible to ripen the wood of the trees. One of the best of our outdoor Peach trees from a cold wall was given away to a cottager, who planted it against his kitchen flue, and during the whole time he was tenant of the house that tree bore good crops which it had never done before.

THE ADVANTAGES of heated walls are easily understood. Whether heated by means of flues or hot-water pipes, the heat is equally diffused throughout the brickwork (in order to have most heat on the south side of the wall, where the trees are, there should be no more than one course of bricks on the south side of the cavity in the wall, and the rest of the bricks should be on the north side), and both day and night the temperature of the air within from 6 inches to 18 inches is several degrees above the general temperature of the atmosphere. Gardeners who have stood in cold weather nailing trees in front of a heated wall know what a difference the heat from it makes to their fingers, but few people comprehend the difference this greater degree of heat makes to the trees. A mean of one degree one way or the other will make a perceptible difference in the time of ripening a crop of fruit or anything else, and two or three degrees may mean either a hopelessly late or an unusually early crop; but in the case of Peach trees on warm walls any novice may observe the effects. Where, on an unheated wall, a Peach tree will perhaps ripen 6 inches of its annual growth before the end of November, it will ripen 12 inches or 15 inches on one that is heated. This difference in the length of the annual shoots is a great matter. The more and better ripened growth we can add to a tree in a season, the sooner it will attain to the desired size, and the sooner and more abundantly will it bear fruit; and this greater growth is in itself also a guarantee of the maturity of the wood, upon which fertility depends more than on anything else almost. With a 9-inch wooden coping at the top of the wall to throw off the wet trees in bloom are almost quite safe from the severest late frosts we are likely to experience. Unlike glass screens, heated walls do not bring the trees forward too early in the year, and that is a more important matter than we are apt to suppose. Ventilate glass screens as freely as we may, and they are seldom ventilated enough. We cannot prevent them becoming too hot frequently during sunny days in February and March, with the result that the trees are forced into flower while there is yet much danger of severe frosts that a glass roof cannot exclude, and the crop is done for, may be, in a single night; this has often happened in unheated houses. On heated walls, on the other hand, the rule used to be not to apply heat till the trees began to grow freely of their own accord, perhaps about April or May, and then the fire heat was applied as a protection when it could be no longer withheld; and this is the secret of getting crops. The worst crops of all kinds of outdoor fruits in this country follow early springs, because these are usually succeeded by destructive frosts at the critical season; and so it is with Peaches on the open wall—a late blossom is more likely to escape, and will at least need less protection. Trees on heated walls should not be trained to wire trellises unless these are strained close enough to the wall to touch it, for shoots nailed close to the wall ripen and bear best, because they receive most heat.

THE CONSTRUCTION of heated walls is a very simple matter. They should be built hollow from top to bottom, and the two sides be only held together by ties. A cavity 9 inches wide inside is not more than sufficient, and the back of the wall may be one brick thick (9 inches), and the front, or south side, half a brick. This is about the thickness of an ordinary solid brick garden wall; hence a hollow wall is really the cheapest, even after allowing for a couple of rows of 3-inch hot-water pipes along the bottom for heating purposes, for flues are not so good as pipes, nor so cheap in the end. The above amount of piping enclosed within a wall is soon and cheaply heated. The cavity becomes as hot as an oven; the heat slowly permeates the bricks, and raises the temperature about the trees by day and sustains it by night, expelling severe frosts simply by its radiation from the wall. The heat should, of course, be most used in spring and autumn—in spring to keep off frosts and raise the temperature of the air near the trees as long as the weather is cold; and in autumn to ripen the wood, which is of quite as much importance as protecting the trees in spring. Plenty of remarkable examples of the effects of warm walls could be furnished. During frosty winters we remember a certain garden where many of the herbs, such as Sage, &c., growing on a border near to the front wall of a hothouse survived the winter, while those plants a few feet further off perished. We saw not long ago in a cold locality near Huddersfield a very large Fig tree covering a mill wall against the engine house, which was always warm. On this tree, I am told, good crops are gathered every year. On cold walls Figs will hardly grow, let alone bear, in the same neighbourhood.—*Field*.

PRITCHARDIA GRANDIS.

THE appearance of a new plant under the name of "the true *Pritchardia grandis*" will most likely lead to some misunderstanding unless some light is thrown on the subject; and as I happen to be acquainted with the history of both the "spurious" and the "true" *Pritchardia grandis*, perhaps you will permit me to endeavour to set the matter right. It will be remembered that some eight or ten years ago Mr. Bull introduced from the South Sea Islands a distinct and beautiful Palm which he called *P. grandis*. Of this a figure was given in the *Gardeners' Chronicle* in 1874, and in the note accompanying it the writer expresses some doubt as to the correctness of the name, and states that "Mr. Bull's name must be accepted provisionally only." The *début* of this plant was made at Ghent in 1876, and proved so successful, as to enable Mr. Bull to sell one of his plants to Mr. J. Wills for a good many guineas. I believe that of the three plants Mr. Bull succeeded in establishing in his nursery one was fatally injured at the Ghent exhibition, one died, and the other Mr. Wills secured. This plant is now in the Kew collection, and is about 12 feet high. In 1880 some young plants of this so-called *Pritchardia* were introduced into this country, and of course they were immediately snapped up by those who were acquainted with its beauty, and perhaps also its money value. Meanwhile the director of the Hanover Botanic Gardens, a great authority on palmology, had pronounced the name *Pritchardia* incorrect, and referred the plant to its proper place, calling it *Licuala grandis*. Concerning this matter Mr. Wendland writes to me as follows: "The first moment I saw Mr. Bull's plant I perceived it had nothing to do with *Pritchardia*, but that it was a true *Licuala*." "A Rose by any other name would smell as sweet," and the beauty of this Palm was in no way detracted from by the alteration of its generic name.

This year another very beautiful Palm was exhibited at the Ghent show, and was dubbed "*Pritchardia grandis* (true) of Wendland." Now I had seen this plant and I knew that it was no more a *Pritchardia* than that introduced by Mr. Bull. I therefore wrote Mr. Wendland, who replies to the effect that he has not seen this new plant, and therefore could not be answerable for

its name. The *Pritchardias* are so well characterised as to make it impossible for anyone knowing them to refer this new Palm to that genus. If it is anything, it is certainly a *Licuala*, and so far as I can make out an entirely new species. It is one of the most beautiful Palms known, and if I might venture to suggest a name I should suggest that of *Licuala Veitchi*. Through the kindness of Messrs. Veitch I have been enabled to compare their plant with *L. grandis* and with the *Licualas* both in cultivation and in the herbarium at Kew. Messrs. Veitch's plant differs from *L. grandis* in having spines along the margins of the petiole from the base to the blade, whereas in the latter species they are found only on the lower portion of the petiole. The blade differs in being less distinctly lobed and in the sinus being much less deep than in *L. grandis*. The two plants are near each other and are so noble in habit, as to be worthy of a place in the choicest collections.

Pritchardias are distinguished by their large fan-shaped leaves, which are covered with a white mealiness when young, and the blade is always of a soft papery texture. The leaf-stalks are stout, spineless, and always covered with a white meal. At Kew there are the following species in cultivation: *P. pacifica*, *P. Martii*, *P. aurea*, *P. Gaudichaudi*.

Kew.

W. WATSON.

FRUIT GARDEN.

EXTENSION VINE BORDERS.

IF I read "J. C. C.'s" communication on this subject (p. 375) aright, his sole objection to restricted Vine borders is the short time during which Vines flourish in such borders—an objection valid enough if it were not possible to treat such borders at but little cost, so that they would at least maintain Vines in as vigorous a condition and for as long a period as the alternative plan which he proposes, and I for one think very much longer. Suppose, for instance, that Vines are allowed to ramble at will through one of the principal quarters of the kitchen garden, what about the roots to which he so frequently alludes as coming to the surface in search of warmth, &c.? Why, at every digging, not to name trenching, a great bulk of them would be cut away—that is, if they ever came near the surface at all, which is doubtful. That they would probably descend into the subsoil out of the way of both spade and warmth is certain—as undesirable a condition for them to be in as to be suffering from restricted root space. No, no, Mr. J. C. C.; you must give us a better plan than this, and some other material than "flagstone" with which to cover the borders for "generating heat" before we can give up our plan of root restriction—at all events within reasonable limits. This extension plan for Vine roots might be successful if the space at command were a fertile pasture resting on a sandy or gravelly subsoil, but such positions do not often fall to the lot of Grape growers, and it is therefore useless to dwell on the results that might be expected, or to advocate this kind of border. With respect to Vines being short-lived in restricted borders, I think, to some extent, the notion is a mistaken one. I have a house under my charge that my employer believes to have been planted nearly sixty years ago, and the border is but 26 feet wide and surrounded with a brick wall built with cement and the bottom concreted, yet these Vines every year bear a larger aggregate crop of fruit than any of our young Vines. The only point in which they do not equal the young Vines is size of bunch, a point of but little importance if we accept as gospel all that the producers of small bunches tell us of their performances, statements which, when I read them, I usually supplement by saying that the Grapes must be sour as well as small in bunch. I am willing to admit that the well-doing of these Vines for so long a period in such a restricted space is an exceptional case, but a case that would not be so rare if Vines generally were always so well cared for as these have been in the matter of annual top dressing with new soil, and at intervals of

three or four years digging out a trench next the boundary wall, lifting up the bottom roots, and cleanly cutting back all other roots found in digging out the trench, operations which as it were give the Vines a new lease of life. New rootlets are quickly formed at the end of every cleanly cut old root, and immediately push into the fresh soil. This manner of treating restricted borders, namely, giving them annual rich top dressings, and occasionally adding new soil at the extremities, has been more successful than any other plan I have tried, next to new border making and entirely new planting, which as a matter of course is an expensive affair, but if it were not, I would say pull up and replant about every six years; you will then get larger bunches and plenty of them, which will be superbly finished with a minimum of labour and anxiety as regards bad setting, scalding, and shanking.

W. W. H.

Large Cherry trees.—Can any of your readers inform me if they have ever met with larger Cherry trees than those the dimensions of which are as follows: 1, 11 feet 3 inches in girth; 2, 10 feet 3 inches; 3, 9 feet 5 inches; 4, 9 feet? I have many more here ranging from 8 feet to 9 feet. The circumference I have taken at 4 feet 6 inches from the ground. The trees are in full bearing, although the fruit is small—a black description of Cherry.—R. TUNSTALL MOORE, *Steadiat, Balbriggan, in Field*.

Small-flowered Peaches for forcing.

May I assure your correspondent that what I wrote on this subject was what has really been my experience? I know what excellent forcing kinds *Noblesse* and *Dr. Hogg* are, and I have them both in the house to which reference was made, and they have never quite failed me; still, they have partially done so, but the small-flowered ones never. I therefore contend that I had a right to assume and to record the fact that with the self-same treatment the small-flowered varieties were best for early forcing. Remember, I said early forcing for the simple reason that in later houses we are never troubled to get an abundant set of any variety. May I ask that Mr. Westcott would favour us by telling us what are the important points in which the large-flowered *Dr. Hogg Peach* and *Lord Napier Nectarine* are superior to, say, *Crimson Galande*, *Bellegarde*, *Magdala*, and *Royal George*?—W. W. H.

ENGLISH PLANT NAMES.

Is it not a little unreasonable to expect every amateur gardener to learn Latin names for all the plants grown in his garden? Professional gardeners, nurserymen, and botanists must perforce use them as a part of their legitimate stock-in-trade, but are they wise in throwing them as difficulties in the way of the general public? It is acknowledged that there are difficulties in the way of the general use or acceptance even of English names, but that surely is no good argument against their due usage in a right and suitable manner. Steam and telegraphy once presented difficulties and perplexities seemingly insurmountable—now electricity as a lighting agent does the same; but because the thing may be difficult to use or perplexing to organise, it does not follow that the principle is wrong. Latin names are perplexing enough if one tries to remember all those that have been applied to such a common plant as the *St. Bruno's Lily*; but in practice one Latin name only becomes general and so it will be eventually with English names. "Calf's Snout," for example, as applied to the common *Snapdragon*, is not pretty, and even in Parkinson's time had begun to give way to the better and prettier English name which the plant now bears. What we now want is a good compilation of all the best known, if not of all the English names now in use in books or garden literature. One or two partial attempts at this have been made already, but a comprehensive work on the subject is yet a desideratum, and one which I have reasons for hoping will be supplied at no

very distant date. The wonder is that English names are now so popular and general as they are, seeing that they are for the most part traditional and legendary rather than universally fixed in books on botany and gardening. The simple fact of their having lived on in the poetry of the people and in the language without having had any especial care or culture proves pretty conclusively that they are of some classic and permanent use. Popular names are like popular books—one must produce them, and trust to the public at large for a verdict. My own opinion is that if true and good they live; and if inexpressive or bad they die—the common fate of all that is bad and useless all the world over. "T. B." (p. 403) touches the subject as if uncertain of his own opinion, and the result is we are not quite sure whether he is for or against the use of popular names. It would be better if one's opponents were at least worthy of good steel, since opinions with an uncertain ring are next to useless in serious questions of this kind. With what "Rho" advances (p. 404) everyone must to a great extent agree. He says, "Satin Flower" may be preferable to "Rush-leaved Lily," but I must ask both Mr. Tymons and "Rho" to remember that in Vol. XI. of THE GARDEN (p. 110) we have *Brodiaea coccinea* figured and described as the "Crimson Satin Flower," which name was at the time held to be preferable to that of "Vegetable Fire Cracker," the popular name applied to it when it was introduced to our gardens. Even Latin names do not always retain their priority, and so no doubt English names will be subjected now and then to the same alterations. To this no objection can be justly urged, provided always that the alteration or substitution is for the better. To retain a name radically false and bad simply because it is the oldest is not conducive to that progress in garden matters which some of us are so anxious to see.

Mr. Elwes argues in a narrow groove when he objects to Professor Owen's English names of garden birds. He writes (p. 404), "There is a capital instance of the confusion which results from incorrect nomenclature in Professor Owen's notes on birds in THE GARDEN, and if it were not for the Latin names (of which, however, many are obsolete or incorrect). I should not always have known what birds were alluded to." Mr. Elwes' own popular names, as applied to the species of *Lilium*, come in, as it seems to me, for a large share of his own argument as applied to Professor Owen. In his "Monograph of the Genus *Lilium*" we find English names applied to all the species, but so poor are these—mostly translations of the Latin—that were it not for the Latin names, as he puts it, the whole question of Lily nomenclature would be in confusion. As there is a large coloured diagram of each species in Mr. Elwes' book, we know pretty well what he means, and I always feel inclined to pin my faith to figures, and so accept his own English names, although why he rudely threw away his principles and admitted them into his book is a mystery to me. As an instance of bad popular nomenclature, take white Lily for *L. candidum*. We have several white Lilies, and the older and more classical name of *Madonna Lily* might here well have been retained if Mr. Elwes did not feel equal to the finding of a better and more expressive one. Again, take *L. longiflorum* (the long-flowered Lily), another inexpressive and so far untruthful name, seeing that Lilies with much longer flowers are now in cultivation. If euphony is to be a factor in the giving of popular or English names, may we be defended against such ugly nomenclature as Maximowicz's Lily. After that somebody will want us to adopt the Mexican popular name for *Cattleya citrina*, which, however glibly it may fall from the tongue of a Mexican, looks fairly unpronounceable in English—"Corticoatzcoatecochitl." We must honour Mr. Elwes by printing a list of the English names he has thought well to employ in his work on the genus *Lilium*. The Latin names are added to prevent confusion. It is truly a curious effort on the part of an author who avowedly is against the use of popular names. Apart from its serving a noble duty here as a warning, a list of all the Lilies

will be useful for readers of THE GARDEN to refer to as occasion may require:—

Lilium philippinense, the Philippine Lily.
L. Hansonii, Hanson's Lily.
L. pomponium, the Pompon Lily.
L. Parkmannii, Parkman's Lily.
L. auratum var. *Wittei*, Witte's Lily.
L. pyrenaicum, the Pyrenean Lily.
L. testaceum, the Nankeen Lily.
L. Davidi, David's Lily.
L. polyphyllum, the Many-leaved Lily.
L. giganteum, no English name.
L. philadelphicum, the Philadelphia Lily.
L. davuricum, the Siberian Lily.
L. croceum, the Orange Lily.
L. carnolicum, the Carniolian Lily.
L. candidum, the White Lily.
L. tenuifolium, the Narrow-leaved Lily.
L. chalcidonicum, the scarlet Martagon Lily.
L. Browni, Brown's Lily.
L. monadelphum, the Caucasian Lily.
L. japonicum, Kramer's Lily.
L. Martagon, the Martagon Lily.
L. superbum, the Swamp Lily.
L. Leichtlini, Leichtlin's Lily.
L. callosum, Siebold's Lily.
L. parvum, the small-flowered Rocky Mountain Lily.
L. neilgherrense, the Neilgherry Lily.
L. pardalinum, the Californian Lily.
L. tigrinum, the Tiger Lily.
L. carolinianum, the Southern Swamp Lily.
L. elegans, Thunberg's Lily.
L. cordifolium, the Heart-leaved Lily.
L. washingtonianum, the Washington Lily.
L. Wallichianum, Wallich's Lily.
L. Maximowiczii, Maximowicz's Lily.
L. avenaceum, Fischer's Lily.
L. concolor, Salisbury's Lily.
L. oxypetalum, Royle's Lily.
L. maritimum, the Coast Lily.
L. longiflorum, the Long-flowered Lily.
L. bulbiferum, the Bulbiferous Lily.
L. Humboldtii, Humboldt's Lily.
L. columbianum, the Oregon Lily.
L. speciosum, the Lance-leaved Lily.
L. canadense, the Canada Lily.
L. auratum, the Golden-rayed Lily.

It is by no means right to assume that this question of English names is threshed out. Those who feel it incumbent on them to oppose the movement "on principle" should lose no time in doing so firmly and decidedly, for the good seed is growing apace. Practically all the commerce of the world is carried on easily and smoothly without Latin. One does not ask for fruit of *Vitis vinifera* and *Vitis corinthiaca*, or for the crystallised sap of *Saccharum officinale* when we want currants, raisins, or sugar, neither do we quarrel with the baker in Latin when we want that product of *Triticum* which some of us call "household bread." The vegetable products of the whole world are bought and sold under English or Anglicised popular names; but if we want to buy a double red Daisy for the garden forsooth, it is, say the critics, to be called *Bellis perennis flore-plena rubra*!

It may be the business of gardeners (however humble) to learn Latin names, but this parrot talking in a dead language may be too much encouraged. I have met with people who insisted on employing Latin plant names who could not tell me the Latin for the silkworm or for the seal, or for "bread" and "water" or for a thousand and one of the stern realities of life around them. Latterly I notice a tendency among gardeners to know lots of pet Latin names for "good things," but who have not even a "nodding acquaintanceship" with the plant itself, and will even fairly fall over it without recognising it when it is before them. This may seem an extreme example, but it is true. When we look over Shakespeare and the works of all our great poets we find no Latin, but we understand and know the flowers they name. Even old Parkinson 250 years ago wrote whole pages on his favourite blossoms without a word of Latin. So does the florist, who is a very apostle of popular nomenclature at heart; and perhaps rightly so, but so soon as a pretty and expressive name is given to a plant popularly nameless and comparatively unknown in most gardens, so soon do we

hear the old parrot cry of "Wolf! wolf!" when there is no wolf, and the result is that false alarms become unheeded.

My argument is that all plants must at first have a good expressive Latin name given to them (a good figure should always accompany this first christening), and in addition to that a good English name also for the use of those who think a little of Latin names for their plants as they do of Latin names for their houses and furniture, their domestic animals, or the garments which they wear.

F. W. B.

GARDEN FLORA.

PLATE CCCLXXXIX.

VARIETIES OF *PERNETTYA MUCRONATA*.*

AT one of the meetings held at South Kensington last autumn a group of seedling *Pernettyas* in fruit, exhibited by Mr. Davis, Ogle's Grove Nursery, Hillsborough, Co. Down, Ireland, attracted a good deal of attention, not only on account of the profusion in which the berries were borne, but also on account of the wide range of colour which existed amongst them. The typical *Pernettya mucronata* forms a low-growing evergreen shrub, with small, deep green, sharp-pointed leaves, hard and leathery in texture, and in spring thickly studded towards the tips of the branches with small, white Lily of the Valley-like flowers, which in autumn are succeeded by crowds of berries each about the size of a large Pea and crimson in colour. It is a native of the extreme southern point of South America, viz., around Terra del Fuego and the Straits of Magellan, and is quite hardy in this country. It was introduced, according to Loudon, in 1828. The collection from Ogle's Grove represented the results of many years' patient labour, some thirty years having elapsed since the first seedlings were raised there. They were the offspring of the hardiest and most free-fruited variety of *Pernettya mucronata* then in cultivation, viz., *angustifolia*, and amongst the seedlings were several that varied considerably from the type both in foliage and colour of the berries. From seeds of the most promising of these other seedlings were raised—work which has been carried on till a collection has now been produced, which is matchless as regards variety, hardness, and free fruiting.

THE VARIETIES represented on the accompanying plate show the great difference there is amongst them in the way of colour, ranging as they do from deep blackish maroon to almost white, but besides those here figured there are others of intermediate, but distinct tints well worth attention. When exhibited certificates were awarded to six of them, viz., *carnea nana*, *alba*, *sanguinea*, *nigra major*, *purpurea*, and *macrocarpa*. These names refer to the fruit, foliage, or habit, and in no case to the flowers, but when in bloom these *Pernettyas* are so pretty as to suggest to hybridisers the desirability of taking that feature also into consideration in their future operations. Differences in the size of the flowers in their colour, and also in their time of opening are points that deserve attention. These Ogle's Grove *Pernettyas* promise to become a very popular class of shrubs; their neat foliage and habit render them always bright and cheerful, and in spring their beauty is much enhanced by the multitudes of little white bells which they bear and which in autumn are succeeded, as has just been stated, by clusters of berries. If untouched, the latter remain on the bushes through the winter, but birds

* Drawn from specimens sent by Mr. L. F. Davis, Ogle's Grove Nursery, Hillsborough, Co. Down, in October last.



are apt to make short work of them if the weather is severe. I have seen large masses of the common *P. mucronata* stripped of their fruit by birds in a very short time, and doubtless the varieties here represented are equally attractive to them.

CULTURE AND POSITION.—In common with most Ericaceous plants, the *Pernettyas* are essentially peat-loving subjects, yet, like many other plants, we often find them thriving in soil not at all peaty; indeed, a kind of marly loam seems in many cases to meet their requirements, and even if the soil is scarcely suitable, the addition of a little peat and decayed vegetable matter to it will in most cases remedy that drawback. A hot, dry, sandy position is the most trying for them, as although they delight in an exposed and sunny spot, it is only on condition that their roots are always kept moderately moist, as the young fibres perish when too dry. In the form of a large mass or clump these *Pernettyas* have a very handsome appearance; when dotted here and there their beauty is comparatively lost. How many of their allies, too, are there that, when grown in masses or groups, instead of each plant standing out singly, would form really handsome clumps, while in most gardens they are quite the reverse. The reason for this is evident, as, though the different kinds of Ericaceous plants delight in sunshine, they dislike heated soil around their roots. When in masses the ground is always shaded and moist. Among the plants to which allusion has just been made may be mentioned the different kinds of *Heaths*, *Cassandra calyculata*, some of the *Andromedas*, *Gaultheria Shallon*, many *Vacciniums*, *Zenobia speciosa*, the *Clethras*, and the same may be said of *Rhododendrons* and *Kalmias*. Another use to which *Pernettya mucronata* has been put in many places during recent years is furnishing flower beds during winter, and no doubt when more plentiful the Ogle's Grove varieties will also be sought after for that purpose; but, though very pretty and cheerful under such conditions, the continual shifting necessary prevents them from displaying their attractiveness to the fullest extent, while if a part of the garden were set aside for *Pernettyas* and their allies (the American garden, for instance), it would always prove interesting, for where shall we find a brighter flower and a more persistent winter bloomer than the little *Erica carnea*? or what among bedding plants can surpass the gorgeousness of some of the *Rhododendrons*? In

SOWING SEEDS OF *Pernettyas* take care that they are never allowed to become dry. A good place for them is a cold frame with about 6 inches of sandy peat therein, in which the seeds should be sown. The berries should be rubbed up in and mixed with some dry sand before sowing.

ALPHA.

The process of curing Grapes (i.e., of converting them into raisins).—Long strips of coarse cloth or matting are spread upon the smooth ground—the poor use the uncovered earth or rock—and the clusters, cut from the Vines, are dipped in very strong lye, and laid upon the cloth to dry in the hot sun, which requires several days. The raisins are then carefully separated from the dry stems, and packed in bags ready for use. In some parts of the country they are dried in clusters. This fruit forms an important part of the diet of the people, and is regularly laid up with other provisions of the household. A man often makes a meal simply of bread and raisins. Among the Hebrews it seems not to have been the custom to strip the raisins from the stems, but to dry them in the bunch, as is now done in the province of Malaga, in Spain. Orientals always eat the Grape whole, as experience has taught them that the skins and seeds contain an astringent quality which renders this fruit most wholesome,—*Bible Lands*.

SEASONABLE WORK.

FLORAL DECORATIONS.

LILY OF THE VALLEY can now be had in abundance. Large handfuls of it may often be seen bunched up together and placed in a vase with but a small proportion of foliage. A better way in which to arrange these lovely flowers is to first place a goodly amount of their own foliage in any vase sufficiently deep to avoid shortening the spikes, which should then be inserted one at a time till sufficient have been arranged to allow each individual spike to show itself off to the best advantage, and somewhat after the manner in which they are seen growing. We have found a few growths of *Myosotis dissitiflora* to harmonise exceedingly well with them, being likewise very durable where the receptacle holds a fair amount of water. For a somewhat bold arrangement, and one adapted for a sideboard or entrance hall, select the graceful arching spikes of Solomon's Seal; a vase with a black or dark ground would suit well for these. Sprays of *Laburnum* are very pretty used along with *Wistaria sinensis*. The former also looks well associated with the foliage of the purple Beech. Trusses of the yellow Ghent Azaleas are now very useful; we employ them in many ways. In specimen glasses with a few pieces of Forget-me-not mixed with them they are most attractive. A leaf or two from the young growths of *Berberis Aquifolium* with its fine bronzy colour is a valuable addition. *Violas* and *Pansies* can be turned to good use by way of variety in the arrangements. These look well in a flat dish with Moss to keep them fresh; a few pieces of either ground Ivy or of any other creeper may be interspersed amongst them. *Rhodanthe*, pink and white, can now be had, and they make excellent subjects for cornucopias of centre-pieces for the dinner-table when used in conjunction with any of the ornamental Grasses either wild or cultivated. For the bases of centre-pieces just now the bold showy flowers of the Clematis, both white, pale blue, and lavender, and also deeper shades, are all excellent adjuncts where variety in arrangement is indispensable. These flowers may also be recommended for their durability. Tea-scented Roses are at all times appreciated for their lively tints; when arranged by themselves, I think they display their beauty to the best advantage. When carelessly grouped together in a trumpet vase (using their own foliage) nothing looks better. Pieces of *Clerodendron Balfouri* in flower have a pretty effect when used in conjunction with a few spikes of *Begonia nitida odorata*. A stray blossom of *Datura Knighti* (the double form) we recently cut and placed in the entrance hall, where its perfume was not found to be too powerful, as might have been the case if placed in a close room.

FLOWER GARDEN.

GIANT FENNEL.—For planting by the side of water and in other moist positions there are few hardy herbaceous perennials equal to the Giant Fennels; certainly none excel them in elegance of foliage and habit of growth. The varieties *communis* and *gigantea* are those most generally cultivated, and indeed they are the only kinds worthy of a place in ornamental gardening. They are of the easiest culture; the seeds should be sown in February in heat, and as soon as germination has taken place the young plants should be grown on in an intermediate house and planted out in permanent positions in May. The soil should be a stiff, deep loam, and if not naturally moist, abundance of water should be given during the summer time. The first season the plants will not grow more than 3 feet or 4 feet in height, but in the course of a year or two they will reach 8 feet or even 10 feet. We have a large bed of the variety *gigantea* and *Bocconia cordata*, another hardy herbaceous perennial, planted alternately, and the effect is all that can be desired, the tall flower-spikes of the *Bocconia* being shown off to the best advantage by the giant Fern-like foliage of the *Ferula*.

ROSES, CLIMBERS AND ANNUALS.—Roses being very forward, owing to the mild winter, the March winds terribly injured the tender foliage and shoots, an injury which it is to be feared will render the plants an easy prey to the attacks of fly and mildew. It will, therefore, be advisable to keep a strict look-out for the appearance of both of these pests in order that remedial measures may be at once taken. To destroy fly, there is nothing better than clear water, applied with force through a syringe or garden engine; for mildew use soap-suds, and whilst the plants are still wet dust them over with sulphur. Should leaf-rolling maggots be troublesome, the only sure cure is to pick them off and burn the leaves in which they are ensconced. Keep all that have been recently planted thickly mulched, and in dry weather water freely. Brier stocks should be kept clear of all shoots except those that are to be budded, and root suckers should be destroyed as soon as perceived. The foregoing remarks are equally applicable to Roses on walls and verandahs, with this addition, that where there are projecting eaves that prevent rain reaching or washing the plants, artificial watering will be more frequently requisite. Clematises and other climbers now need weekly attention as to direction of growth and training; sticks or strings should be placed to such annual climbers as Canary Creepers, *Nasturtiums*, *Convolvulus*, *Scarlet Runners*, and *Sweet Peas* before there is any danger of the growth getting matted together. Seeds of all these may still be sown, and also of the quickest growing dwarf annuals, such as *Virginian Stocks*, *Candytufts*, *Clarkias*, *Limnanthes*, and *Nemophilas*, and finish planting out *Asters*, *Stocks*, *Phlox Drummondii*, *Zinnias*, *Indian Pinks*, *French* and *African Marigolds*, ornamental Grasses, and *Everlastings*.

GENERAL WORK.—At the present time there is no lack of this, and good generalship as to the direction of work is necessary if the varied operations are to be done at the right time; with this object, let each day's work be arranged the preceding evening, and be done in the day, even though the usual hours of work be exceeded, for only by such persistency can we hope to keep pace with the daily increasing labours of this season of the year. Just now bedding out is the principal operation—work that whilst it lasts too often monopolises the entire labour of a garden, but for which there is no occasion if an early beginning be made, say early in May, and the hardy kinds be planted first, finishing up the tender sorts early in June. In this way time may intermittently be spared for hoeing and weeding shrubberies, picking off dead flowers and seed vessels from *Rhododendrons* and *Azaleas*, tying up perennials, clipping verges, weeding walks, mowing, and any other jobs that tend to the perfection of neatness.

INDOOR PLANTS.

PENTAS CARNEA.—Free-flowering, quick-growing plants like this well deserve cultivation. *P. carnea* strikes freely in the usual way in warmth if kept moist, close, and shaded. If cuttings are put in now they will make good flowering plants by the end of summer. Old examples well cut back now, if given moderate pot room, will push up a quantity of shoots that will flower in a short time, as every shoot produces bloom. It succeeds in any kind of tolerably good soil that is not too heavy.

PANICUM VARIEGATUM.—Wherever there is a stove or intermediate house, a good stock of this prettily variegated drooping plant should be grown; it looks well in hanging pots or baskets, and is never seen to better advantage than when forming an edging, so as to hang down in front of the side stages. A sufficient quantity of cuttings should be put in from time to time, as old plants get too large for some purposes.

REIDIA GLAUCESCENS AND GREVILLEA ROBUSTA.—These are two of the most elegant of all plants for table decoration or similar uses. The *Reidia* is somewhat tender, and on that account

best adapted for summer use; it strikes freely from cuttings, provided they are taken off with a heel when about 3 inches or 4 inches in length. They are best obtained by cutting off the heads of such old plants as have got bare at bottom; thus treated, they will quickly push out young growths if kept in a warm house; as the shoots get large enough to strike and are taken off, the old stems will go on breaking out afresh, thus affording a considerable stock before the end of the season. The *Grevilleas*, of which the variety just mentioned is the best for use in this way, will strike from cuttings procured and treated like those of the last named plant, but they are nevertheless best grown from seed, as in that way they make more elegant plants in a comparatively short time. Their leaves are not so persistent as those of some things; on the contrary, they fall off at the bottom and leave the base of the plants bare; on this account the stock should be kept up by successional sowings. Seeds put in now will soon germinate, and if well supplied with warmth and moisture will grow apace.

DATURAS.—Old plants of these cultivated in pots and wintered out of the reach of frost will have now broken into growth. If they are in want of more root room they must be shifted at once into larger pots or tubs, giving them good rich loam. Where there is a large conservatory to keep furnished, several of these showy plants may with advantage be grown so as to give a succession of bloom, which can easily be obtained by starting them at intervals. Those that commenced growth and which were potted earlier will now have got hold of the new soil, and should have plenty of air and light to prevent the shoots from becoming drawn, a condition in which they do not flower freely.

MIGNONETTE.—In large greenhouses and conservatories large examples of this plant are often preferable to small ones, and in order to have them of the required size and with the requisite amount of healthy foliage, they will require proportionate pot room, but with this plant we have not found it well to give too large shifts. It is better to move them frequently. *Mignonette* likes fairly rich soil, keeping the plants stopped as they require it; a good place in a light house or pit and plenty of air to insure stout leaves that will maintain a healthy condition are indispensable. Plants with indifferent foliage are unsightly however full of flower they may be. A little more seed may be sown now, and if well attended to the produce will yet attain a useful size. The new white variety is very beautiful; the flowers are individually very large and so double that it produces little, if any seed; it has therefore to be propagated by cuttings. For pot culture, however, this is no serious obstacle, and the plant has such a fine appearance that it deserves all the attention needful to insure success.

FUCHSIAS.—Certainly the most popular *Fuchsia* ever raised is *Mrs. Marshall*. It is the best market variety, and the way in which it is produced for sale in 4½-inch pots is marvellous, tens of thousands of plants 18 inches high, having from six to a dozen stems or shoots, all tied up to an erect position, each plant full of fine bloom. Then *Lady Heytesbury*, having a darker corolla and more massive tube, comes in for a limited share of culture. It is of the two, perhaps, the more pleasing flower. The plant produces but two or three more massive stems, but blooms freely when well grown. One other very handsome white kind is *Mary Queen of Scots*, the corolla of which is of a reddish hue. We like this kind very much, perhaps all the more that one does not see too much of it. Red kinds never are in such favour as white ones, and are sold usually in the proportion of about one to three or four early, but there is a larger demand later on. That grand double *Avalanche* is a favourite; so also is *War Eagle*, and *Black Prince* is another excellent sort. All these are now being pushed rapidly forward.

CINERARIAS.—Market growers of these spring decorative plants who have a good strain seem to be somewhat in advance of the ordinary florist and

seedsman in the matter of habit and quality, even though the latter no doubt strive to obtain good kinds. Somehow it appears to be the case that one or two men have in the market trade a good reputation for their strain of *Cinerarias* for a few years, then the mantle falls upon others; and thus, whilst a fine strain is always to be had, it is not always in the same hands. Dull colours, let the flowers be ever so good, are not in favour; rich reds and crimsons with a white centre and good dark self also are liked, because these kinds look unusually rich and telling under artificial light. Given flowers as large and rounded as a penny piece, plants from 10 inches to 12 inches high, and heads 12 inches across, and we get the ideal of a market *Cineraria*. Raised so easily from seed, it is one of the simplest to grow in all the florist's list, and as a rule sells well and is very profitable. The great fault of the average *Cineraria* is legginess. The German strain grown so well at Chiswick was dwarf and compact enough, but the flowers of very poor quality. A good selected strain would show something much better than those.

FRUIT.

ORCHARD HOUSES.—The weather at the present time is highly favourable to the colouring and ripening of Peaches and Nectarines in the early forced houses, and under the judicious use of water and liberal ventilation the flavour also should be good. When the fruit begins to soften for ripening, syringing may be discontinued and the supply of water to the roots considerably reduced, but at no time must watering be discontinued, as a flagging state of the tree will soon destroy the sprightly flavour if it does not lead to the premature ripening and dropping of the fruit. As safeguards, trees which have rooted into beds or borders should not be disturbed, as feeders of this kind always send up a steady supply; and the pots after being well watered should be heavily mulched to keep in moisture. When the time arrives for gathering the fruit, remove every Peach before it is ripe enough to fall from the tree, place them in shallow boxes well bedded with soft, dry Moss, and convey them to a dry, airy fruit room for use when in condition.

In the late or general house fruit of all kinds is now swelling away freely, and good syringing twice a day will be indispensable. Always use soft water if it can be obtained, and see that every part of the tree is well bathed, otherwise aphids and spider will soon attack the Peaches, Plums, and Cherries. Pay daily attention to pinching and thinning where strong upright growths are robbing the lower parts of the trees. Give an abundance of water to the roots, and add stimulants where feeding is considered necessary. As the fruit gets more advanced and the stoning process begins to draw upon the trees, frequent additions of the richest material to the mulching and constant feeding with warm, diluted liquid may be indulged in without fear of forcing a gross habit, as is sometimes the case when this treatment follows immediately after the flowering period. Thin out the fruit of Peaches, Nectarines, Pears, and Cherries where too thickly set, always bearing in mind that light crops of fine fruit give the greatest amount of satisfaction to producer and consumer, and pay best when sent into the market. If Strawberries still occupy the shelves, an effort should be made to keep them quite clear of the trees, and in a position favourable to copious feeding and good syringing without fear of injury to the permanent occupants of the house.

FIGS.—When all the fruit has been gathered off the early pot trees, the foliage must be regularly and copiously syringed to insure the destruction of any red spider which may have gained a footing. Old mulching may be removed, as far as practicable, without disturbing the surface roots, and a fresh supply of rich manure may take its place, to be washed in at future waterings. With the exception of the daily ventilation, which will be more liberal, the treatment of bringing on the second crop will be precisely the same as that

recommended for the first. As there is now little danger of fairly well-managed trees casting their fruit, a liberal hand must be directed to the thinning of the second crop, otherwise the Figs will be small, and they will ripen in a glut instead of giving a succession of full-sized fruit up to the end of the season. Trees permanently planted in succession houses will now take an abundance of water through the syringe, and good feeding with generous liquid will be imperative. Go over the trees once a week and thin out all superfluous growths. Keep all leaders neatly tied in, and guard against shutting out solar heat and light by allowing the foliage to become crowded. Many people make a rule of pinching the point out of every shoot to induce a fruitful habit; but this end can be much easier attained by annual lifting and replanting at the fall of the leaf by thinning out all shoots which have reached the extremity of the trellis at the winter pruning, and by laying in at full length the young growths of the current year. When treated in this way prolific kinds become perpetual bearers, as they are constantly growing and producing a young Fig at the base of every leaf.

HARDY FRUIT.—With the exception of Peaches and Nectarines, which are tolerably clean, fruit trees of all kinds are a good deal infested with grub, therefore timely and continuous hand-picking, supplemented by frequent washings with the engine, must be followed up until they are brought into subjection. By this time the disbudding of Peaches and Apricots will have been brought to a close, and heeling in and the stopping of gross shoots will require attention. It is a common mistake to suppose that trees trained upon the full extension principle are very liable to rush into a too robust habit of growth, but such is not the case, at least in my experience, and it rarely happens that we find a single watery shoot in a tree which requires pinching to maintain the proper balance of the sap. If the broad copings have not been removed, frequent syringing will be necessary and highly beneficial to the fruit and foliage, and copious waterings on well-drained borders will be found a powerful aid in keeping the trees clean and healthy. Pears on south and west walls, also the most forward pyramids, will now be sufficiently advanced in growth to require attention to stopping and thinning. In years gone by it was the practice to allow a free and unrestricted growth of breastwood until the middle of July, but now we find the continuous pinching of the strongest shoots invigorates the weak ones and leads to the formation of blossom-bearing spurs, whereas the July pruning produces a violent check at a time when the half-swelled fruit is in the greatest need of encouragement. The early thinning of the fruit on Pear trees should not be entered upon rashly, as many promising fruits fall off after the inexperienced have set them down as safe; but heavily cropped trees may be relieved by the removal of all badly formed and inferior fruits, which cannot grow into value if allowed to remain.

KITCHEN GARDEN.

TOMATOES may with advantage be grown wherever there is a small portion of wall at liberty, as is often the case between fruit trees; a south wall is best, but they will frequently succeed on a western or eastern aspect. On the two latter we should recommend the greater part of the shoots being continually pinched in close, so as to bring them into bearing early. In all cases it is better to confine Tomatoes to a much less number of shoots than is often done, thereby enabling more plants to be grown on a given space. The thinner the shoots are kept the earlier they produce fruit. In warm districts Tomatoes will frequently succeed on a sheltered border fully exposed to the sun. Plant them out singly, using two or three sticks to each plant for support, to which they must be kept regularly tied as the growth advances; otherwise, from their fragile nature, they get broken by wind. Where they are so grown, the ground is better for being poor, as their natural habit of making too much

growth is still further increased where the soil is rich. The plants should stand about 3 feet apart each way, so as to avoid their shading each other. Brussels Sprouts should now be planted. They do not require so much room as winter Broccoli; but they must by no means be planted too closely, or they will never attain the vigorous hardy condition which alone enables them to withstand a severe winter. The character and condition of the soil in which they are grown has much to do with the space they should occupy. In good, well-manured land they should be put in 2 feet 3 inches apart each way; in shallow, poor soil they may be placed 6 inches closer, both in and between the rows. Move them, as far as possible, with their roots entire; and if the weather be dry, give them a good watering. Make successional sowings of Lettuce, and at this season it is a good practice to draw shallow drills 12 inches or 15 inches apart, and to sow the seeds in the bottom; the plants can thus be well soaked with water when they require it; advancing crops will be benefited by the application of manure water. Early crops of the Cos varieties should, as they approach maturity, be tied up with bast, which is of much assistance, even in kinds that are the most disposed to turn in their leaves and blanch naturally, and, moreover, it improves the quality. Amateurs who have not had much experience in Lettuce growing are apt to tie the ligatures too tight, which bruises the leaves and causes them to rot. All that is required is to draw the leaves together gently with the hand and tie them sufficiently close to exclude light. Keep the surface between advancing crops frequently stirred; and where the soil is of a retentive character, and was at all wet when dug, its condition will be greatly improved by forking it over to the depth of 6 inches or 8 inches, care being taken not to disturb the roots of growing crops. Small salads should be sown about once a fortnight, otherwise the supply will be interrupted. When the weather is hot and dry let such plants, and especially Radishes, be watered, or they will be tough and stringy.

KITCHEN GARDEN.

SPINACH AND ITS SUBSTITUTES.

AMONG the many garden esculents in common use during summer few, if any, give more trouble or are so difficult to provide as Spinach; no sooner do the plants appear above ground than they run to seed, and the leaves which one is then able to get are but few and small, stringy, and unfit to cook. These remarks apply to the ordinary variety, but fortunately there is what is called New Zealand Spinach, which forms an excellent substitute, and though, perhaps, not equal to spring and winter samples of the old kind, becomes valuable after this time of the year. The best way to get it early is to sow in pots, putting two or three seeds in each, when they should be placed in a Cucumber frame or other warm place to get them to germinate, and grow the plants strong and large before turning them out. This may be done by the first or second week in June, but it is necessary to harden them off a little at first, so as to fit them to bear the change and exposure. As the habit of New Zealand Spinach is to spread, it requires some amount of room. A good place to plant it is on the top of any heap of waste soil or old exhausted hotbeds, or any position of that kind where it has plenty of room and something in the way of rotten manure or other rich material on which to feed. It may also be grown between trenches of Celery, but wherever planted the situation should be a hot, sunny one, or the progress of the plants will be slow. The only way of keeping up a supply of the old sort till the New Zealand comes in is to sow frequently on cool, shady borders or between rows of Peas, and that the leaves may be as large and succulent as it is possible to have them, the ground should be heavily manured and the plants thinned out to a good distance apart. One of the best, if not the best substitute for Spinach is the Silver Beet, which is quite worth sowing and growing, as during the

driest and hottest weather there are always plenty of fine juicy leaves to be had from it. Its culture is very simple; all that is needful is to draw a shallow drill, deposit the seed in it, and when the Beet comes up to thin the plants out, leaving them about 13 inches apart. S. D.

SPRING MUSHROOMS.

BY W. DELISLE HAY.

So far as the four seasons are concerned, we find that autumn is the one during which the largest number of Mushrooms are prevalent. In summer there are fewer, though the number is still considerable. In winter there are very few indeed; in spring a limited number. The Mushroom year may be said to commence in March, or as soon as frosts discontinue and the trees begin to bud. Each succeeding month shows a larger variety of species and a more widespread abundance of them, until September is reached, in which month Mushrooms attain their greatest degree of abundance throughout Northern Europe. Spring-time affords us a certain number of species, comprising several of the very best esculent kinds. Their growth at this season is somewhat scattered; that is, a good deal of country may be walked over before any are seen. Nevertheless, somewhere in every district specimens may be found, and frequently certain localities produce one species or another in very great abundance. Kinds, which I shall presently particularise and separately describe, ought to be sought after and brought into use. Annually they appear in no little profusion here and there throughout the country, and are suffered to grow unheeded and to rot where they grow. This is a great pity, especially as regards two sorts in particular—the St. Georges and the Morels—which are exceptionally valuable, both as regards richness of flavour and nutritive excellence. In France, Germany, Italy, and indeed throughout Europe generally with the exception of these islands, the St. Georges and Morels have some commercial importance. They are rarely used by the peasantry who find them, being esteemed so highly by the wealthier classes that they will always fetch a high price in the markets. Here, of course, our insular prejudice prevents them from having any markets at present.

MORELS.—Botanically considered, the genus *Morchella* is removed to some distance from the genus *Agaricus*, which latter, being typified in the Mushroom commonly cultivated and eaten in this country, will be more familiar to us. The genus *Agaricus* belongs to the great order of *Agaricini*, in which the distinctive feature is an array of laminae, or gills, which are disposed on the under surface of the cap. Upon these gills is produced a fine dust composed of numerous infinitesimal bodies called spores. These are the fructifying agents. Now in the order of *Elvellacei*, to which *Morchella* and kindred genera belong, the fructifying surface is the whole exterior, or upper surface of the part corresponding to the cap. There are no gills, as in the *Agaricini*; nor are there tubes, as in the *Polyporei*. These different features form great dividing lines, by which mycologists have found it possible to classify the innumerable species of Mushrooms. Other grouping, which need not be further referred to here, is effected by means of a microscopic examination of the spores. This places the *Elvellacei* and *Agaricini* still further apart. There are a considerable number of orders, each containing various genera, and characterised by the different formation of the fructifying part. Thus, for example, there is the order of *Hydnei*, in which prickles or spines take the place of gills; the order of *Trichogastres*, comprising the Puffballs; the order of *Tuberacei*, to which the Truffles belong; and so on. All these that I have mentioned contain species which are esculent, besides others which are not, and yet others which are poisonous. The Morels are terrestrial fungi—Mushrooms growing on the surface of the ground. There are various species of this genus occurring in sundry parts of Europe, Asia, and America. They are much sought after, and esteemed as

delicacies in many countries. All of them appear to be wholesome, and well fitted for food. In Britain we have three species, *M. esculenta*, *M. crassipes*, and *M. semilibera*, to which a fourth, *M. patula*, may perhaps be added. In qualities these species are nearly identical, and as their appearance is also very similar, they may practically be regarded as the same plant, so far as our present purpose extends. The Morels are essentially spring Mushrooms. They may appear as early as the beginning of April if the weather is mild, and they are rarely seen after the middle or end of June. The localities they affect are generally damp grassy places in and about woods, corners of fields, in parks, &c. Here they spring up in groups, sometimes small and scattered, at other times in very extensive lumps. They may be recognised by the following characters: A stem which is thick, smooth, dirty white in colour, 1 inch or 2 inches high, supports a soft lumpish cap. This cap is white grey in young plants, becoming grey-brown in older ones. It is irregularly rounded, its tendency being to a conical shape, but this may be modified by the grass or roots through which it has pushed its way upward. The surface of the cap is deeply pitted or honeycombed with small, irregular, polygonal cells. On cutting the Morel into vertical halves, the interior of stem and cap is found to be hollow, the latter being attached to the stem at the sides, and not fixed upon a central support, as in typical *Agarics*. The smell is slight and agreeable. The whole plant attains 3 inches or 4 inches of height, and 2 inches or 3 inches in greatest diameter of cap. *M. crassipes*, however, sometimes grows to a considerably greater size. As regards

THE CULINARY PREPARATION OF MORELS, the first process is to remove the base of the stem, and to pick as clean as possible from adhering dirt. They should then be cut open and freely washed and rinsed in hot and cold waters. When quite clean they are to be thoroughly dried by lightly pressing in a soft napkin. There are many ways of cooking them. The simplest is to stew them in a little butter and broth with sweet herbs and condiments, giving them about an hour on a slow fire. This ragout may be improved, if desired, by the addition of a glass of wine, rich gravy, cream, minced veal or ham, or so forth; and it may be finally "bound" or thickened with egg yolk and turned out upon fried bread. Morels are so good that they fully deserve any extravagance of cookery that the means of the kitchen afford. Another mode consists in filling each Morel with stuffing of various kinds, wrapping in fat bacon, tying the parcel together, and then stewing as before; or the halves may be skewered with alternate slices of bacon, and may then be stewed or grilled. Large Morels may be also buttered, seasoned, doured, and then simply grilled or baked in a Dutch oven. If a quantity of Morels are gathered, which should be in dry weather, it may be well to preserve some for future use. After cleansing, washing, and drying, they should be allowed to lie before the fire a few minutes until the superficial moisture has evaporated. They are then to be cut in pieces and placed in some situation where they are exposed to a current of warm, dry air. In a day or two they will be shrivelled and dry, and may then be gently heated in a cool oven, and finally put away in tins with a pinch of spice. Before these are wanted for use they should be soaked for some hours in tepid milk, and may then be cooked like fresh ones, or may be added to various meat dishes. Morels abound in many parts of the country during their season. I have sometimes seen clusters containing 20 lbs. weight or more of them. As in flavour they are scarcely inferior to the much-prized Truffles, the quantities annually produced in this country certainly ought not to be lost.

DRIED MORELS have been sometimes imported from abroad by Italian warehousemen, to be used here as flavouring ingredients by foreign cooks. It is a mistake, however, to employ the Morel as a mere adjunct or condiment to a dish, and the same might be said with regard to Truffles if they were more plentiful. Morels ought to form the basis

of any dish into which they enter, and in fact constitute it of themselves. This is because of their nutritive properties, apart from the fact of their gustatory excellence. Recent chemical research has demonstrated that the dry solid matter of the Morel contains 36.25 per cent. of proteinaceous compounds, that is of albumen, gluten, and the like, nitrogenised principles which are the "flesh-and-blood-making constituents" of food. The Truffle contains 35 per cent. of these. It is thus evident that these Mushrooms are actually of higher nutritive value than Lentils, Beans, Wheat, and all the vegetable aliment we commonly make use of. This is a fact worth attention, and it may be mentioned in addition that the Morel is certainly very easy of digestion. All esculent Mushrooms appear to be of very similar composition, so far as they have yet been examined. The nitrogenous principles, however, which give them their nutritive value are contained in different species in varying proportions. The field Agaric, commonly eaten in Great Britain, possesses much less proteinaceous matter than the Morel, which, indeed, seems to be the most valuable of all Mushrooms in this respect. In my opinion, strenuous exertions should be made to ascertain some means by which this exceptionally excellent Mushroom might be cultivated.

HELVELLA is a genus closely akin to *Morchella*, and belonging to the same order. The various species which are members of it are not, however, all spring Mushrooms, though they seem to be all edible. I note only two that are found at the same season as the Morels, and these, disappearing in summer, are found again from September to November, when the rest of their congeners are also prevalent. The two spring Helvels are *H. gigas* and *H. lacunosa*. The first is of larger size, and its colour is generally paler than that of the second. Otherwise they so nearly resemble each other, that I may venture to describe them together. The stem is about 2 inches high, thick, and of a dirty white colour. Instead of being smooth like the stems of Morels, it is fissured with deep longitudinal cavities, which give it the appearance of several slender stems twisted up together. It is not hollow within, but when sliced the fissures are seen to run throughout the structure. The cap which rests on this stem is grey, brown, or dull black. It is a loose pendulous structure, lobed and inflated, crumpled up in all sorts of ways. It is not a hood with a cavity inside, like the cap of Morels, but on examination looks as if it had been intended to be flat and smooth, and had by some accident got wrinkled and contorted anyhow. Often it has a vague resemblance to a bishop's mitre, being divided into two or more erect lobes. To get a rough idea of what a Helvel is like, take a piece of Cabbage-stalk 2 inches or 3 inches long, twist it till it splits, and set it end up on the ground. On the top of this stick the palm or back-piece of an old kid glove, having crumpled it up into a shapeless ball in the hand. Rude though this illustration may be, I think it will convey a notion of what a Helvel is like. These plants have a faint odour, something resembling that of tan or new leather. They grow on the bare ground, or amid Grass, Fern, or Moss, and always in damp shady places. They are found in woods, copses, corners of fields, under trees and hedges, and in many waste places and woodside nooks. They may be eaten without fear whenever found, as there is nothing else at this season which resembles them more closely than Morels, no poisonous fungus at any rate, unless it be one which I shall refer to next. Care must be taken not to use these, or indeed any sort of Mushroom whatsoever, when they have at all begun to decay or putrify; and when soaked with water, as in rainy weather, they are scarcely fit to cook. Helvels are very nice, and they may be dressed in various ways like Morels. The same recipes answer for both. Only in one thing need there be any difference. Helvels will not bear much washing, as it tends to carry away their delicate flavour. They should be picked clean by hand, and lightly touched with a soft brush or wiped with a damp cloth. They may be just quickly rinsed in cold water and immediately shaken dry

in a soft cloth. When this has been done, cooking may be proceeded with in similar modes to those used for Morels. Generally they require a somewhat shorter time, but this depends a good deal on the size of the specimens operated upon. Helvels may be readily dried for storage the same way as Morels, and are then scarcely inferior to them.

THE LORCHEL.—This is a German name for this spring Mushroom, which has no English name. Formerly it was classed with the last-named genus under the scientific name of *Helvella esculenta*. It is not a true Helvel, however, so mycologists have now decided to place it in a genus by itself, which comes between those of *Morchella* and *Helvella*. The scientific name of the Lorchel, therefore, is now *Gyromitra esculenta*. The points distinguishing the Lorchel from both the genera just named may be easily understood and recognised. The stem is short, 1 inch or 2 inches high, and evenly cylindrical; it is smooth, not fissured as in the Helvels, somewhat downy, and of a pinkish white. The cap is of a bay-brown colour and irregularly rounded, being up to 2½ inches or 3 inches in diameter, vertically or across. There are no pits or cells upon its surface, as in the Morels, but this is smooth. Nor are there the loose, thin, wrinkled, or lobed folds of the Helvels. The cap of the Lorchel presents smoothly folded plaits or sinuous depressions, often reminding one of the foldings of a turban. On cutting open the Lorchel its interior is seen to be partially hollow, sinuous cavities and solid substance dividing them. On discovering this Mushroom, we should see that its smooth cap and stem, and the substantial nature of the first, were points unlike a Helvel. Then the absence of the honeycomb-like pits on the cap would equally assure us it was not a Morel. The plant would thus at once be identified as what it is, and nothing else. The Lorchel has a faint, agreeable odour and a pleasant taste when raw. Cooked, it makes appetising dishes, and has always been much esteemed abroad. A *gourmet* would say that it was inferior in richness of flavour to the Morels, but for all that it is not to be despised. In Germany it is particularly esteemed, and is one of the commonest Mushrooms brought to market. Popularly there it is confounded with Morels, and probably also with Helvels, all being sold and eaten together, and having the name of "Morchel" applied to them in common. The Lorchel grows in clusters and tufts in and about woods, those of Pine and Fir in particular, and in shady grassed hollows on elevated ground. It is plentiful enough in some parts of Europe, but has been accounted a rarity in Britain. Of late years, however, it has been found in several parts of the country, and in not inconsiderable quantities. Very likely it is by no means so scarce as has been supposed. There are very few people that take any observation of fungi, and most of our Mushrooms, the best and worst alike, annually perish without a hand to gather them, or a single eye upon them which could tell what they were. This is the

SEASON FOR THE LORCHEL, which is found from April till early in June. In spite of the testimony of its designation "*esculenta*," which proves that it has been known and used as an edible from long past times; in spite of its great popularity on the Continent, its large consumption and agreeableness of flavour, there has always been a certain dark suspicion attached to this Mushroom. Poisonings, more or less serious, have been traced to it. At first, no doubt, these were attributed to Morels and Helvels with which the species was confounded. But, as the distinctions of species came to be better understood, suspicion was narrowed down until it rested entirely upon the Lorchel, and not upon the others. Yet it could not be stated how it was that a plant much eaten in many districts, and usually found a pleasant and wholesome food, should sometimes prove noxious. Authorities were fain to take refuge in the vague assertion that "under certain unknown conditions the Lorchel occasionally became poisonous." It remained for Dr. Ponfick, a professor in Breslau University, to demonstrate last year the true state of the case, to show the nature of the noxiousness

due to the Lorchel, and to show also how its hurtfulness was to be overcome. Lorchels, he says, are poisonous, but cooking deprives them, more or less, of their poisonous qualities. The repeated washing with cold water which they usually undergo to clean them takes away a portion of the poison, and boiling does the rest; but the water in which they have been boiled is highly poisonous, and should always be carefully got rid of. We had something of an anti-Mushroom panic last year, induced by the lamentable death of an English clergyman through poisoning, in consequence of his having partaken of some noxious Mushroom—species unknown. But because one man may be killed by eating Hemlock, it is no reason why we should condemn the innocent Parsley; and so, likewise, because one kind of Mushroom is shown to be poisonous, that is no reason for condemning others equally well proved to be sound and wholesome food. Dr. Ponfick informs me that of other Mushrooms used as esculents besides the Lorchel, and which he has similarly tested and examined, he has in no case found any noxious principle whatever, as in the case of that one—*Gyromitra esculenta*. Small quantities of Lorchels, however, produce no injurious effect when eaten. But if an amount equivalent to 1 per cent. of the weight of the body be consumed, symptoms of poisoning surely supervene. If the amount eaten be increased to a variable quantity of from 1½ to 2½ per cent. of the body-weight, a fatal result is inevitable. From this it may be gathered that if as adult man were to eat Lorchels to the amount only of half a pound or so at a meal, he might possibly experience no ill effects from them; but were he to consume 1 lb. or 2 lb., he would undergo severe symptoms of poisoning; and a larger amount—taking possibly not all at once, but within twenty-four hours say—would be likely to cause a fatal result. It is to be remembered that these figures have reference only to the Lorchel when raw. Ordinary preparation and cooking cause a decided diminution in the degree of virulence possessed originally by the Lorchels. From that fact, also to the large quantity that must be consumed in any case before symptoms of poisoning would show themselves, has arisen the circumstance that the Lorchel usually produces no ill effects. Seldom would it be consumed raw or to such a considerable amount; and so it happens that it has been for many generations considered a harmless esculent, and largely used as such in many parts. In

CONTINENTAL COOKERY it is usual not merely to wash all kinds of Mushrooms in cold water before proceeding to cook them, but also to "blanch" them by throwing them for a minute or two into boiling water. Whatever may have been the original motive for this process, it has now become clearly evident that it is to some extent a safeguard against poisonous species. The noxious principle of the Lorchel is certainly removable by boiling water; and I may state, on the authority of other experts than Dr. Ponfick, that the poisons existing in some other species have been also ascertained to be removable by the same means, e.g., the dangerous Amanites and certain other Agarics. Still, I would not advise the universal application of this method, since it deprives some delicate and perfectly wholesome kinds of their flavour. It is far better to understand how to make proper distinctions between various species, and to give to each just such preparation as it particularly needs. The conclusion arrived at by Dr. Ponfick is that the Lorchel (*Gyromitra esculenta*) ought never to be eaten raw, nor, indeed, in any way until it has been subjected to the absolutely necessary preparation. It is to be cut into several pieces, carefully boiled, and washed in several renewed quantities of hot water. It is lastly to be thoroughly dried by shaking and handling in soft cloths; then it may be cooked in any way like Morels or Helvels.—*Field*.

HARICOT BEANS.—These are but a variety of the common French Bean, and need just the same cultivation. The Beans are allowed to hang and ripen, when the matured pods are gathered and shelled.—A. D.

ASPARAGUS OR BUDA KALE.

IF asked which I found to be the most profitable quarter in the kitchen garden during winter and spring, say from February to the end of May, I would unhesitatingly decide in favour of that devoted to Asparagus Kale. In fact, but for this kind we should have had no greens for a considerable time this spring. Brussels Sprouts, Broccoli, Scotch Kale, and Cabbage were not proof against first the continuous heavy rains and subsequently the cold frosty winds, and none of them have succeeded at all well. Asparagus Kale, however, is not easily destroyed or materially checked in growth, and we have been able to gather immense quantities of really delicious greens from a comparative small piece of ground. There appears to be different forms of it, one being tall growing and two others dwarf in habit, varying only in colour. Of the latter we grow the darkest and presumably the

early Potatoes, Strawberries, Peas, or Turnips is cleared off. It really deserves better management, but space is limited, and it must be treated as a successional crop. Last season the stock was planted immediately after a breadth of early Strawberries was cut away, the ground being merely hoed over and all rubbish burnt. Drills were drawn with a heavy hoe midway between the old Strawberry lines, these being 30 inches apart, and the Kale plants were transplanted with a good ball of soil about the roots, and disposed 2 feet asunder in the rows. In dry seasons in similar cases we find it necessary to repeatedly fill the drills with water till thoroughly soaked, substituting, when possible, liquid manure at the last soaking. This facilitates planting, and besides insures a good start. The drills are kept open, as water has to be given occasionally till the plants are well established, the soil being then levelled over after

rows of Peas, as just advised, instead of Spinach, which during hot weather seldom proves profitable. In

PREPARING ASPARAGUS KALE FOR THE TABLE, we do not trim the leaves off the stalks, cooking and eating them, under the impression that they are equal to Asparagus. They are decidedly very succulent and good, but are cooked with the leaves as other Kales are, and in this manner we have a wholesome "second vegetable," and one of which we never tire.

GROWER AND EXHIBITOR.

BOOKS.

THE GOLDEN CHERSONESE.*

"THE Golden Chersonese" is a rather far-fetched name for the British state of Perak, on the Malayan Peninsula, a great slice of forest land



Chinese houses and Malay bathing shed, Kangsa River.

hardest, and this is fully equal in quality and quite as prolific as that with green stalks and leaves. The latter, however, is the best for the markets, the buyers in this and in many other cases being influenced by colour. I do not depend upon seedsmen for the seed, but annually save a few strong plants to produce seed for myself and friends, and I consider that I am right in so doing. As an inducement to others to plant Asparagus Kale extensively, I may mention that I sent a quantity of seed of it to a market gardener friend, and this spring he had four acres of capital Kale, for which he declined an offer of £25 per acre. This has certainly been an exceptional season, but as this Kale, if kept closely picked, is at its best long after the majority of greens have run to seed, it would no doubt seldom fail to fetch remunerative prices. At any rate, it should be

GROWN IN EVERY GARDEN in proportion to the demands of the establishment, and it is, in addition, quite a poor man's vegetable. It is easily grown. Our seed is generally sown early in April, the plants being now just pricked out, and will not be finally transplanted till a crop of either

the last watering that is considered necessary. Firm ground is selected, and the same method of planting is adopted in the case of much of the Broccoli grown here, for the well-known reason that sturdy, and therefore more hardy, growth results than is the case where loose ground is devoted to them. The Asparagus Kale being hardier than Broccoli, the latter in small gardens should preferably have the most open sites as well as firm ground. For instance, they may be planted between the widely dispersed rows of Potatoes, or in succession to Strawberries, early Peas, and Beans, while the Kale will grow freely and yet be hardy if planted between the rows of main crops and late Peas, among fruit trees, and in other positions unsuitable for many other crops. As it is getting late to sow the seeds of any kinds of winter greens, including Asparagus Kale, I should advise those who may feel disposed to give this Kale a trial to sow the seed thinly in drills where the plants are to remain. If the rows are drawn about 2 feet apart, and the plants eventually thinned to about 15 inches asunder, the ground in all probability will be well covered and a profitable crop realised. Seeds may thus be sown or plants be dibbled in between the

and mountain country in the Tropics near the line, now very ably presided over by Her Majesty's Resident, Mr. Hugh Low. This classic region seems to be the Aurea Chersonesus of Ptolemy, the Golden Chersonese of Milton, and the Malayan Peninsula of our own day. It is the home of the Malay and wild men or aborigines called Jakuns who formerly built their rude habitations in trees, as some security from the tigers and reptiles of the jungle, and, so far as we know, this habit of constructing arboreal homes (not far in advance of those which the Orang-utan makes still) may have been the origin of the pile dwellings now common not only in the Golden Chersonese, but throughout the Malayan Archipelago, and also in the Sula Isles, the Celebes, and in New Guinea. These houses, thatched with Palm leaves and having gridiron-like floors made from the wood of the Neibong Palm (*Oncospermum filamentosum*), are built over the river mouths and inland lakes by the coast-dwelling Malay, and even inland

* "The Golden Chersonese." By Isabella L. Bird (Mrs. Bishop). London: John Murray, Albemarle Street, 1883. With maps and illustrations.

we find the Dyaks, or aboriginals, also adhering to the old custom, although there is now no danger from animals or reptiles, so that in their case good drainage and immunity from ground damp, together with a more perfect system of ventilation, may be taken as the inducement to keep to a system of rustic architecture so primitive and at the same time so widely spread. Aboriginal man in the Malayan region is to-day living in what to the more northern races is the far distant past. Although he now knows how to build good serviceable sea-going prahus, or boats, yet the primitive dug-out canoe made from a single tree's trunk is commonly employed for river work. Again, while his women can weave the strongest of cloth fabrics from the tough hemp-like fibres of *Curculigo latifolia*, yet inland are the "Fig leaves" still worn as the only clothing in the shape of a waist cloth, made from the soaked and beaten out bark fibre or bast tissue of *Artocarpus elastica*, a tall growing tree of the Bread fruit family. Here in the "Gardens of the Sun" we yet have a people living in primitive simplicity, and employing the utensils, fabrics, implements, weapons, and customs belonging to bygone ages. In the case of Europeans, these have survived untouched or nearly so by the civilisation of Egypt, Greece, or Rome, or even of our own time. It has been said that our English civilisation and British rule are octopi which stretch their tentacles over the whole world, but at present they have barely touched these beauty spots in the China seas, where mankind is yet strikingly primitive and Nature alike generous and supreme.

"THE MALAYAN PENINSULA," says Miss Bird, "is a gorgeous tropic land, and with its bounteous rainfall and sunshine brings forth many of the highly prized productions of the Tropics with some that are peculiar to itself. Its botany is as yet very imperfectly known. Some of its forest trees are very valuable as timber, and others produce hard-veined woods which take a high polish. Rattans, Malacca canes, and gutta are well known among its forest products, gutta with its (now) extensive economical uses having been used only for Malay horsewhips and knife-handles previous to 1843. The wild Nutmeg is indigenous, and the nutmeg of commerce and the clove have been introduced and thrive. Pepper and some other spices flourish, and the soil, with but a little cultivation, produces Rice, wet and dry, tapioca, gambir, sugar cane, coffee, tea, cinchona, india-rubber, and indigo. Still it is doubtful whether a soil can be called fertile which is incapable of producing the best kinds of cereals. European vegetables are on the whole a dismal failure." Miss Bird here seems to lay the blame, which rightly belongs to the action of a tropical climate, upon the soil, which in reality differs but little in its powers of production all the world over; and it is an open question as to whether Rice is not after all the best of all cereals—certainly it is the most suitable for tropical culture. Some few preliminary chapters relating to Hong-kong and Canton might well have been omitted, since the information given is neither new nor particularly entertaining, and why this experience in Cathay should be sandwiched into a book on the "Golden Chersonese" is not quite clear, nor can we admit that Singapore, the seat of government of the Straits Settlements, comes well within the Golden Chersonese, curiously comprehensive as that title may be. At page 107 we are told that Singapore "is hot, so hot, but not stifling" and yet on page 111 the residents are alluded to as a "parboiled community." When, too, we are told that the Killarney Fern (*Trichomanes radicans*) drapes the rocks in the Golden Chersonese, we doubt the teaching of our fair authoress from a botanical point of view, and we more than doubt her statement (p. 135) that the Dove Orchid (*Peristeria elata*) is found wild in Malacca. Miss Bird describes it as "an Orchid which lives but for a day, but in its brief life fills the air with fragrance." Perhaps *Dendrobium crumenatum* is the Orchid intended; at any rate the *Peristeria* is a native of Panama. When we are told that "the Banana unfolds its gigantic fronds above its golden fruitage," we recognise graceful poetry of

style, but the leaf of a Banana is not a "frond." The use of capital letters, too, for names of plants is most erratic—sometimes capitals, sometimes not—indeed, slips and errors are abundant—nothing, it may be said, very bad, but then our authoress is no new hand at literary work, and therefore we have a right to expect something better than slipshod writing. When we compare this book with another of Mr. Murray's entitled "A Lady's Travels Round the World," we are struck by its *blasé* character. It has a clever professional tone about it, but no freshness, nothing spontaneous, no originality of idea; in a word, we are disappointed with the "Golden Chersonese," and do not think that it will in any way enhance the fame of an authoress who has already written considerably better books.

The general get up of the work is satisfactory, and the illustrations are also good, but we are a little surprised to find no acknowledgment, no intimation even, that three or four of the best blocks are borrowed from Burbidge's "Gardens of the Sun." Even in these days of "book making" there now and then exists such a thing as courtesy between the needy borrower and the willing lender of literary material, and in matters of this kind the borrower loses nothing by being generous. To ordinary readers we doubt not Miss Bird's latest work will prove an interesting one; but those who have read what St. John, Wallace, Jagor, Major McNair, and Burbidge have told us already of the Malay and other races in the Golden Chersonese and Malayan Archipelago, will be disappointed to find much information that is necessarily old to them, cleverly dished up again under a new title. Miss Bird has no claim to scientific accuracy; but we are quite sure she could have made this last attempt at book-making much better if she had really tried to do so. We shall only take one more extract, and that to show how innocently our travelled authoress ignores the distinction between tropical forests and tropical jungle—jungle being the weedy after-growth which springs up after fires or clearings have destroyed the forests or woods *primæval*.

"The Linggi above Permatang Pasir, with its sharp turns and muddy hurry, is, I should say, from 30 feet to 60 feet wide, a mere pathway through the jungle. Do not think of a jungle, as I used to think of it, as an entanglement or thicket of profuse and matted scrub, for it is in these regions at least a noble forest of majestic trees, many of them supported at their roots by three buttresses, behind which thirty men could find shelter. On many of the top branches of these other trees have taken root from seeds deposited by birds, and have attained considerable size; and all send down, as it appears, extraordinary cylindrical strands from 2 inches to 6 inches in diameter, and often 150 feet in length, smooth and straight until they root themselves, looking like the guys of a mast. Under these giants stand the lesser trees grouped in glorious confusion—coco, sago, areca, and gomuti palms, nipah and nibong palms, tree ferns 15 feet and 20 feet high, the bread-fruit, the ebony, the damar, the india-rubber, the gutta-percha, the cajeput, the banyan, the upas, the bombax or cotton tree, and hosts of others, many of which bear brilliant flowers, but have not yet been botanised; and I can only give such barbarous names as chumpaka, Kamooning, marbow, seum, dadap; and, loveliest of all, the waringhan, a species of ficus, graceful as a birch; and underneath these again great ferns, ground orchids, and flowering shrubs of heavy, delicious odour, are interlocked and interwoven. Oh that you could see it all! It is wonderful; no words could describe it, far less mine. Mr. Darwin says so truly that a visit to the tropics (and such tropics) is like a visit to a new planet. This new wonder-world, so enchanting, tantalising, intoxicating, makes me despair, for I cannot make you see what I am seeing! Amidst all this wealth of Nature in this perennial summer heat I quite fail to realise that it is January, and that with you the withered plants are shrivelling in the frost-bound earth, and that leafless twigs and the needles of half-starved pines are shivering under the stars in the aurora-lighted winter nights.

"But to the jungle again. The great bamboo towers up along the river sides in its feathery grace, and behind it the much-prized Malacca cane, the rattan, creeping along the ground or climbing trees and knotting them together, with its tough strands, from 100 feet to 1200 feet in length, matted and matting together; while ferns, selaginellas, and lycopodiums struggle for space in which to show their fragile beauty, along with hardier foliaceous plants, brown and crimson, green and crimson, and crimson flecked with gold; and the great and lesser trees are alike loaded with trailers, ferns, and orchids, among which huge masses of the elk horn fern and the shining 5-foot fronds of the *Asplenium Nidus* are everywhere conspicuous. Not only do orchids crowd the branches, and the *hoya carnosa*, the yam, the blue-blossomed *Thunbergia*, the vanilla (?) and other beautiful creepers, conceal the stems, while nearly every parasitic growth carries another parasite, but one sees here a filament carelessly dangling from a branch sustaining some bright-hued epiphyte of quaint mocking form; then a branch as thick as a clipper's mainmast reaches across the river, supporting a festooned trailer, from whose stalks hang, almost invisibly suspended, oval fruits almost vermilion coloured; then again the beautiful vanilla and the *hoya carnosa* vie with each other in wreathing the same tree; or an audacious liana, with great clusters of orange or scarlet blossoms, takes possession of several trees at once, lighting up the dark greenery with its flaming splotches; or an aspiring trailer, dexterously linking its feebleness to the strength of other plants, leaps across the river from tree to tree at a height of 100 feet, and, as though in mockery, sends down a profusion of crimson festoons far out of reach. But it is as useless to attempt to catalogue as to describe. To realise an equatorial jungle one must see it in all its wonderment of activity and stillness—the heated, steamy stillness, through which one fancies that no breeze ever whispers, with its colossal flowering trees, its green twilight, its inextricable involvement, its butterflies and moths, its brilliant but harsh-voiced birds, its lizards and flying foxes, its infinite variety of monkeys—sitting, hanging by hands or tails, leaping, grimacing, jabbering, pelted each other with fruits; and its loathsome saurians, lying in wait on the slimy banks under the mangroves. All this and far more the dawn revealed upon the Linggi river; but strange to say, through all the tropic splendour of the morning I saw a vision of the Trientalis Europeæ, as we saw it first on a mossy hillside in Glen Cannich."

Calavanches.—Its botanical name is *Cicer arietinum*, the Chick Pea, interesting to classical scholars as the derivation of Cicero's family name, as the Pisones derived theirs from the *Pisum* or Pea, and the Lentuli from the *Lens* or Lentil. The correct Spanish name is *Garbanzo* (pronounced *Garbantho*). In Spain it plays somewhat the same part as a national dish as the Potato does in Ireland. It is seldom cooked by itself, though there is no reason it should not be, being of excellent flavour and different from our common Pea, but is chiefly used as one of the ingredients in the far-famed olla podrida, a dish composed of different sorts of meat boiled together, though in practice generally consisting of small dice of bacon with Garbanzos, and any other vegetables sliced, and then stewed slowly for hours; a dish partaken of with relish repeatedly by the writer when in Spain. The Chick Pea as grown in Spain would form a valuable addition to our bill of fare. It is largely cultivated in India as well as in the south of Europe, but it is of too delicate a nature to be grown advantageously in this country. The seeds are sometimes parched for use on journeys, and also made into cakes and puddings, whilst a kind of sweatmeat is made of them in India with sesame oil and sugar. The pods are hairy, and exude an acid which irritates the hands and is injurious even to the boots of persons walking through a field where they are grown, the acid being collected by the natives in India for medicinal purposes. In the fourteenth century our forefathers

used Vetches, then called Chych, but the exact nature of the plant meant is not certainly known.—W. W.

TREES AND SHRUBS.

BUILDING WOODS.

THE first importations of foreign-grown building woods to this country marked, says the *Builder*, a new and distinct era in the employment of timber as a constructive material. The early arrival of foreign building woods first reached us from Russia, and they came over in such limited quantities that the vessels which conveyed them across the Baltic were usually loaded to the extent of at least three parts of their carriage capacity with linseed or some other commodity. How far the importation has since then progressed may be best inferred from a reference to the following table, which shows the extent of last year's exportation from the wood-growing countries abroad to the United Kingdom:—

	Loads.
Norway and Sweden	2,022,472
British North America	1,292,663
Russia	1,160,050
Germany	224,205
Other countries	835,756
Total	5,535,146

It may be remarked that there are in the United Kingdom 118 ports into which foreign building timbers are imported, and to illustrate the important position which London occupies as a timber port, it need only to be said that during 1882 London alone received 1,404,793 loads, or, in other words, more than a fourth of the total quantity imported into the United Kingdom. In the early days of the importation of foreign building timber, native woods competed with it for supremacy, or rather struggled to prolong existence. The issue of the struggle was not, however, long in declaring itself for the foreign material, and it will be a matter for satisfaction for those who appreciate good work to know that it is almost the unanimous opinion of wood dealers that the days for importing wood of common quality are practically gone by. The tendency to use superior material, or rather the disinclination to make use of very inferior, appears to be quite a modern one. It is surprising that so little attention has been paid to the seeking out of coloured woods for cabinet purposes. The varieties of trees in the rich tropical forests of Central America are to be counted almost by the hundred, and yet we see the general consumption of cabinet woods restricted to some few varieties, such as Oak, Mahogany, Rosewood, Ebony, Satinwood, &c., including the wood which has recently met with such great favour—American Walnut. The early importation of "fancy woods" has been added to but little, so far as additional varieties are concerned. Yet the increased desire for superior building woods is pretty certain to finally take the direction of making "fancy woods" more popular for better class joinery work, and when this innovation has become completely established, we shall, without doubt, find a desire spring up to secure woods of various hues and kinds. A remarkable circumstance of modern times relating to building woods has been the sudden popularity attached to Pitch Pine, which not many years ago was almost contemptuously despised. This suddenly-acquired popularity is to be accounted for by reason of the Corinthian order, of large dimensions, being in vogue, the construction of which is simple and the general effect excellent. W. C. T.

Furze and its varieties.—The Furze, Whin, or Gorse, as it is called in different localities, is at present one of the most showy of flowering shrubs, and one that, common though it be, is remarkably effective even in gardens, when judiciously placed, on a little knoll for instance, as it withstands drought and exposure well, and during spring will form quite a golden mass, especially if the double-flowered variety is used. This

differs from common Furze in being dwarfer and more compact, forming as it does dense bushes. A kind named *Ulex europæa nana* is dwarfer, rather more straggling, and less floriferous than the common kind. The Irish Furze (*U. europæa stricta*) is a very distinct variety, but flowers sparingly. What is known as the Spanish Furze (*Genista hispanica*) is also a pretty free flowering little shrub. It forms a dense, globular, prickly mass, and is rather later in flowering than the double Furze.—ALPHA.

WEBB'S INDIAN FIR.

(*PICEA WEBBIANA*.)

THIS is a distinct and beautiful species of Silver Fir, indigenous to the Himalayas, where it forms vast forests, and attains an average height of about 100 feet. In this country it is liable to be cut down by late spring frosts, yet in places where it succeeds it has proved to be one of the finest conifers of recent introduction. It is sometimes confounded with *P. Pindrow*, both being natives of the same place, and rather tender. They are, however, not only quite distinct species, but also dissimilar in colour, habit of growth, and general appearance, so that it is not easy to understand how the mistake has occurred. In this country it thrives best when planted on a north exposure, partly shaded from the morning and noonday sun by deciduous or other trees, and in places where it does succeed it is really a handsome and highly ornamental tree. Its habit of growth is strictly conical, and the branches are arranged in regular whorls around the stem. The leaves are about 2 inches in length, of great substance, and arranged in two rows; their upper surface is a rich glossy green and that underneath silvery. The cones are fully as large as those of *P. nobilis*, and of a pretty purple colour, and as they stand erect on the branches, they are seen to good advantage. Like, however, many other rare conifers, it seldom produces male flowers in this country, and therefore one has no opportunity of raising plants of it from home-saved seeds. I have, however, propagated it to a limited extent by layering the lower branches. It should never be planted on flat, soft, boggy soils, as the young wood produced under such circumstances being generally of a soft character, never gets thoroughly matured; consequently it is easily cut down by spring parts. In the spring of 1861 and again in that of 1867 we lost several fine young trees of this Fir growing under conditions similar to those just mentioned.

SOIL.—As far as my experience goes, it should be planted on a loose, open gravelly or clayey soil, the constituent parts of which consist principally of inorganic matter, resting upon a cold clay well broken up and thoroughly drained. The young wood produced on such soil is much firmer, ripens better, and is not so liable to be injured by frost as that produced by trees growing on soft, boggy soil. With regard to

PLANTING, it is of the utmost importance to have the ground thoroughly prepared by trenching, draining, and breaking up the subsoil, especially in cases where there is what is termed a hard pan, and as a general rule, not only in the case of this tree, but also that of others, care should be taken to plant each particular species on soil suitable to its healthy development. All newly planted conifers ought to be provided with proper shelter, especially such as are liable to be cut down by late spring frosts, and in planting specimen trees in exposed situations I have found them to be greatly benefited by sticking a few Spruce branches into the ground around the young plants. In cases, too, where the trees are a few feet in height, it is a capital plan to plant four upright posts at equal distances from each other, and about 4 feet from the stem, and by nailing on these horizontal rails and weaving a few Spruce branches through them, an excellent shelter is provided at small cost. When the young trees are fairly established the posts and rails should then be moved. The cold, cutting, frosty winds which we frequently experience in March, April, and even in May, are often very destruc-

tive to newly-planted conifers, and, as far as my experience goes, too high a value cannot be attached to that most important condition—shelter. J. B. WEBSTER.

EDWARDSIA GRANDIFLORA.

IN reference to this fine flowering shrub, of which we gave an illustration in *THE GARDEN* last week (p. 441), Mr. Scrase-Dickins writes as follows "About five years ago our gardener had some seeds sent him from New Zealand, which have turned out to be those of *Edwardsia grandiflora*. From these seeds a number of plants were raised, and were planted out in the borders before we knew their name, but they have died from the cold, or more probably the damp of our English climate. A couple, however, were kept in pots in a cold greenhouse, which, owing to the hot-water pipes having gone wrong, was heated only by a small petroleum lamp. They are now about 6 feet high, and one which had shed its leaves flowered beautifully last month; the other, which had retained them, had no bloom on it at all. This would seem to show that they do not like shade or damp, but should be well hardened in autumn, and will repay one for some slight protection in winter. The flowers, which are a greenish yellow when first they open, turn to a shade as nearly approaching golden as I know of in any flower (Daffodils not even excepted), and hang in thick clusters from all the side twigs. Next year I intend to try if they will force well, as they would make a pleasing variety in the early part of the year. One more point I may mention in their favour, namely, that the foliage is useful for cutting, lasts well, and is delicate and graceful for indoor decoration."

Berberis japonica.—A large breadth of this, quite an acre in extent, has for years formed cover near here for rabbits and hares, and not the slightest evidence of injury by eating it has ever been manifested. Being low growing, dense, and exceedingly hardy, this *Berberis* seems peculiarly adapted for forming cover, and the fruit produced every year in great quantities forms most acceptable food for myriads of song birds.—A. D.

Pyrus Malus floribunda.—This plant seems to increase in popularity every year, a fact which is easily accounted for, as when in flower it is so attractive as to be the admiration of everybody. It is almost pendulous in habit, and when on its own roots or grafted close to the ground it forms a spreading shrub eminently fitted for gardens of limited extent, as it may be easily kept in bounds without in any way destroying its natural character. Isolated specimens of it look well on Grass. Its blossoms, which are produced in the greatest profusion, are bright crimson in the bud state, and when open a pleasing shade of pink. It is frequently grafted standard high, and so treated is very satisfactory, as the long, slender branches droop in a very graceful manner. It is a native of Japan, and was introduced some years ago, but it is only since a coloured plate of it appeared in *THE GARDEN* that it has become so universally popular.—ALPHA.

Berberis Darwini and stenophylla.—Anyone seeing these *Berberises* in flower cannot fail to be struck with their beauty. Of the two, *B. Darwini* is perhaps the more striking, on account of its greater warmth of colour; its blossoms are deep orange, while those of *B. stenophylla* are more yellow, but the habit of this latter kind is better than that of *B. Darwini*. It has gracefully drooping branches, which render it very suitable for planting on rockwork or in other elevated positions in which it is seen to advantage. *B. Darwini* is not at all unsuitable for the same purpose; but where I think this variety looks best is in front of other low growing shrubs, from which it should be allowed to stand out clear and free, not crowded. As both of these *Berberises* are so floriferous and so beautiful, the wonder is that they are not grown in pots for the early embellishment of greenhouses or as window ornaments, as they may be kept to quite a small size by pinch-

ing them at the roots. The way to propagate these Berberises is by means of layers, the branches lending themselves readily to this mode of increase, especially those of *B. stenophylla*, which trail along the ground and only require just burying to get them to root. Both kinds also seed freely and admit of being raised in quantity in that way. Sow when the berries are ripe in sharp sandy soil, and when the young plants are large enough single them out and transplant. The proper time to do this is in April, a season when I have always found these and other evergreen Berberises to move best, as when caught just before the buds burst, they start off at once and soon get fresh hold of the soil.—S. D.

EXHIBITIONS.

CRYSTAL PALACE.

MAY 19.

THE annual summer show, held at the Crystal Palace on Saturday last, was remarkable both for its extent and the high quality of the exhibits—the most successful show, indeed, that has taken place there of late years. The central transept was gay with colour, and long lines of crowded stages stretched throughout the north and south wings, the whole forming an extremely bright display. The schedule comprised twenty-six classes, each being represented in most cases by high class exhibits, many of which, such as stove and greenhouse plants, Clematises, Azaleas, and others, were, as a matter of course, the same as those shown in the Regent's Park on the 16th inst.

ORCHIDS were exceptionally well shown, better than had been seen here for some seasons, and were also more numerous on account of prizes consisting of about £20 being offered for groups of Orchids of not fewer than forty plants. Though there were but two groups shown, these made a most attractive display, and, judging by the crowds that surrounded them, they were highly appreciated. The best group came from Mr. Southgate's garden, Selborne, Streatham, and was indeed a choice and interesting gathering, and we imagine that Mr. Salter, the gardener, exceeded the stated number of forty, for the group occupied a considerable area. It was a thoroughly representative collection, including all sections of Orchids, but the finest were the cool house kinds and Cattleyas. Among the most noteworthy of the group were *Masdevallia Chimæra* and *bella*, both with numerous flowers and buds, M. Shuttleworthi and *Harryana*, *Cattleya Mendelli*, C. Mossiæ, the rare *Cypripedium Druryi*, and the new hybrid C. *albo-purpureum* in the way of C. *Dominii*, but with the flowers of a rosy hue. Among the *Dendrobiums* was a small, but copiously flowered plant of D. *Falconeri*, one of the most beautiful of all, likewise the rare D. *Brymerianum* with large yellow flowers having a long fringe to the labellum. D. *albo-sanguineum*, also rather uncommon, was among the *Dendrobes* and fine plants of commoner species, such as *Devonianum*, *nobile*, *primulinum*, together with the splendid new hybrid, D. *Ainsworthi*. The true *Odontoglossum nævium majus*, a choice and uncommon variety, was well shown, also such lovely species as O. *Ruckerianum*, *Andersonianum*, and numerous forms of O. *crispum*. Some fine spikes of *Oncidium Marshallianum* bearing crowds of large bright yellow blossoms lit up the group here and there, and another bright yellow species, O. *concolor*, both grown admirably by Mr. Salter, was a great attraction. These are a few of the most remarkable in this choice collection, which well deserved the prize awarded it. The other group, from Mr. H. James, was likewise a fine one, and contained numerous choice and rare things, such as *Odontoglossum Chestertoni* and *Wilckeanum*, *Lælia Schilleriana*, *Burlingtonia fragrans* (with half-a-dozen spikes, some splendid forms of *Cattleya Mendelli* and *Mossiæ*, *Thunia alba*, and others. There were four collections of nine Orchids from amateurs, the best being from Mr. Cobb's garden in the neighbourhood, and his garden showed a very creditable collection, consisting for

the most part of admirably grown specimens. The finest was a grand plant of *Odontoglossum vexillarium*, a richly coloured variety bearing over a dozen spikes. There were also *Dendrobium thyrsiflorum*, with twenty spikes; *Masdevallia Harryana*, a good plant with a dozen blooms; the white *Vanda Denisoniana*, with two spikes; *Cattleya Mossiæ*, with eight flowers; *Cymbidium Lowianum*, with two spikes; *Vanda suavis*; and *Oncidium phymatocylum*. The second collection, from Mr. Child, Garbrand Hall, Ewell, was remarkable for a wonderfully fine plant of *Vanda suavis*, bearing eight large spikes of bloom. Other good plants were *Dendrobium Farmeri* and *Masdevallia ignea aurantiaca*, a variety with flowers of a decided orange-yellow colour. The third collection, from Mr. Salter, contained a grand plant of *Dendrobium nobile*, also of D. *Wardianum* and an uncommonly fine form of *Cattleya Mossiæ* named *Southgatei*, which is remarkable for the rich colour, large size of bloom, and broad lip. The two collections from nurserymen contained a few good specimens. The first group, from Mr. H. James, included a grand plant of *Cypripedium Stonei*, with three spikes, also good varieties of *Masdevallia Harryana* and *Veitchi*. A fair specimen of *Dendrobium densiflorum* was in Messrs. Jackson's group.

THE AZALEAS, from which the show derived its brightest features, were as usual prodigious pyramids of brilliant and varied colouring. There were five classes set apart for them, and these being all more or less numerously represented, there was an extensive display. Mr. Turner, as usual, was the most successful in the nurserymen's classes, and his plants were even better than at the Regent's Park a few days previous. His collection of eighteen small plants was particularly noteworthy, as they evinced such skilful culture and the varieties were newer. We noted such beautiful kinds as *Madame Van Houtte*, *Jean Vervaene*, *Grandis*, *Belle Gantoise*, *Madeleine* (a lovely new double white), *Princess Clotilde*, all of which will in time no doubt supplant the old sorts now shown in large specimens. Those two well-known Azalea exhibitors, Mr. Child and Mr. Ratty, were again in rivalry; both showed admirably, having ponderous densely flowered plants, which in no small measure added to the brightness of the show. The collections from Messrs. Reed and Messrs. Jackson were quite up to their usual high standard of excellence.

FINE FOLIAGED PLANTS were unusually fine, particularly those from the Rev. Canon Bridge's garden at Beddington, whose gardener, Mr. Penfold, is evidently a skilful cultivator of this class of plants, and, moreover, grows and shows some that are out of the ordinary run of exhibition plants. On this occasion in his collection of nine, the finest shown, he had a grand specimen 5 feet high by 4 feet through of an *Asparagus* named *plumosus*, but was probably tenuissimus. This was a mass of feathery foliage of a delightful emerald green. The other plants in this group were *Alocasia macrorrhiza variegata*, a huge specimen; *Carludovica Drudei*, a new *Cyclanth*, like a Fan Palm and a very handsome-leaved plant; *Davidsonia pruriens*, a noble plant with large pinnate leaves, the young ones being of a reddish hue; *Dieffenbachia Bausei*, a huge plant, the finest we have ever seen of this, one of the finest of all the *Dieffenbachias*, though one of the oldest; *Croton interruptus*, large and well coloured; *Phormium tenax Veitchi*, *Spathiphyllum pictum*, an Aroid with enormous leaves of a deep green blotch with a lighter hue, and extremely ornamental; and *Dracæna Lindenii*, one of the finest ornamental-leaved plants now grown, being noble, yet elegant in growth and bright in colour, the leaves being green banded with golden yellow. Mr. Penfold was also the leading exhibitor of a collection of nine Ferns, remarkable alike for high cultivation and novelty. It contained *Adiantum gracillimum*, a perfect specimen of this light and elegant Maiden-hair Fern; a huge spreading plant of *Davallia polyantha*, the young fronds of which are of a coppery red tint, thus contrasting well with the colour of the older fronds; *Alsophila Rebecca*, a newly introduced species, and one

which promises to be a valuable ornamental plant; a tall *Dicksonia antarctica*, the well-known *Onychium japonicum*, a fine plant; *Cyathea Smithii*, *Davallia fijiensis*, a beautiful Hare's-foot Fern; a grand specimen of *Adiantum Sanctæ-Catharinæ* and *pellucida*, one of the large growing Filmy Ferns. In Mr. Peed's group were fine plants of *Adiantum farleyense* and *formosum*, *Pteris argyrea*, and *Gymnogramma chrysophylla*. *Crotons* were few, but shown admirably by Mr. Cranston's gardener, Mr. Bird, who had fine specimens of *Disraeli*, *Queen Victoria*, *Evansianus volutus*, *Andreanum*, *pictus*, *Sunset*, *interruptus* and *undulatus*, a capital selection as fine as could be made not only for exhibition, but for general cultivation. Mr. Bird also showed the best nine *Dracænas*, rather small perhaps, but well grown and the foliage highly coloured. Among the most conspicuous sorts were *Tillingi*, *Anerleyensis*, *Thomsoni*, and *Gladstonei*, all excellent sorts. In the other collections we noticed *Cooperi*, as finely coloured as we have ever seen—better, in fact, than all the newer sorts shown. Those named *Baptisti*, *Fraseri*, *ferrea grandis*, *amabilis*, Mrs. Freake, we thought the best amongst the others. We noticed that some of the exhibitors of *Dracænas*, seemingly not content with the natural gloss on their leaves, had rubbed them with oil, which on some plants was so thick as to be ready to drop off. Such practices as this ought to be discouraged.

STOVE AND GREENHOUSE PLANTS were numerous, but the chief collections, those from Mr. Chapman, Messrs. Jackson, and Mr. Tudgey, were much the same as those exhibited at Regent's Park and reported on last week. In the various collections there were some very fine specimens of the Banner flower (*Anthurium Scherzerianum*), one in Mr. Tudgey's group being at least 5 feet through, and bearing several dozens of brilliant scarlet spikes. We were glad to see that the practice of enveloping the flower-stems of this plant in white cotton wool, under the impression probably that it showed the colour of the spathe off to better advantage, has been all but discontinued. Last year several exhibitors followed the practice, but this season there was but one, and we hope that the judges' protest against it will not be disregarded. A wonderfully fine specimen of this *Anthurium* was shown by Mr. Churchfield. It was perfection as regards health, and carried several dozen of its large broad spathes, almost as fine as those of Ward's variety. It was deservedly awarded an extra prize. The Heaths from Messrs. Jackson's nursery, Kingston, were, as usual, shown in excellent condition. A plant in the collection of nine of *E. ventricosa magnifica* was a model of a perfect specimen plant, being a yard or more through and a mass of bloom. The Clematises from Messrs. Jackman's nursery at Woking were here, as at Regent's Park, the centre of attraction; they occupied a sloping bank at the end of the central transept, and the soft, mellow hues of their huge flowers formed, as it were, a kind of relief to the gayer colours of the Azaleas by which they were surrounded. The Pelargoniums, too, from the Slough Nurseries were a great attraction, being all fine specimens, profusely flowered, and representing the best sorts in their respective sections. Some Roses, likewise from Mr. Turner, were charming specimens, and though small skilfully grown. Gloxinias were poor, but *Calceolarias* were exceptionally fine, and more numerous than usual. The best dozen were shown by Messrs. Carter, High Holborn. A large group in the central transept, awarded an extra prize, was also exhibited by Messrs. Carter, whose strain—an excellent one—is characterised by bright and varied colour and large pouched flowers abundantly produced on vigorous habited plants. Mr. Salter had a second group of a dozen, and he also exhibited an extensive collection, for which he was awarded an extra prize. Tuberous Begonias were poorly shown in the competing classes; the plants were large, but not well flowered.

MISCELLANEOUS EXHIBITS included a large and admirably arranged group of plants on an area of 200 square feet, from Messrs. Laing's nursery, Forest Hill. It consisted of tall spreading

Palms, Dracenas, and other fine foliaged plants in the background, while in front were Azaleas, Begonias, Gloxinias, and other gay flowers interspersed with elegant foliage. This group was awarded a prize of £10, and occupied a conspicuous position in front of the orchestra. The same exhibitors also contributed a collection of new tuberous Begonias, Caladiums, and cut blooms of Niphetos Rose. An extra prize was awarded to Mr. Bird for a very fine group of Mignonette plants large and profusely flowered and trained in various ways. Messrs. Dobson, Isleworth, also received an extra prize for a group of Calceolarias, and Mr. Hooper, Bath, for Pansies and other flowers.

FIRST-CLASS CERTIFICATES were awarded to Messrs. Laing, Stanstead Park, for tuberous Begonias Black Douglas (single), Mrs. Morgan (single), Canary Bird (double), Prince of Wales (double), and Queen of Scots (double), also for Caladium cardinale, ornatum, and Verdi. To Mr. Turner, Slough, for Azalea Madame Van Houtte, Rose Merveille de Lyon, and Pelargonium Dresden China. To Messrs. Jackson, Kingston, for Impatiens Sultani.

ROYAL HORTICULTURAL.

MAY 22 AND 23.

NOTWITHSTANDING the chequered fortunes of this Society, its great annual summer show, held on Tuesday and Wednesday last, compares favourably with its predecessors. It was, however, evident that the Society is in as straightened circumstances with regard to space for holding its shows as it has long been in financial matters, the Fisheries Exhibition having taken up nearly the whole of the South Kensington Gardens, leaving but a corner for the Society's use; consequently habitual frequenters of the flower shows here were deprived of their customary open-air promenade, for the small space outside the tent was wholly taken up by the implement exhibition, which, as usual, was an interesting one, though not so large as hitherto. The flower show was, as on former occasions, held under canvas, the great tent being supplemented by a smaller one placed at right angles to it, in which the fruit, vegetables, cut flowers, and miscellaneous exhibits were shown. The principal tent was well filled and looked as bright and cheerful as ever we have seen it, Mr. Barron having balanced the foliage and gay colours of the different plants admirably. Every part of it was interesting, and there was a conspicuous absence of vacant space, so obtrusive on other occasions. Some three dozen classes were comprised in the schedule, nearly every one of which was represented, and besides there were numbers of non-competitive exhibits, though noted exhibitors, such as Messrs. Veitch, Bull, and others, among nurserymen, and Sir Trevor Lawrence, Canon Bridges, and Mr. Whitbourne, among amateurs, were conspicuous by their absence, doubtless attributable to the show being open for two days.

ORCHIDS.—Everyone seemed somewhat disappointed in not seeing a better competition among exhibitors, considering that upwards of £50 in seven prizes were offered. There was no really first-rate collection represented in the competition, although there were some creditable plants. There were four collections of ten plants from amateurs, the best being that from Mr. Southgate's garden, Streatham (gardener, Mr. Salter). This consisted of good specimens of *Cypripedium Dominii*, *Dendrobium nobile* (admirably flowered), *D. Wardianum*, *Cattleya Southgatei* (a splendid form of *C. Mossiae*), *Cypripedium Lawrencianum*, *Odontoglossum vexillarium*, *O. citrosimum roseum*, *Cattleya Warneri*, and *C. Mendelli*. The second collection, from Mr. Child, Garbrand Hall, contained a grand example of *Vanda suavis* with six spikes on two breaks, *Dendrobium nobile*, a very fine form of *Cypripedium Hookeri*, an uncommonly fine pot of the hardy *C. pubescens*, also *C. barbatum* and *Masdevallia ignea aurantiaca*; but several of the plants were made up, though on the whole this collection contained several finer plants

than those in the first group. Mr. Little, of Uxbridge, who has just commenced Orchid culture, showed a collection of small, but fresh and well-grown, plants, among which were *Zygopetalum Gautieri* on a Tree Fern, just developing fronds, a few good *Cattleyas* and *Dendrobies*. There were two groups of Orchids of not less than forty plants, one from Mr. James, who was first, the other from Messrs. Jackson. In the best group some splendid varieties of *Cattleya Mossiae* and *Mendelli* were noteworthy, also of *Odontoglossum crispum*, *Cypripedium Stonei*, a grand plant with five spikes; *Cattleya Schilleriana*, *Aerides Fieldingi*, *Masdevallia Harryana*, and others a variety of the new and rare *Odontoglossum cordatum aureum*. Messrs. Jackson's group contained numerous well-grown plants, but not many new or rare kinds. The competition for the prize of £10 offered by Sir Trevor Lawrence, Bart., for the best collection of twelve *bona-fide* plants was limited to two competitors—Mr. Child, who was first, and Mr. James. In the first group were *Vanda suavis*, a grand specimen with nine flower-spikes on two breaks; *Aerides Fieldingi floribunda*, also a very fine specimen with six spikes most of them with several branches, but the flowers were not fully expanded; *Saccolabium retusum* with four long and fine spikes; and *Dendrobium Farmeri* with eight spikes. The other plants were not remarkable, the kinds being *Anguloa Clowesi*, *Odontoglossum crispum*, *Cypripedium barbatum*, *Calanthe veratrifolia*, *Cattleya Mossiae*, and *Saccolabium ampullaceum*. Mr. James' twelve included *Odontoglossum vexillarium*, with four spikes; *Cattleya Mossiae*, a fine variety; *C. Mendelli*, *Aerides Fieldingi*, *Odontoglossum crispum*, *Cypripedium Lawrencianum*, *O. gloriosum*, but none were very remarkable as specimen plants. The greatest attraction on the Orchid bank appeared to be an extensive collection of Orchids from Mr. Peacock's noted collection in his garden at Sudbury House, Hammersmith, which, indeed, formed a very pretty group, admirably arranged on a jutting slope, with light and graceful Palms and Ferns, which blended harmoniously with the gorgeous hues of the Orchids. The collection could not have numbered less than a hundred plants, though we imagine that even this number was scarcely missed from Mr. Peacock's collection, judging by what we saw a few days previous to the show. It was a thoroughly representative display and admirably showed the wealth of Orchids in May. There were no fewer than twenty species of *Odontoglossum*, viz., *Alexandrae* (numerous varieties), *Andersonianum*, *Cervantesi*, *citrosimum*, *cordatum*, *cordatum superbum*, *Coradinei*, *gloriosum*, *hebraicum*, *Halli*, *maculatum*, *nebulosum*, *Pescatorei*, *Phaelanopsis*, *polyanthum*, *Roezli*, *Rossi*, *triumphans*, *tripudians*, *vexillarium*. Of *Dendrobies* the most conspicuous were *chrysotoxum*, *Pierardi*, *suavissimum*, *tortile roseum*. Then there were some splendid forms of *Cattleya Mossiae* and *Mendelli*, and some superbly flowered examples of the yellow *C. citrina*, which is grown uncommonly well by Mr. Vicary. Other noteworthy Orchids in the display were *Brassia verrucosa*, *Burlingtonia venusta*, *Cypripedium niveum*, *C. laevigatum*, *Oncidium ampliatus*, *O. Krameri*, *O. Marshallianum*, *O. cucullatum*, *O. phymatochilum*, *Phajus Wallichii*, *Epidendrum vitellinum majus*, *Laelia purpurata majalis*, *Lycaste Skinneri* in variety, *L. aromatica* and *cruenta*, *Masdevallia Harryana*, *M. Houtteana* (with a score of flowers), *Nanodes Medusae*. A silver gilt medal was an appropriate award to Mr. Peacock's gardener (Mr. Vicary) for this admirable display.

STOVE AND GREENHOUSE PLANTS were quite up to the average standard in quality, but the collections were somewhat fewer than usual in number. Among nurserymen, Messrs. Jackson's plants were in their best form, the dozen they showed being as fine as could possibly be desired, all being symmetrical in size and shape, not faced, i.e., fan trained, so as to bring all the flowers on one side, but perfect specimens profusely flowered, and they looked as fresh as if they had not before done duty at an exhibition this season. As the collection was exceptionally fine, we append the names of the plants: *Hedera fuchsoides*, *H. Tu-*

lipifera, both models of skilful culture; *Dracophyllum gracile*, *Aphelexis macrantha purpurea* and *rosea*, *Erica affinis* and *E. Webbiana*, all marvellous examples of plants difficult to manage. The remainder consisted of easier growing subjects, such as *Azalea Souvenir de Prince Albert*, *Clerodendron Balfourii*, and *Anthurium Scherzerianum*, the latter well grown and flowered. In Mr. Tudgey's second best group were some fine yellow *Ericas* and a few good *Azaleas*, which latter formed also the chief feature of Messrs. Peed's collection. Amateurs' collections were four in number, and, as usual, Mr. Spode's gardener, Mr. Chapman, from Rugeley, in Staffordshire, outstripped the suburban competitors by a long way. The eight which he showed seemed to be the pick of the plants in the larger collections shown by him at other London exhibitions during the last fortnight, but which looked scarcely the worse for their transportation and consequent knocking about. They comprised a monster *Erica Cavendishi* and *E. depressa major*, both the perfection of bloom and vigour; *Ixora Williamsi* and *I. coccinea*, *Acrophyllyum venosum*, *Dracophyllum gracile*, and *Anthurium Scherzerianum*, the latter a wonderfully fine specimen of a large bright spathed variety—so fine, indeed, that the judges selected it as the best stove or greenhouse plant in the whole exhibition, worthy of receiving the Veitch memorial prize and medal. It bore a large sheaf of spathes, and the broad, vigorous foliage indicated skilful culture. Other amateur collections exhibited were from Mr. Bell's garden, Garbrand Hall, Ewell, which was second, and in which there were some huge and well-flowered *Azaleas*; Mr. Rann, gardener to Mr. Warren, had a few good specimens in his group, and among the plants from Mr. P. Crowley's garden at Waddon House, Croydon, was an uncommonly fine specimen of *Cypripedium villosum*, some 3 feet across, and carrying nearly half a hundred fine blooms—as fine an example of this Lady's Slipper as we have ever seen.

ROSES were shown from the Cheshunt and Slough Nurseries as usual in splendid condition, but perhaps not quite equal in quality to those shown here during the last and previous years. Messrs. Paul were the only exhibitors of nine plants—a fine collection placed on one of the principal slopes in the tent where they could be seen to advantage. Among them was a splendid Charles Lawson large and fresh and covered with superb blooms. There were also grand plants of Cheshunt Hybrid, a fine pot Rose for exhibition; *La France*, *Juno*, *Beauty of Waltham*, *Edouard Morren*, *Juno*, *Dr. Andry*, *Centifolia rosea*, *Céline Forestier*, and *Perfection de Monplaisir*, all established favourites. Surrounding this group was the collection of twenty Roses in 10-inch pots, which was also first—excellent specimens large for the size of pot in which they were growing, and profusely furnished with very fine blooms. It comprised nearly all the sorts enumerated above in addition to such fine ones as *Edouard Andre*, *Alba rosea*, *Catherine Soupert*, *Duke of Edinburgh*, *Jules Finger*, *Camille Bernardin*, *Royal Standard*, and *Madame Lacharme*. Besides these, Messrs. Paul showed a pretty group of standard and bush plants of the new *Paquerette* Rose, covered with numbers of its neat little, double white blossoms in clusters similar to others of the *Rosa polyantha* type. On the opposite slope was Messrs. Turner's collection of twenty Roses, which were but little inferior to those from Cheshunt, but they were not of uniformly large size and good quality. There were beautiful specimens of such favourites as *Paul Neyron*, *Duchesse de Vallombrosa*, *Souvenir d'un Ami*, *Duke of Edinburgh*, *Mdme. Victor Verrier*, *Edouard Morren*, *Camille Bernardin*, *Sir Garnet Wolseley*, *Caroline Kuster*, *E. Y. Teas*, and *Marie Baumann*, all of which are admirably adapted for pot culture and flowering early. The cut blooms of Roses from Messrs. W. Paul and Sons' nursery, Waltham Cross, were a great attraction, the blooms being remarkably fine and numerous, there being about a dozen boxes containing some two dozen trusses each. We noted among them the new *Queen of Queens* in fine condition; also the new *Merveille*

de Lyon, which seems handsomer every time we see it. There were also fine examples of such superb varieties as Lady Sheffield, Masterpiece, Baroness Rothschild (a whole boxful of splendid blooms), La France, and Paul Neyron. Three new Hybrid Perpetuals in pots were also shown by Messrs. Paul, named Miss Edith Gifford, Gilbert, Marguerite de St. Romer. For these and the cut blooms the exhibitors were awarded a silver medal.

AZALEAS.—The show of these was for the most part a repetition of that at the Crystal Palace and Regent's Park the week previous. Mr. Turner, of Slough, was the first, as usual, among nurserymen, and he also showed a numerous collection not for competition. Mr. Child's collection in the amateurs' class had no rival, but was well deserving of the first prize, his plants being huge, densely-flowered specimens. There were but two exhibitors of twelve Pelargoniums (half show and half fancy varieties), and those two well-known exponents of these flowers, Messrs. Turner and Little, were again in rivalry, winning the first and second prizes in the order named. The Slough collection were all large and profusely flowered, and included the sorts Prince Leopold, Claribel, Illuminator, Viscount, Maid of Honour, and Evelyn among the show type, and of fancies *Roi des Fantaisies*, Mrs. Porter, Fanny Gair, Princess Teck, East Lynn, and Helen Beck. Mr. Little's plants were a little inferior in merit, and the selection somewhat varied from the other. Among the show kinds were Snowflake, Sultana, Isabel, Prince Leopold, Miss Bradshaw; and of fancies Mrs. Goddard, Polar Star, Princess Teck, and Lucy. Tuberous Begonias were well shown from the Stanstead Nursery, Forest Hill, the head-quarters of these beautiful greenhouse plants. In their group of fifteen Messrs. Laing had some excellent varieties, such as Lothair, Hettie, Mrs. J. Freeman, Novelty, Eclipse, Prince of Orange, Madame Laing, Hon. Mrs. Brassey, Ball of Fire, Mad. Stella, all single sorts, with colours of various shades—crimson, cerise, scarlet. Among whites and light sorts were Snowflake and Delight, both first-rate whites; Golden Gem, one of the finest yellows; and Sulphur Queen, not sulphur, but an undecided white. Messrs. Jackman, of Woking, had no rival competitor in the class for nine Clematises, which were as fine as those previously shown by this firm in London this season. The varieties were Alba Magna, William Kennett, an extremely fine purple variety; Excelsior, Fairy Queen (one of the finest light sorts), Impératrice Eugénie, Lanuginosa candida, Duchess of Edinburgh, and Picturata, all splendid sorts. The plants were, as usual, large and balloon-shaped, and they formed a group in a prominent position facing the entrance to the large tent. Mr. Noble, Sunningdale Nursery, took a silver Banksian medal for a group of Clematises, smaller plants than those from Woking, but representing very fine and distinct sorts.

FINE FOLIAGED PLANTS were shown admirably by three or four exhibitors. The eight from Handcross Park, which occupied a prominent position in the central part of the tent, formed a noble group. It contained huge specimens of *Areca sapida*, *Cycas revoluta*, *Pandanus Veitchii*, *Latania borbonica*, *Gleichenia Mendeli*, and three large and handsome coloured Crotons, named Queen Victoria, Challenger, and Albicans. The two other prize winning groups, from Mr. Crowley's garden and Mr. James' nursery, were both fine. The former contained a grand specimen of *Maranta Makoyana*, one of the finest examples we have ever seen of this plant; *Davallia Mooreana*, a huge spreading plant; *Diefenbachia Bausei*, a grand specimen; *Croton Wiesmanni* and *Youngi*, and *Microlepia hirta cristata*. In Mr. James' group were a fine example of the rare *Macrozamia Denisoni*, a monster specimen of *Pandanus Veitchii*, *Stevensonia grandifolia*, *Theophrasta imperialis*, *Cycas revoluta*, *Areca lutescens*, and *Seaforthia elegans*, the whole forming a fine group.

FERNS have rarely been shown in such grand condition as they were on this occasion, particularly the two collections in the amateurs' class which came from Handcross Park and Garbrand

Hall. Both were excellent, and that placed second was but little inferior to the first, though there was no doubt about the justness of the award. That shown by Mr. Rann for the first prize included three grand *Gleichenias* of large size and in vigorous health, furnished with young fronds just developed. The species were *G. rupestris Mendeli* and *rupestris gigantea*. The other plants were *Cyathea Burkei*, with a huge drooping head of fronds on a tall stout stem; a noble plant of *Dicksonia antarctica*, and a large *Davallia Mooreana*, some 8 feet or 9 feet through. Mr. Child's plants were *Microlepia hirta cristata*, a grand plant some 7 feet across; *Davallia Mooreana*, about the same size; *Dicksonia squarrosa*, *Gleichenia semivestita*, and the finest plant of *Phlebodium aureum* we have ever seen, it being some 5 feet or 6 feet through, and a complete mass of long robust fronds, which being of a silvery grey tint formed a charming contrast to the foliage of the others. When grown in such a way this is a very beautiful Fern. *Gleichenia dicarpa* was the poorest specimen in the group, and that even was a fairly good plant.

HARDY PLANTS were not remarkable, there being but one collection of thirty plants from Messrs. Hooper. These, though comprising a good selection and well grown, were not sufficiently forward in bloom, and so were only awarded the second prize. The same firm showed the only collection of cut hardy flowers which contained a few attractive and choice things. Tulips and Ixias also came finely from Messrs. Hooper. There were several exhibitors of five dozen blooms of Pansies, the best being those brought all the way from Edinburgh by Messrs. R. B. Laird & Sons, the nurserymen there, and which of course were very fine, as Scotch Pansies usually are. From the west country, Messrs. Meddick and Catley, both of Bath, showed some fine productions.

GROUPS OF PLANTS.—Those in competition for the prizes were three in number, Messrs. Fromow, Hooper, and Cutbush, who were placed in the order named. As usual, the awards of the judges gave rise to some comment. It seems always a bone of contention as to what constitutes artistic grouping of plants. None of the groups were very remarkable. The first group was made up of the usual run of fine foliaged plants, interspersed with flowering plants and notably tall spires of white Lily, which added to the appearance of the group. A pretty fringe hiding all the pots was a merit in this group. The second group was not bright enough, though it contained some excellent specimen fine foliaged and other plants. An ugly row of pots and pans marred the edge of this group. Messrs. Cutbush's group, had it not been so crowded, would have been the best of the three, for it contained some excellent plants, chiefly well-flowered, hard-wooded subjects, and these were arranged in masses, which had a better effect the mixed style. There was enough material to make three groups of the same size. An extensive and miscellaneous group was exhibited by Mr. B. S. Williams, which, as usual, included numerous fine Orchids. A silver-gilt medal was awarded. Messrs. Laing, Forest Hill, likewise filled one of the spacious central banks in the large tent with a fine mixed collection, and were also awarded a silver medal. These two groups contributed in no small degree to the attractiveness and interest of the show. Numerous other miscellaneous collections were shown, notably new *Dracanas* and a fine collection of *Calceolarias* from Messrs. Carter, a fine group of Crotons from Mr. Causton's garden, Dulwich, cut flowers of hardy plants from Messrs. Barr and Son, hardy Azaleas from Mr. Waterer, Knap Hill, Mr. Turner new Azaleas, Messrs. Hooper Tulips, and other cut flowers.

Fruit.—A large show of fruit at such an early date was hardly to be expected, but, nevertheless, there was a creditable display, and, taken on the whole, the quality was excellent, and showed well what the skill of the English gardener can do as regards the production of early forced fruits. There were seven competitors in the class for one Pine-apple, the best, from Mr. Roll's gardener (Mr.

Coomber), being a handsome and heavy Smooth Cayenne. Other good fruits of the same variety, and also of the Queen, were shown by the other exhibitors. Six exhibitors competed for the three prizes offered for three bunches of Black Hamburg Grapes. The finest were from Mr. Barnes's gardener (Mr. Louden), The Quinta, Chirk, who has been so successful the last few years in exhibiting Grapes. His three bunches were remarkable for large size of bunch and berry, considering the early date, and good colour, though in this respect they were not equal to those shown for the second prize by Mr. Austen, from Sir G. Smythe's garden at Ashton Court, Bristol. Mr. Fyfe, gardener to Mr. Dick, Thames Ditton, was the other successful exhibitor, his produce being of very good quality. There were but three sets of three bunches of any black sort of Grapes. Mr. Mowbray, the Earl of Leven and Melville's gardener, showed for the first prize some handsome and well-finished bunches of Black Prince, and the same variety also secured the second prize for Mr. Edwards, Fowley, Liphook. Some uncommonly good bunches of Alnwick Seedling were shown from the Marchioness of Camden's garden by Mr. Johnstone, which showed that this much criticised sort may be produced in fine condition in the middle of May. There was no entry for Muscats of Alexandria, and the class for any other variety of white Grapes was not well represented. Mr. Austen was first with some creditable bunches of Foster's Seedling, and the same sort won the second prize for Mr. Miles, and Buckland Sweet-water was shown for the third prize by Mr. Johnstone. Mr. Louden had some good bunches of Golden Champion, which, however, were green, and it seemed a pity they should have been cut so early. Some good Peaches were shown among the seven dishes. Mr. Austen was first with some fine and highly-coloured fruits of Hale's Early, which is evidently a first-rate early variety. Sir J. Pease's garden contributed the second best dish, Mr. McIndoe having some large examples of Bellegarde, and Dr. Fuller's gardener (Mr. Nash) was third with a sort called Early Rivers, which were somewhat undersized. Other sorts shown were Stirling Castle, Princess Beatrice, Merlin, and Grosse Mignonne. Four exhibitors contributed six fruits of Nectarine. Mr. Nash had some excellent fruits of Elruge for the first. Violette Hâtive was second, and Hunt's Tawny third. Black Circassian Cherries were shown in excellent condition by Mr. Miles for the first place, the other dish being from Mr. Hare, of the Elton variety, also good. There were but five dishes of Strawberries. A fine dish of President, from Mr. Goldsmith, Hollenden, Tonbridge, was first. Some excellent fruits of Sir Joseph Paxton, from Purley Park, Reading, was second, and Sir Charles Napier, Mr. Cunard's garden, Twickenham, third. Lord Braybrooke's gardener, Mr. Vert, showed an uncommonly fine dish of the La Grosse Sucrée variety in the non-competitive class. Melons, as usual, were numerous, there being fifteen fruits. A fine fruit of Hero of Lockinge was shown by Mr. Herrin, from Chalfont Park, Bucks. Sutton's Masterpiece, from Mr. Johnstone, was second, and Mr. Austen showed Carter's Blenheim Orange for the third prize. Among other sorts shown were Eastnor Castle, Hero of Bath, Best of All, Scarlet Premier, and Victory of Bath. The new sort Masterpiece was shown by several exhibitors. Among the five exhibitors of Tomatoes Mr. Miles was first with large and excellent fruits of Stamfordian; Dedham Favourite from Viscount Barrington's gardener (Mr. Meads) was second; and Mr. Austen had Hathaway's Excelsior, Trophy was also shown well.

Vegetables were uncommonly good, though there were but four collections of ten kinds. Mr. Austen, of Ashton Court, was first with a collection remarkable for its uniform excellence and good selection of sorts. It consisted of Leamington Broccoli, Early Nantes Carrot, Hathaway's Excelsior Tomato, Ne Plus Ultra Bean, Victory of Manchester Cucumber (a fine sort), William I. Pea, Veitch's Ashleaf Potato, Moore's Vegetable Cream Marrow, White Naples Onion, and a bundle of fine

Asparagus. A scarcely inferior collection from Mr. Miles, of Wycombe Abbey, was second; it consisted of Ledsham's Latest of All Broccoli (evidently a fine sort), Osborne's Forcing Bean, Fitch's Favourite Cucumber, Queen Onion, Stamfordian Tomato, Lady Paget Potato, Nantes Horn Carrot, and some fine Asparagus. The best of Mr. Ward's dishes were American Wonder Pea, President Garfield Tomato, Connover's Colossal Asparagus, Canadian Wonder Bean, Hammersmith Kidney Potato, Queen Onion, and Longford Castle Cabbage, the last evidently an excellent sort. Mr. Waterman, Aylesford, Kent, showed the other collection, which comprised a fine dish of Culverwell's Telegraph Pea, the best in the show; also of Hathaway's Excelsior Tomato, Canadian Wonder Bean, Early Border Potato, and others.

Veitch Memorial Prizes.—On this occasion the trustees of the Veitch Memorial Prize Fund offered a prize of £5 and the memorial medal for each of the undermentioned subjects: 1, best specimen stove or greenhouse plant in flower, to be selected by the judges from the plant classes, which was won by Mr. Chapman, with his grand plant of *Anthurium Scherzerianum*, before alluded to; 2, best specimen Orchid in flower, to be selected by the judges from the plant classes, won by Mr. Child for his plant of *Vanda suavis* with six spikes on two breaks, a grand specimen in perfect health; 3, best dish of three bunches of Grapes (one sort), to be selected by the judges from the fruit classes, taken by Mr. Loudon, for his three bunches of Black Hamburg, which took the first prize in the class for that Grape.

THE SPECIAL PRIZES offered by the following firms were competed for on this occasion: Messrs. Carter & Co. (five prizes), for one fruit each of their new Emerald and Blenheim Orange Melons; Messrs. Sutton (three prizes), for a brace of Cucumbers; and Messrs. Hooper (three prizes), for two dishes of early Peas, to include Laxton's Earliest of All. The best brace of Cucumbers was from Mr. Mortimer, of Purley Hall, Hero; Sutton's Improved Telegraph was second; and Tender and True third.

The Implement show.

In this department awards consisting of silver and bronze medals were made in the several sections into which the respective exhibits were divided, but owing to the fact that each exhibitor grouped his exhibits without regard to classes, comparisons for the purpose of making the awards were necessarily difficult. The implements and other objects were on this occasion very crowded, as the allotted space was so limited, but it is creditable to the various trade exhibitors that, in spite of the great counter attractions within the tents and buildings, they were enabled to make very respectable displays.

PLANT HOUSES, VINERIES, &c.—In this section Messrs. Foster & Pearson, Beeston, Notts, have a handsome span-roofed plant house of moderate dimensions, fitted with patent ventilating apparatus, and having on either side broad stages made of slate slabs resting upon cast iron supports; also, they have long span frames fitted with elevating ventilation and iron rod catches for holding the lights open with the most complete security. This plan is very simple and very effective, and is worthy of universal adoption. Messrs. W. Richardson & Co., Darlington, have a fine 40-feet half-span vinery fitted with full length narrow elevating ventilators—a modification of the Paxton system. This is a very fine house, well finished and arranged. They have also a capital assortment of plant frames. Mr. B. W. Warhurst has a three-quarter-span vinery, very neatly glazed, on narrow sash-bars without top putties, fully and effectively ventilated by means of automatic lifters. Messrs. Deards, of Harlow, have a short, but lofty, span house intended to show fully their Victoria dry glazing system by means of zinc duplicate clips and sliding caps that seem to be singularly effective in gripping the glass firmly without undue pressure on any one place. Messrs. W. E. Rendle & Co., Westminster, have a lean-to Peach house glazed on their patent "Acme" system now so popular

and well known. A great speciality of this house is that it is so fixed as to be easily removable at a tenant's will. Mr. G. Knowles, of Finsbury Pavement, has an odd-looking span plant house in which the upper portion of the sides or eaves project, so that more internal space is given to the heads of plants. Messrs. C. P. Kinnell and Co., Bankside, have a small span house suitable for amateurs erected to show their admirable horse-shoe boiler for the heating of small houses. The method of feeding the boiler by means of tip receiver is simple, and doubtless very effective. In the section devoted to movable plant pits and frames several of the same exhibitors enter examples. In addition to Messrs. Foster and Pearson mentioned. Messrs. Rendle and Co. have some admirable plant cases and handlights, as also have the Messrs. Deards; and the Messrs. Richardson have large movable plant frames and wall tree protectors. The latter firm and Messrs. Deards and Mr. Warhurst exhibit in the section for "Improved system of glazing, ventilation, &c.," but nothing specially novel seems to have been presented.

BOILERS.—Of these important adjuncts to any good garden there is legion, and in the section devoted to large ones for heating 500 feet of piping and upwards, perhaps the largest assortment comes from the Thames Bank Iron Company, who have an unmentionable variety of all sizes and sorts, including tubulars horizontal and erect, saddles, coil, conical, &c., and with their terminal saddle boiler take the silver medal in the class. Mr. B. Warhurst has a big display of huge boilers, inclusive of the Chatsworth, Paxton, Ben's, gold medal, cruciform, and many other designs, all evidently solid and enduring. Messrs. Deards have their queer looking Champion close coil boiler; Mr. Jenkins, Rotherham, shows a handsome assortment of independent designs and others for brick setting, all smartly finished off; and Messrs. Green & Co., Blackfriars Road, and Messrs. Richardson have tubulars and other specimens. The section for small boilers or modes of heating small houses brought some novelties, inclusive of the Messrs. Kinnell's boiler alluded to, and which obtained the silver medal. A very taking system is that seen in operation in the Messrs. Deards' span house, which consists of an open grate as fitted to a sitting-room, but the bars are hollow, and indeed a portion of a coil boiler from which the water flows into pipes that may be carried through the wall into an adjoining greenhouse. As seen in work, the arrangement was most simple, and the pipes were as hot as could be desired. The fire may be banked up at night and enclosed by means of a sheet iron guard. Messrs. Jenkins and Warhurst and the Thames Bank Co. also show in this section. Out of this section also came hot-water piping, valves, &c., the same exhibitors having samples of their manufactures in this department. A very interesting novelty was the new Reliance rotary valve of the Thames Bank Company, by which one valve only does the work usually allotted to three, and with such remarkable simplicity that we wonder the idea has not long before been adopted. A special certificate was awarded to this invention. The gold medal was awarded to this firm for the best general collection in the show.

LAWN MOWERS, ROLLERS, &c.—In the section for horse mowers Messrs. Thomas Green & Son are the only exhibitors, but do not compete for awards, neither do they in the much more fully represented class for hand mowers, though showing their excellent Silens Messor, Multum in Parvo, and other machines. Messrs. Deane & Co., King William Street, show good mowers in this section, and from Messrs. Follows & Bate, of Manchester, came in various sizes their capital Manchester Anglo-American and Climax machines, all so easy to work. The same may be said of the Pennsylvania mowers sent by Messrs. Lloyd, Lawrence, & Co., Worship Street, whose machines, like those just noticed, resemble the well-known Archimedian in fashion, though differing in essentials. All these machines work so easily that mowing is made a recreation rather than a labour. Satisfactory judgment as to relative usefulness, endurance, and good work can only be fairly

tested after a season's trial under precisely similar conditions, hence lawn mower trials so called are too often very misleading. Several firms send garden rollers, wheelbarrows, &c., but none call for special comment. Under this heading may well be included garden engines, pumps, syringes, which are numerous represented. Messrs. Warner & Sons, Cripplegate, exhibit very largely of these articles, and make a grand display, as also do Messrs. Deane & Co. and Mr. G. Knowles. With these also must be classed the patent irrigator apparatus on wheels, shown by Mr. J. Deverill, of Slough, so admirably suited where there is a constant supply of water to irrigate lawns, and indeed all kinds of plants and trees. The Simplex garden pump, shown by Messrs. Arnold & Sons, West Smithfield, is a very meritorious object, as also is the Pall Mall lawn edger and the spray distributor for the destruction of plant pests, shown by Mr. Wells, of Redhill.

GARDEN POTTERY is well represented in the stand of Mr. J. Matthews, Weston-super-Mare; and Messrs. Rosher & Co., Chelsea; the former has terra-cotta objects, vases, plant stands, statuary, &c., in the fashionable crushed strawberry colour, and the latter have mosaic objects of a similar nature in white stone and plaster. The latter firm also have a varied collection of edging tiles for garden paths.

WIREWORK, TENTS, &c.—In this division Messrs. J. J. Thomas & Co., Edgware Road, make a fine show of their varied work in wire in almost endless form and fashion, and all elegant and serviceable. Messrs. Green & Co. and Deane & Co. also show garden arches and other exhibits. The chief exhibitor of garden tents is Mr. B. Edgington, of London Bridge, whose examples are handsome and tempting, especially on sunny days. No garden where there is space should be without one of these delightful adjuncts. Mr. J. Unite, of the Edgware Road, is an exhibitor also of garden tents and of lawn tennis appliances. Mr. Lovegrove, of Slough, has a capital display of rustic garden furniture, summer houses, seats, tables, &c., all strong and useful. There are numerous other miscellaneous objects exhibited by the various firms named, and the result is if crowded at least a very interesting display.

Floral Committee.

On this occasion numerous plants were submitted to the committee, and first-class certificates were awarded to the following:—

CATTLEYA NOBILIOR.—A new species having affinity with *C. dolosa* and *C. Walkeriana*, but quite distinct from either. The pseudo-bulbs are from 4 inches to 6 inches long, an inch or so thick, cylindrical, and terminated by a pair of ovate leaves of thick leathery texture. The flowers measure some 5 inches across, with rather narrow sepals and petals of a lovely deep rose-pink colour; the broad labellum is also of the same colour, but conspicuously blotched with creamy white on the front lobe. It is a beautiful Orchid and a real addition to the genus. Exhibited by the Compagnie Continentale d'Horticulture, Ghent.

DENDROBIUM DEAREI.—A new species discovered a year or so ago by Colonel Deare, of Egham. It is one of the loveliest of the genus, and, moreover, distinct from any other species. The plant shown by Sir Trevor Lawrence was an exceptionally fine one, having stout pseudo-bulbs a yard or more high, clothed on the upper part with short, thick leaves densely arranged. This leafy stem bore four or five flower-spikes, each carrying from five to ten blooms, about 2 inches across, of snowy whiteness, save a blotch of delicate green on the labellum, which tends to emphasise the purity of the white. It seems to be a remarkably floriferous plant, and the flowers being produced on the leafy stems adds considerably to its beauty.

IBERIS GIBALTARICA HYBRIDA.—A new variety stated to be of hybrid origin. It forms a compact dense bush, each stem being terminated by a cluster of flowers varying in colour from rosy purple to white according to age. It is said to be quite hardy, and if so, we consider it one of the best additions to open-air flowers that has been

made for some time. Some admirably flowered plants grown in the open air were shown by Mr. R. Dean, Ranelagh Road, Ealing.

ODONTOGLOSSUM CRISPUM (hybrid).—An extremely handsome variety unlike others of a similar stamp with which we are acquainted. Its nearest ally seems to be *O. Andersonianum*, but the flowers are much larger with more attenuated sepals and petals, having a citron ground colour, heavily and copiously blotched with cinnamon-red. The plant was shown by the introducers, Messrs. Sander & Co., St. Albans, but the flowers were not fully developed.

PELARGONIUM FUTURE FAME.—A hybrid variety of the Ivy-leaved class, and one of the finest yet raised. Its growth is tall and slender, and it produces large trusses of flowers of a brilliant amaranth-purple, and of a larger size and better shape than those of other varieties in a similar way. Mr. George, Putney Heath.

BEGONIA DR. DUKE.—A double-flowered tuberous variety, one of the finest yet raised. Its blooms are large and very double, forming quite a rosette of petals, and the colour is a brilliant cherry crimson. Exhibited by Messrs. Laing & Co., Stanstead Park Nurseries, Forest Hill.

CARNATION FIELD MARSHAL.—One of the tree or perpetual flowering class. It is vigorous in growth, and appears to be very floriferous. The flowers are large, fully double, and bright scarlet in colour. Shown by the raiser, Mr. Turner.

AZALEA DR. HERMANN WEIGEL.—A variety of *A. indica*, with large double flowers of a bright rosy purple, produced plentifully even on small plants. Shown by Mr. Turner.

BEGONIA PRINCE OF WALES.—A double-flowered variety of the tuberous section, with unusually large rosette-like blossoms of a bright crimson colour. From Messrs. Laing.

PHILADELPHUS MEXICANA.—One of the finest of the Mock Oranges, and a lovely hardy shrub. It has large cup-shaped white blossoms, with a tuft of yellow stamens in the centre. Like most of the other species, it has a strong perfume. Cut blooms of it were exhibited by Mr. Walker, Thame.

FRUIT COMMITTEE.—A cultural commendation was awarded to Mr. Mortimer, Purley Park, Reading, for samples of a handsome new Cucumber which he has raised and named Purley Park Hero. The committee considered it to be "a handsome stock of the Telegraph variety." The fruits are large, spineless, and said to possess excellent flavour. Mr. Jenks, Brainlettye, was also awarded a cultural commendation for a very fine dish of Peaches which, had they been among the competing dishes, would probably have been first. Mr. Ward, Earl Radnor's gardener at Longford Castle, sent a new Melon called Longford Hybrid and some fine fruits of *Citrus medica*, for which he was awarded a cultural commendation.

THE ASPARAGUS COMPETITION.

The following are the prizes offered for the competition of the present year, which will take place in the Royal Horticultural Gardens at South Kensington on June 12.

PRIZES FOR GARDENERS IN PRIVATE PLACES, AMATEURS, AND OTHERS NOT GROWERS FOR MARKET.

For the best bundle of Asparagus grown by the exhibitor: 1st prize, £4; 2nd, £2 10s.; 3rd, £1 10s.; 4th, £1. The bundle of Asparagus is to consist of eight heads. Prizes will not be given where, in the opinion of the judge, there is no merit. The Asparagus must be free of earth, and the bundles will be opened by the judges in all cases where they think it well to do so. No imperfect or "double" heads will count.

For the best fifty heads grown by the exhibitor, £2 10s.; second prize, £1 10s.; third prize, 15s.

PRIZES FOR MARKET GROWERS (ENGLISH ROWERS ONLY).—For the market grower who shall exhibit the three best bundles, grown by the exhibitor, each containing one hundred heads, £5 5s.; 2nd prize, £3 3s.; 3rd prize, £2 2s. These

prizes are offered by M. Godefroy-Lebeuf, of Argenteuil.

The season generally is a fortnight later than usual as regards this vegetable.

NOTES OF THE WEEK.

TOMATOES DEAR!—We noticed some good home-grown Tomatoes in Covent Garden this week priced at the modest rate of 4s. per pound! What are our growers about? What use is made of our innumerable glass houses if our markets cannot be supplied in May with a vegetable so much in request? Less than one-fourth of this would give a good return for their culture.

COULSDON COMMONS, fifteen miles from London, near Caterham Junction, were formally dedicated to the use of the public on Saturday last by Mr. Shaw Lefevre, who with the Lord Mayor and a large party went there for that purpose. At a subsequent dinner at the Crystal Palace in celebration of the event, Lord Sherbrooke said that although he could not hope that there would be any immediate use made of these Surrey highlands, the time would come when the action thus taken would be justified. Mr. Shaw Lefevre said there was nothing but gratitude felt by the people of London towards the City Corporation for having secured for the public Epping Forest, Burnham Beeches, and Coulsdon Commons.

ATTENDANCE AT THE MANCHESTER SHOW.—Whatever effect horticultural exhibitions may have on gardening in general, there can be little question about the influence in a two-fold direction which the Manchester Whit week gatherings at the Botanical Gardens have had—first on the improved cultivation through the surrounding district of the various kinds of plants for which competition is invited, and secondly, by the diffusion throughout the district of a taste for these displays, as evinced by the numbers who yearly attend the shows. It is well, too, to bear in mind that the success of the Old Trafford exhibitions rests on horticultural productions alone. There are no extraneous attractions, such as supplement, and no doubt aid much in drawing the public at most of the great gatherings elsewhere in the provinces. The show just over has been the most successful the society has ever had, the attendance for the collective days being 55,500, and leaving, after all expenses are paid, a balance of just on a thousand pounds. On Whit Monday the number of persons who entered the Gardens was 17,000.

THE BRILLIANT WEATHER which we are now experiencing is a welcome change; indeed the heat in this part of Somerset is almost tropical. On this day (the 17th inst.) the thermometer, fully exposed at 7 p.m., but not in the sun, indicates 70°, and this with an almost clear sky and a rising barometer. It might truly be written this year that winter and summer have met without any intermediate season. So wonderful is the change in the aspect of the country, that we seem in the space of a few days to have been transferred to another region. In looking round the garden I find that Roses have suffered a good deal from the cold March weather, but on the other hand Pansies, Violas, Tulips, and similar hardy plants are making a better display than could be expected seeing how much they suffered from cutting east winds. Bush fruits have recovered wonderfully; Pears, too, are setting fairly well, but Plums so far are less satisfactory; Strawberries, although somewhat weak, are showing an average crop of flowers. The most promising of all hardy fruits is, however, the Apple. Many trees are literally sheets of pinkish white so thick is the bloom on them, and the fine weather which we are now having must do much towards securing a crop of fruit. Notwithstanding the unfavourable summer last year for ripening the wood, the trees were not overladen with fruit; therefore they were able to perfect their fruit buds, a circumstance to which we are doubtless indebted for the fine display which they are now making.—J. C. C.

Recent garden appointments.—Mr. James Riddell, as gardener to Earl Feversham, Duncombe Park, Yorkshire; Mr. James Campbell, as gardener to Whalley B. Nutt, Esq., the Grange House, Edinburgh; Mr. James Brown, as gardener to Stephen Adam, Esq., The Lodge, Balerno; Mr. William Burnett, as gardener to J. J. Dalgleish, Esq., Branxton Grange, Cullcross, Alloa, N.B.; Mr. John Harrison, as gardener at Thornycroft, Cheshire; Mr. Robert Slightholm, as gardener to T. Dymond, Esq., Burntwood Hall, Barnsley; Mr. John Birch, as gardener to Sir William Cooke, Bart., Wheatley Park, Doncaster; Mr. John George, as gardener to J. Kerr, Esq., Church House, Church, Lancashire; Mr. McKay, as gardener to the Duchess of Sutherland at New Tarbat, Ross-shire; and Mr. Macaulay as gardener and forester upon the Duchess's estate at Strathpeffer. Mr. G. Robertson, gardener to Mrs. Ellis, Invergarry, Fort Augustus, Inverness; Mr. J. Flemming, gardener to Mrs. Alcock, Eardmont, Crayford, Kent; Mr. E. Dumper, gardener to J. G. Bannatine, Esq., Summerville, Limerick; Mr. A. Barker, gardener to Earl Dunraven, Adar Manor, Co. Limerick; Mr. A. Langley, gardener to Dowager Lady Ripley, Bedstone Court, Salop; Mr. J. Bohill, gardener to Sir C. R. Boughton, Downton Hall, Shropshire; Mr. H. Mantelov, gardener to Mrs. Thompson, Inholm, Holmsbury, St. Mary; Mr. J. Todd, gardener to Sir J. C. Orde, Kilmory, Lochilphed; Mr. J. Robertson, gardener to Captain C. Hope, Cowden Knowes, Earlestone, Berwickshire; Mr. G. Beaton, gardener to Miss Ludlow, Yotes Court, Maidstone; Mr. W. Evans, gardener to F. Pine, Esq., West Tree Villa, Maidstone; Mr. A. Tait, gardener to A. Y. Herries, Esq., Spottes, Dalbeattie; Mr. G. McGill, gardener to A. F. Maclean, Esq., Ardgow, Fort William, N.B.; Mr. J. Rose, gardener to Sir R. Lloyd Lindsay, Bart., Lockinge, Wantage.

OBITUARY.

WE regret to have to record the loss of a good gardener, Mr. WILLIAM COX, who died on the 8th inst., aged sixty. He was upwards of forty years gardener at Madresfield Court; indeed, he was hardly anywhere else, for in his nineteenth year he went there as journeyman, in four years afterwards he became head gardener, and there remained until his decease, having during that time served four Earls Beauchamp, with credit to himself and satisfaction to his employers. He was the raiser of the Madresfield Court Grape, a hybrid between the Black Morocco and the Muscat of Alexandria, and also of Golden Gem Melon. His illness was long and severe, and a few months ago he had to give up the active superintendence of the gardens at Madresfield.

Manchester exhibition building.—In the report of the Manchester show (p. 456) the size of the new exhibition building should have been 252 feet long by 54 feet wide; not 25 feet long by 54 feet wide, as printed.

Lawn mowers.—Allow me to inform Mr. W. J. May, Walton-on-Thames, that I shall enter into no private arrangements with him in this matter until he signifies his willingness to fulfil the challenge (as proposed by himself and accepted by me) in the same public manner in which he made it.—AN OLD LAWN MOWER.

Rose Merveille de Lyon.—In our report of the Regent's Park show in last week's GARDEN we stated that Messrs. Paul & Son, Cheshunt, received a certificate for this Rose, whereas it was shown by Messrs. W. Paul & Son, Waltham Cross, who also received a certificate for it from the Royal Horticultural Society.

Names of plants.—*C. D.*—1, *Geum montanum*; 2, *Rubus arcticus*; 3, *Sisyrinchium anceps*; 4, *Lithospermum purpureo-ceruleum*; 5 and 6, cannot name without flowers.—*Mrs. Tassell.*—Apparently *Rhododendron Nuttallii*.—*H. M. H.*—*Dendrobium thysiflorum*.—*Mrs. Ward.*—*Neprolepis exaltata*.—*T. R. Smith.*—*Cypripedium Hookeri*.—*C. M. O.*—Please send again.—*Hull.*—Apparently *Saxifraga aizoon* variety, *Tulipa Celsiana*, but the specimens are both too small to name correctly.—*T. Cripps.* A species of *Vaccinium*; will endeavour to name it.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare*.

NOTES AND READINGS.

HARDY PLANTS AT MANCHESTER.—The Rev. F. Tymons has cleverly netted your esteemed correspondent, Mr. Brockbank, among the "florists proper" lately as an extensive grower, exhibitor, and raiser of florist's flowers, and one naturally turns enquiringly back to Mr. Tymons when we read the following from Mr. Brockbank himself last week on the hardy plants and alpine at the Manchester show. Speaking of the "melancholy sight" these plants presented through being grown under glass for exhibition purposes, he says, "If this is to be the future manner of exhibiting alpine, the Royal Botanic Society will certainly not foster a healthy love of Nature in our midst. It would have been easy to have taken a far more showy and better lot from any good collection of alpines, flowered naturally and in proper character, and this ought to be a criterion in judging as well as rarity and beauty of bloom." How does this affect the Auricula grower who has never grown or exhibited that alpine subject in any other way than that denounced by Mr. Brockbank? Forced or not forced, however, an alpine or hardy collection beats a table of Auriculas or of any special florist's flower, and such exhibitions are doing much to familiarise the rising generation of gardeners with select hardy subjects. Allowance can be made for protection and culture that hardly misleads anyone regarding the character of the plants; and without protection such collections could not be got together early in the year.

HORTICULTURAL LECTURES.—It is to be hoped the Royal Horticultural Society, under its new auspices, will not spend too much of its time in "lecturing." Among some who are listeners the long lectures are found to be a little wearisome if borne with patience. Lectures were a very good thing when no other means of disseminating information existed, but they are now a relic of bygone times, and occupy much valuable time that could be better spent in discussion and observation. Lectures can only be addressed to a very limited body of individuals—often sleepy ones. Meetings of scientific bodies and the like are now conducted on better "business" principles than they used to be. I think if a "British Horticultural Association" was to meet annually somewhere and record the discoveries and real work of the past year and its speculations for the future, it could say nearly all it had to say in lectures, and, like angels' visits, that are few and far between, they would be much better appreciated. The lecturers would also be more careful to have something to say, and their subjects would be less trite probably. Such an association does not need to encumber itself with a provincial flower show at the same time—all that is well taken off its hands now—but it might meet at the same place and time at which some of our great exhibitions are held. In this way gardeners would have placed before them a clear record of progress which at present they have no accurate means of estimating.

A HARDY GARDEN.—Those who are interested in the comparative merits of bedding *v.* hardy plants will in a short time have an excellent opportunity of comparing the two for decorative purposes at the Manchester Botanical Gardens, where a garden of popular hardy plants and another in the bedded-out style are laid out side by side. When we saw them last the bedded-out spring bulbs made the best show, but the hardy plants and annuals have not been long planted. Each bed of the latter contains one variety or species, such as Tritomas, Carnations, Delphiniums, Phloxes, Anemones, and other popular

and good things, not arranged perhaps as they would be in a private garden, but in a good way to test the merits of the varieties themselves if the experiment be successful, as no doubt it will be under such an able curator. The "botanical collection" which formerly occupied the same site has been relegated to the botanical border in a less public part of the gardens and nicely labelled.

MYOSOTIS GRANDIFLORA.—Without saying that this is a better variety of Forget-me-not than others in cultivation, there can be no two opinions regarding its perfectly distinct character. The plant is dwarf, erect, and close in habit, and the flowers are produced in broad, Cockscomb-like corymbs, borne at the top of stiff stout stalks partly fasciated, and often half-an-inch or more in breadth. Their colour is of the same turquoise blue as *sylvatica* and *disitiflora*, but they are more circular and even, like a good *Cineraria*; have from seven to nine petals against the other two's five, and have a larger and more distinct eye. The variety comes true from seed, and is very neat and pretty.

RED-LEAVED PLANTS.—Since the note on this subject appeared it has been suggested to me that the common Beet and its varieties, including the Mangold Wurtzel, contradict the idea that red colouring matter in the leaves renders a plant more hardy, as the dark-leaved Beets as a rule produce the smallest roots, and are the least hardy. When such varieties as Dell's Red-leaved Beet sport back to the greener leaf of the original type, the change is at once indicated by a taller and more vigorous growth. The same remarks apply to Rhubarb.

TULIPA RETROFLEXA.—In what light does the "florist proper" regard this flower, which represents probably the widest possible departure from his standard "cup of beauty" that could be conceived? And yet it is a handsome flower, with widely-separated petals of graceful curvature—just such an one as an artist would choose to depict, although the consistent florist would no doubt throw it on the rubbish heap. It is a conspicuous object in show collections of hardy plants at present.

RHUBARB.—Critics have not yet, so far as I am aware, affected to distinguish great differences in the flavour of different Rhubarbs, and the only distinction cooks acknowledge between the sorts is measured by the quantity of sugar they require to sweeten them to the right degree. There are, however, green sorts and crimson sorts and coarse and fine textured kinds. The red sorts are, as a rule, the earliest and tenderest, and are most appreciated on account of their colour, for now-a-days colour is in the culinary art almost as important a matter as it is in the flower garden. Rhubarb is one of the most lucrative vegetable crops grown, whole fields being devoted to its culture near the large midland towns, where length and weight of stalk go for a good deal. When in season it makes a better tart than either green Gooseberries or green Grapes.

LONG GRASS LAWN MOWERS.—Lawn mowers were never designed to cut long Grass, that is, Grass 5 inches or 6 inches deep, notwithstanding the verdict of judges at "exhaustive trials" at shows and elsewhere. The idea of the mowing machine was borrowed from the cloth manufacturer's snipper, an exactly similar machine in use for shaving the pile of certain fabrics long before the lawn mower was suggested, but these cloth cutters are only adapted for cutting pile of a certain length, and the Grass mower is only adapted for cutting Grass about the length of half the diameter of the knife cylinder. Longer than that the knives miss their grip, or get too large a mouthful and "choke." Mowers of the present pattern adapted to cut long Grass could be contrived, but the power required to drag them would not come within the compass of a man or a horse,

hence for hay Grass and Corn resort is had to the reaper, constructed on an entirely different principle.

A CROP OF GRAPES.—The writer referred to in this matter lately in these notes has, I observe, fallen into an error in supposing that I set up an estimate of the crop he praises in opposition to his. This was not the case. It was his own estimate, not mine, which was given. He specified a certain area bearing a specified quantity of fruit which gave just less than 1 pound to every 2 square feet, and this result, after a fortnight's reflection I observe is not challenged. Extravagant eulogy ill assorts with arithmetic. How a writer who has for years grown Grapes himself could regard such a result as amazing, astonishing, murderous can only be explained on the principle on which the Lilliputians regarded Gulliver. As to packing Grapes, it was not "great, jutting shoulders" that were commented on, but the transparent apology offered for growing small bunches. Neither in theory nor practice can it be shown that large bunches will not pack and travel as well as small ones. One fails to understand the difference between a 20-lb. basket of big bunches and one of the same weight of small ones, such as fruiterers often receive.

EXHAUSTION BY PROPAGATION.—Has this idea any foundation in fact? It has been much insisted upon in connection with the propagation of new and scarce varieties of Vines and the like. The way these are propagated is as follows: Once the variety is proved, every plant, consisting necessarily of young one-year-old canes for the most part, is cut up into eyes and propagated. In other words, the Vine is multiplied from bits as fast as it will grow from its very infancy, and that is supposed to enervate its constitution and account for many of the failures in raising Vines that have been heard of, and the question that arises is, has the argument any force? Is a Vine propagated from an eye from good wood from an adult Vine stronger than one from a one-year-old cane propagated maybe for one or two generations from similarly youthful plants? and are Vines propagated by means of green cuttings? How far is the young plant influenced by the organised matter, stored up sap, or whatever you like to call it, in the original morsel of wood attached to the eye? After the young Vine plant begins to root fairly on its own account, does it soon become independent of parental assistance?

AS TO PROPAGATING VINES by the green tops, I do not think the plan is a ready or successful one, and it would be interesting to know in what nursery and with what particular Vine it was adopted extensively, as stated in the *Journal of Horticulture* lately. Mr. Barron, in "Vines and Vine Culture," says on propagation: "Roots are very readily produced from the old or ripened wood. But never under any circumstance do we see roots being produced from the young or growing wood; and although by great skill and care a few plants might be so propagated, the number would be very limited (p. 9)." This is the opinion of most growers. As a matter of practice one would therefore like to know when and where Vine cuttings were rooted in that way "as often as cuttings could be had." Such practice would be suicidal in the propagation of a new Grape from a commercial point of view, and of the growers who have raised or distributed new Grapes lately, we are pretty sure none of them adopted the plan. We have seen and examined many new young Vines sent out by the trade and by raisers, but never yet came on one not raised from a hard-wooded eye. Whatever answer may be given to the above questions, it may be safely stated that none of the characteristics or peculiarities of the new Grapes sent out originated in any way from debility by over-propagation; nor can it be supposed there is much in the hypothesis at all, or it would have been seen in other garden plants that have been multiplied for many years in succession by the

express method, as, for example, Roses on the Brier root and many other hard and soft-wooded plants.

PEREGRINE.

ORCHIDS.

EXHIBITION OF ORCHIDS.

SUCH a sumptuous feast of Orchid bloom as Mr. Bull has provided at his nursery in the King's Road, Chelsea, is in truth a rare and beautiful floral sight—a sight that reveals at a glance the wonderful range of colour and diversity of form that exists among exotic Orchids. No one, we imagine, even if he lacked predilection for Orchids, could fail to be enamoured with such a spectacle, representing as it does the loveliest and rarest flowers that the Tropics have yielded to us. Here we have them cultivated and flowered to perfection and arranged in a tasteful and picturesque manner in association with noble Palms, elegant Ferns, stately Aroids, and other plants. Under one capacious roof Mr. Bull has gathered, from every available source, seemingly, this vast assemblage of Orchids, which represents every important race of the family within the Tropics, from the hot jungles of the east to the cool mountainous regions of South America. The occupants of the hottest and the coolest houses, and even some hardy species, are thus associated, and all combine to render this unique show even more charming than its predecessor last year,—the second of Mr. Bull's special exhibitions of Orchids. The present display eclipses that of last season not only as regards the quality and excellence of the plants, but also in extent, for the length of the show house has been doubled, and now measures over 100 feet. This spacious house is filled to overflowing with flowering plants, which may be numbered by the thousand. The arrangement of this great gathering has been a work of care, for due regard has been taken to create harmony of colour and to prevent any harsh contrast. One striking feature above all others is the absolute freedom of the thickets of spikes which fall about elegantly without tie or stick to support them, and the absence of these imparts such a light, airy appearance to the plants.

The house has a broad central stage and a narrower one skirting the sides, and the Orchids rise as it were from a carpet of delicate greenery of Maiden-hair and Hare's-foot Ferns, which tends to throw up the brilliant hues of the flowers. Each end of the house is covered with mirrors, and these give a reproduction of the whole scene, so that the visitor appears to be looking through long vistas of gay Orchid bloom. These mirrors were a capital idea, as they considerably enhance the effect of the display. The brilliancy of this delightful Orchid show is heightened, inasmuch as it comes upon the visitor unawares, for before reaching it he has to pass through the entrance vestibule—a veritable grove of Tree Ferns, Palms, Cycads, and other luxuriant tropical-foliaged plants, which form a violent contrast to the gay tints of the Orchids. We like the way in which some of the varieties are grouped better than the mixed style, for when a colony, so to speak, of one or allied kinds is seen the fullest expression of beauty is derived from it, and such a style of arranging gives more variety, for then one side of the house is not a reflection of the other. The exhibition is remarkable not only for the enormous quantities of flowering plants it represents, but also for the wealth of species and varieties, some being extremely choice. To do, however, full justice in a notice of it would take up more space than we have at our disposal, so that we will confine our notes to the most prominent plants.

ODONTOGLOSSUMS are perhaps beyond all others the leading feature in the display, and particularly the undisputed queen of the genus, *O. vexillarium*, which was never more numerously represented in any one collection or seen in such diversity of forms or so uniformly well cultivated. Of this species alone there are some thousands of blooms expanded. In some cases a few plants form a little group by themselves, intermingled

with the graceful Ferns, which shows to advantage the delicate pink tints of the Orchids, the whole making a lovely picture. The most distinctly coloured varieties of *O. vexillarium* have been named, and some of these are remarkably distinct. There are about a dozen named varieties, the names in most cases being suggestive of the colour. Thus there are *atropurpureum*, the deepest toned of all; then comes *rubrum*, roseum, with every intermediate shade, to the pure white album, which is indeed an exquisite variety, the very embodiment of purity of colour and elegance of form. A very striking variety is *bicolor*, which has a pure white labellum, but rosy pink sepals and petals. *Pictum* and *picturatum* are in the same way, but distinct, the colours of the lip and sepals not being so contrasted. Another, called *amabile*, is truly a lovely variety, and so is *venosum*, remarkable for the distinct veins of deep rose-pink which traverse the light rose sepals, petals, and lip. It is marvellous to see so much variety in an Orchid that has been introduced so recently, and it is a pleasure indeed to see the plants in such perfection of health as Mr. Bull's Orchid growers bring this species to. The forms of *O. crispum*, too, seem to be endless, and likewise the hybrids which have sprung from it, but as we have so frequently alluded to the rich collection here of these, we will pass on to some of the other species, among which is *O. polyanthum*, represented by one of the finest varieties we have ever seen, only comparable with the handsome form shown by Mr. Lee at South Kensington a short time since under the name of *grandiflorum*. The difference between a poor and a fine variety of this species is very great, but those who possess a really good one such as that under notice certainly have a handsome Orchid. The large, bold flowers, with a yellow ground, so heavily blotched with chestnut-brown, renders it most attractive. Another rare variety here is *O. Jenningsianum pauciguttatum*, it differing from the type in the flowers having fewer spots. *O. perinsigne* is one of the most beautiful of all *Odontoglossums* and quite new. The little white *O. Oerstedii* is flowering well, and very pretty it looks embosomed among a group of *O. vexillarium*. The spider-like *O. cirrhosum* throws up its tall elegant spikes above the rest, as also *O. cordatum*, of which there are some exceptionally dark forms of a deep chestnut hue; *O. nebulosum pardinum*, the rare *O. facetum*, *O. Halli*, *Coradinei*, and a new relative of it recently named by Professor Reichenbach *O. ligulare*, and *O. Ehrenbergi* are among the other species which contribute to the display, nor must we omit the queenly *citrosimum*, which is among the gems of the whole tribe of Orchids. Of this species, again, Mr. Bull possesses a whole host of varieties, the most distinct of which he has named according to their colours. That called *rubrum* is the deepest of all, then come *roseum*, *delicatum*, and the pure white album. *Giganteum* is for its unusually large flowers of a delicate tone of pink, and another named *punctatissimum* has its blossoms profusely spotted with minute dots of purple on a pink ground, thereby rendering it extremely beautiful. The long gracefully drooping spikes of *O. citrosimum* and the delicious odour they diffuse, together with the delicate colour, combine to make it one of the most valuable of Orchids, and one, moreover, that is more easily grown than many others. Leaving the *Odontoglossums*, we come to the

MASDEVALLIAS, which alone make an exhibition and afford quite a study, so numerous and diverse are they. Even of one species, *M. Harryana*, there are at least a dozen or more distinct varieties, all exceedingly beautiful. Mr. Bull wisely gives characteristic names to the most distinct, and of these named varieties there are no fewer than a dozen all more or less distinct either in colour, form, or size. The most remarkable structurally is the splendid *acanthifolia*, as rare as it is beautiful. The flowers are large, of a brilliant crimson-magenta, but its most palpable distinguishing character is the spiny process which occurs on the stalk of the leaf, which is seen in no other variety. Among the others is

one called *brilliantissima*, an appropriate name, as the colour is intensely brilliant, and so deep at the tips of the pointed sepals as if the colouring matter had run down to drop out at the points. Bull's Blood variety, *illustris*, *mirabilis*, *princeps*, *regalis*, *delicata*, *magnifica*, *Regina*, *lilacina*, *coccinea*, *splendida*, *sanguinea*, *cœrulescens*, *gloriosa*, and *ignescens* are remarkable for their splendid colours, which are simply indescribable, their being no pigments on the painter's palette with which to compare them. We noticed two that had distinctive names on account of the form of the flowers; one is *conchiflora*, the blossoms of which are shell-like, as if chiselled out of marble, so firm and thick are they. These numerous forms of *M. Harryana* contribute in no small degree to the display, for their sheaves of slender flower-stalks are seen peeping out at every turn. Of the winter flowering *M. ignea* there are two rare varieties in bloom named *Mas-sangeana* and *Stobartiana*, both extremely handsome. The flowers of both of these varieties are considerably larger than those of the type, and of rounder shape. The first is of an orange-scarlet colour; the other is of a lighter hue with the face of the flower distinctly lined with deep purple. *M. Veitchi* and *Lindeni* are, of course, included in the collection, besides numerous species of the less showy class, such as the charming little *Shuttleworthi*, which was originally introduced to this nursery; *M. Peristeria*, *bella*, *Chimera*, and the Humming Bird Orchid (*M. trochilus*) a fine plant of which in luxuriant health is carrying three or four of its exceedingly curious, though not very showy, blossoms. These and crowds of others of the so-called botanical Orchids are not, we observe, ignored by Mr. Bull, as they lend additional interest to the exhibition.

THE CATTLEYAS, with their gorgeous blossoms, are necessarily an important element, and they are in great profusion, particularly those such as *C. Mossiæ*, *Mendeli*, *Warneri*, *Skinneri*, which are in the height of their flowering season. At every turn we meet them, some standing out boldly in an isolated position, others peeping from amidst the delightful greenery of Maiden-hair Fern, and others again are formed into a little group by themselves, where, as we before remarked, they are seen to the best advantage, as the extra brilliancy of one variety shows off the delicacy of another. Of the very variable *C. Mossiæ* there is quite a crowd of varieties, scarcely two alike. Those that exhibit any remarkable characters are named, and the list of these named varieties is already a long one. The most prominent in flower are *Chelsoni*, *picturata*, *marginata*, with an exquisite white frilling to the labellum; *rubra*, the deepest tinted of all; *aurantiaca*, with a splendid yellow throat; *superba* and *gigantea*, the latter being remarkable for its unusually large flowers. In many instances the difference between these varieties is entirely one of colour, and the gradations of shades is so delicate, that it is quite impossible to intelligibly describe them; and the same with the forms of *Mendeli*, *Skinneri*, and *Warneri* Cattleyas, though there are some, such as *Mendeli delicatissima*, that are so distinct from all the rest, and so fascinating withal as to excite the admiration of everyone. Some dark forms of *Skinneri* were noteworthy, as also an exceptionally fine variety of *C. Leopoldi*, which stood out conspicuously from its fellows on account of its large blossoms and deeply pronounced markings. The greatest beauty, however, we thought of all the Cattleyas was a variety of *C. Triana* named *Victoriæ*, one of the loveliest we have ever seen. The flower is large and the broad petals are held firmly together, so as to make a compact flower. The labellum is the chief feature of beauty, it being quite circular, beautifully frilled at the edge with pure white, while the other part is a glowing amaranth tint, and a bright blotch of orange-yellow extends down the throat. Rarely have we seen a Cattleya that pleased us so much as this one, which Mr. Bull rightly esteems highly. That magnificent ally of the Cattleya, *Lælia purpurata*, is a great beauty, and forms may be seen of it from the typical to the pure white alba, with sepals and

petals as white as snow in contrast with the richly adorned lip. The above are the principal of the Cattleyas at present in bloom, which very shortly will be succeeded by the splendid *C. gigas* and others of its race, and so carry the Cattleya bloom on till the end of the exhibition in July. Although the flowering season of

DENDROBES is on the wane, there are still a large number in bloom. There are some fine plants of the pretty *Devonianum*, with its long slender stems thickly wreathed with flowers, and *Pierardi* is likewise still in bloom. One of the gems of the genus is unquestionably *D. primulinum giganteum*, and here Mr. Bull has it to perfection, the stem being thickly clothed with the large shelled lipped flowers of a soft primrose yellow. The yellow *Dendrobies* are represented by *thysiflorum*, *clavatum*, *chrysotoxum*, the rarely seen *dixanthum*, a sweetly pretty species, and *densiflorum*; of the latter there are some gigantic specimens some 4 feet through, bearing a perfect thicket of stout stems, from which hang in graceful profusion golden yellow clusters of bloom. Such grand specimens as these are so seldom met with that they well deserve a special note. The favourite little *Parishi* attached to blocks and flowering in profusion is one that never fails to arrest the attention, as also the white *Bensoniæ* which must be included in every collection, however choice, and *D. Jamesianum*, *infundibulum*, *macrophyllum*, and the uncommon *cariniferum* may also be seen in bloom.

ONCIDIUMS make their presence felt, and the exhibition would be shorn of a deal of its brightness were it not for the long spreading spikes of *O. Marshallianum*, crowded with brilliant yellow blossoms comparable only to a swarm of golden butterflies. Then, again, the long dense spikes of *O. concolor* is nearly as showy as the preceding, but the finest of all the yellow species is undoubtedly *O. macranthum*, of which there is a grand specimen carrying a long branching spike of blossoms, each between 2 inches and 3 inches across, and of various shades of yellow, from a clear chrome to a bronzy hue. It is a veritable Goliath among *Oncids*. Among the rarities of the genus are the new *O. metallicum zebrium*, which has zebra-striped petals; *O. tetracopis* and *cryptocopis*, both of the serratum type, with chocolate-brown flowers on long rambling spikes. *O. phymatochilum* is flowered beautifully, and so is such as *leucochilum*, *unguiculatum*, *sphegiferum*, the latter in the way of the neat little *O. pulvinatum*, but a larger edition of that species and brighter coloured. *O. pubes* and the singular *O. unicorn*, with a horn-like process projecting from the labellum, and a host all help to lend interest to the display.

MISCELLANEOUS GENERA represented include the following: Of *Sobralia macrantha* there is a dwarf variety not exceeding more than 2 feet in height bearing large flowers of as rich and as deep a colour as we have ever seen in this *Orchid*. The summer-flowering variety of *Angraecum sesquipedale* is a noteworthy plant, as it shows that the normal season of flowering may be altered even in *Orchids*. Of *Cymbidium Lowianum* there are grand plants, sending out long spikes of their pea-green blossoms with the lips stained with crimson. This crimson varies in intensity considerably, and one form here named *atropurpureum* has the deepest tinted lip that had hitherto come under our notice. The ivory-white flowers of *C. eburneum* are still in perfection, though the season is so late for this *Orchid*. *Vandas* make a noble show, their stately growth being prominent among those of dwarf stature. Of tricolor there are many varieties, and one we singled out called *Meleagris* we thought particularly fine, the colour of the lip being so rich. The rare *V. Denisonianum*, with ivory white flowers, may be seen, and likewise a host of other East Indian species, such as *Aerides Fieldingi*, *crispum*, *Lindleyanaum*, *odoratum*, *Saccolabium*, and others. The bright orange-scarlet spikes of *Epidendrum vitellinum majus* is everywhere seen, and among other flowering species of the genus we noted the rare *E. falcatum* or *Parkinsoni*, with its white

skate-like blossoms; also *E. glumaceum*, not often seen; and the *Frog Orchid* (*E. raniferum*) of peculiar interest, as some parts of its flowers strongly resemble a frog. The flowers are green and spotted, and depend in large dense clusters from the top of tall Reed-like stems. This *Orchid* by its singular appearance fastens the attention of almost every visitor. The *Lady's Slippers* contribute towards the show, and there may be seen potfuls of the dainty little *Cypripedium niveum*, the whitest and sweetest of all the species. The *Javanese C. virens*, extremely rare in gardens, is to be seen, likewise fine specimens of such handsome species as *C. Parishi*, *laevigatum*, *Dayanum*, *Hookera*, and *acaule*. Other kinds we made note of included *Lycaste Skinneri* in great variety; *Phalaenopsis amabilis*, with long, elegant spikes of white moth-like flowers; *Anguloa Clowesi*, with its large yellow Tulip-like blossoms; *Laelia majalis*, the lovely *Flor de Maio* of the Mexican natives; *Eulophia scripta*, a species not often met with, but pretty in colour and elegant in growth; and *Phaius Wallichii*, *Calanthe veratrifolia*, whose spires of blossoms rise above all the rest, and help to create diversity of outline.

These are some of the chief elements in this exhibition, but any description fails to give an adequate idea of it, for it must be seen to be realised. It has already been visited by a great number of the nobility and gentry, and we believe Mr. Bull intends to keep it open until the latter part of July, but the best time to see it is now and during the next month.

Odontoglossum citrosimum album.

By far the finest example we have seen of this lovely *Orchid* is sent us by Mr. Soper from his garden at 307, Clapham Road. The flower-spike, produced from a large plump bulb, measures in its full length just upon 2 feet, and quite half of its length is furnished with large blossoms of waxy whiteness, with only a dash of golden yellow in the centre to mar their chaste purity. No fewer than twenty-five flowers were borne on one spike, which was branched in its upper part. Mr. Soper seems to be particularly successful in cultivating this *Orchid*, for last year we had to note a fine specimen of it from him. We hope soon to give a coloured plate of this *Odontoglossum* and its varieties.

A fine Cattleya Mossiæ flower is sent us by Mr. Allan, Lord Suffield's gardener, at Gunton Park, Norwich. It is one of the finest flowers we have ever seen. From the tip of the upper sepal to the end of the labellum it measures 8 inches, and is just the same dimensions across the lateral petals, which are both 3 inches in width. The sepals and petals are of a deep pink-mauve tint, and the labellum, which measures 2½ inches across, is of a rich amethyst on the lower part, while the throat is a bright orange-yellow. The margin is exquisitely frilled, and is of a lighter tint than the other part. Mr. Allan says in his note, "I bought the plant of a new importation that had not flowered some four years ago of Messrs. Veitch. Two out of the four I bought have turned out to be grand varieties; the other plant has had fifteen flowers on it, and I fancy all the plants are worth as many guineas as they cost shillings."

Odontoglossum Halli magnificum.

A plant so named was shown at South Kensington last week from Mr. Pollett's collection at Bickley, by his gardener, Mr. Wilson. It represented, without doubt, the finest variety that has ever been seen in this country of this handsome *Orchid*, and well it deserves the name of *magnificum*, for even the finest of the varieties we had hitherto seen were poor compared with it. The flowers were some 5 inches across, the sepals and petals being broad in proportion, and the lip extremely large. The ground colour was pale yellow, and the dark blotches and spots were uncommonly heavy. The plant was a fine one, and bore two flower-spikes, one carrying ten the other eleven flowers. The plant altogether bore evidence of skilful culture, and the committee awarded the exhibitor a cultural commendation, though why

such an extraordinary fine variety as this was not considered a fit subject for a first-class certificate is one of those queries probably only answered by the members of the committee, who the previous meeting were so lavish with certificates, awarding them to third and even fourth-rate plants.

FERNS.

THE BEAUTY OF YOUNG FERN FRONDS.

AMONG plants with handsome foliage none possess such delicate tints as are to be found among *Ferns*, especially at this time of the year, when the young fronds are unfolding. To those who look upon *Ferns* as masses of unvarying green I would say, Come in either the cool or the warm ferneries, and see in the first the most delicate tints of *Adiantum decorum*, whose young fronds, produced by dozens on ordinary sized plants, are of a pale, tender, yellowish green, edged and suffused over with rosy pink, which tint they retain for a long time, forming thus a very pleasing contrast with the dark, rich colour of the outer matured fronds. A similar tint is also observable in *Osmunda palustris*, another essentially greenhouse *Fern* of larger dimensions, which differs from other *Osmundas* by being thoroughly evergreen, thus adorning the cool house with its delightful light-coloured foliage all the year round; while among the dwarf kinds requiring little or no artificial heat at all nothing is more attractive than the prettily-coloured

PELLÆAS, whose glaucous hues give them such a conspicuous appearance during all seasons, but principally now that a fresh beauty is imparted to them by their delightful pale bluish spring growth. Foremost among them is the now very scarce *P. cordata*, whose fronds, averaging about a foot in height when fully developed, stand nearly erect, thus showing to perfection the heart-shaped pinnæ, which are of the most pleasing form, and their natural and pretty glaucous colour all the more showy on account of the stipes and rachis being straw colour; then the gracefully pendulous *P. flexuosa* with beautiful fronds hanging down and showing themselves to perfection when grown in a basket near the glass. *P. ternstroffii* also requires to be grown in the same way to show to the best advantage its prettily coloured fronds, which are rendered more attractive still by their curious and uncommon shape, the pinnæ being disposed in whorls, forming little stellate clusters of pale blue foliage set at equal intervals all along the thin black stem, which is no stouter and as shining as that of an *Adiantum*. The charming *P. andromedifolia*, *atropurpurea*, *ornithopus*, *Bridgesi*, *brachyptera* would, in fact, furnish sufficient materials for a special study, but as I am here treating of their colours alone, and as they nearly all possess the same refreshing tints, it will not be necessary to describe them all. This same delicate glaucous tint is not restricted to dwarf-growing *Pellæas* alone, for in the greenhouse what can be more effective than that highly decorative old favourite,

POLYPODIUM AUREUM, or the scarcer and more distinct still *P. sporocarpum*, both strong growing kinds, and making a very pleasant effect in the fernery, where the bold and massive foliage of the former, of quite a blue tint, forms a singular contrast with the colours of those around it? The latter species, although of a somewhat more rigid habit, is nevertheless one of the handsomest coloured *Ferns* in cultivation, and wherever it is placed cannot fail to attract attention on account of its erect fronds, deeply pinnatifid, slightly waved, and very glaucous. Then, again, in the cool house there are now to be seen and admired the lovely *Adiantum fulvum* and *pubescens*, as well as the curious *Davallia Tyermani* or the *Doodia aspera* and the variety *multifida*—all species of small dimensions, and whose foliage at this season bears a lovely metallic tint, which is also shared, and even to perhaps a more marked degree, by the strong growing kinds of Japanese *Lastreas*, such as *L. erythrosora*, of large and handsome proportions, and producing fronds in great abund-

ance; *L. opaca*, with leathery fronds possessing very lasting properties; the comparatively new and charming *L. prolifica*, which has all the appearance of a finely-cut form of *L. erythrosora* as to the mode of growth and the glorious tint of its elegant fronds, which are besides covered with young plants, produced as plentifully as on the fronds of *Asplenium bulbiferum*. *Lastrea varia*, a species seldom seen in cultivation, is particularly remarkable by the rich, glowing, velvety metallic colour which covers its young fronds, which afterwards turn of a splendid dark velvety green. If we add now to the above list the highly interesting *Woodsia polystichoides* Veitchi, with its foliage rendered like a sheet of white silk by the numerous brilliant scales covering the fronds, and also the many tints of green, varying from the palest green of *Adiantum venustum* and *Lomaria discolor* bipinnatifida to the dark colour of the foliage of *Pellaea rotundifolia* or of *Polystichum venustum*, we shall have an array of colours not to be equalled in any other classes of plants. It is not, however, in the greenhouse that the many-tinted fronds are mostly found; these are brighter and also in greater numbers in the stove, where, no doubt, a greater amount of heat is particularly suitable for the development of the colours, and where

ADIANTUMS of course form the predominating element and surpass in brightness as well as in variety of forms and habits any of the other Ferns. Indeed, the extraordinary tints of some, such as the charming little *A. rubellum* with suberect fronds varying in colours from the yellowish pink, which they assume when they don their spring foliage, to the magenta and then the bright purple border which is peculiar to them in their further development, also the bright carmine of *Adiantum macrophyllum* with large pinnæ of a peculiar shape, and the brilliant rose turning later on to the beautiful copper colour that is found in *A. Hendersoni*, all combine to make that this interesting group *par excellence*. For instance, look at the fascinating dwarf *A. Legrandi*, whose close and yet elegant fronds form a beautifully compact head, appearing as it does when loaded with half developed fronds or over-suffused with the brightest colour. The same might be said of the commoner *A. gracillimum*, which can hardly be surpassed for gracefulness when grown in a basket and near to the glass, which treatment seems to completely alter its habit, the young fronds, light and feathery, being then of an intense rosy pink. *A. concinnum*, *tinctum*, and *Ludemannianum* are also among the gems of a good collection, the latter especially with its pinnules brought into a small tuft and forming a little rosette, in which, if grown near the light, will, at this time of the year, be found not only many shades of green, but also a very attractive pale magenta edge. And among the larger growing kinds where there is in other foliage plants anything to approach the delightful and subtle tints found in a well-grown frond of that queen of the Maiden-hairs, *A. farleyense*? When it has been kept near the light, instead of having the sickly yellowish appearance which is so detrimental to its well-being, if the temperature of the house has been kept up to between 65° and 70°, and if the plant has at all times enjoyed an abundance of moisture at this season, the pinnules are of a pale green, relieved by a wonderfully pretty purplish border, adding another to the very numerous charms it already possesses. Then, again, the lovely *A. Veitchi*, the gigantic *A. cardiophyllum*, with fronds 3 feet to 4 feet high, of a pale green when mature, but of a beautiful semi-transparent rosy colour in their young stage; the elegantly pendulous *A. peruvianum*, with unusually broad pinnules of a delightful metallic tint when young; and lastly, the beautiful *A. Williamsi*, of comparatively recent introduction, most distinct and conspicuous among all others by the pale green, almost yellow, tint of its long hanging fronds formed of prettily rounded pinnules of a peculiar shape. This species by-the-by does much better in a basket for which it is well adapted than for pot culture where it has the tendency to become of a straggling habit,

like all pendulous plants, however graceful they may be, if they are grown without due regard to their requirements. The only way to make a good plant of *A. Williamsi*, if it must be grown in a pot, is to have it placed above all other plants, as at the Victoria and Paradise Nurseries, where it is the admiration of everyone, but I should think it better and certainly more natural to grow it in a suspended basket, as in large fernery at Kew Gardens, or some smaller specimens also grown suspended from the roof at the Royal Exotic Nursery, Chelsea.

DIDYMOCHLENA TRUNCATULA is one of the most effective of Ferns with copper-coloured young foliage, and as it is a strong grower and a handsome habited plant as well, it follows that it has become a general favourite wherever it has been introduced. The same also with the truly magnificent *Davallia polyantha* (divaricata), which produces immense fronds gracefully arching over, and whose colour may safely be termed chameleon-like, as before they reach the dark glossy green which is peculiar to them these fronds pass through a whole series of tints and shades from the deep purple to magenta, then to light bronze, &c., and all these transformations only require a few days to take place, and as the plant is evergreen and grows all the year round, there are almost always some richly coloured fronds on it. Another species, *Brainea insignis*, still scarce in cultivation, but promising to become plentiful, as a host of seedlings have been raised lately, also possesses very handsomely coloured foliage, which can almost rival the better known, although rare, *Lomaria l'Herminieri*, of dwarfier stature and more sturdy habit, whose bright long fronds are produced in abundance all through the summer. Besides that all the various shades of green found in the ferneries at this time of the year help to make them very attractive, especially when the fernery is carpeted with many-coloured *Selaginellas*, such as the beautiful *S. cæsia*, *cæsia* arborea, *Kraussiana aurea*, *rubella*, and others, as is happily the case in many well-cared-for collections where Ferns and *Selaginellas* receive the kind attentions that they so well deserve, and which little extra trouble they repay so well.

With a view to help those who would like a good collection of Ferns which have their young fronds coloured, I have drawn up the following list, which, though not exhaustive, is sufficient to show how numerous they are:—

<i>Adiantum aneitense</i>	<i>Doodia aspera</i>
* <i>cardiophyllum</i>	multifida
colopos	caudata
concinnum	<i>Goniophlebium appendiculatum</i>
* <i>latum</i>	
decorum	* <i>Lastrea erythrosora</i>
Edgworthi	* <i>opaca</i>
farleyense	prolifera
fulvum	Sieboldi
gracillimum	varia
* <i>Hendersoni</i>	<i>Leucostegia immersa</i>
Legrandi	* <i>Lomaria chilensis</i>
Ludemannianum	l'Herminieri
macrophyllum	<i>Osmunda japonica corymbifera</i>
* <i>pentadactylon</i>	
* <i>peruvianum</i>	palustris
pubescens	* <i>Phlebodium aureum</i>
rubellum	* <i>sporodocarpum</i>
Sanctæ-Catherinæ	<i>Platyoma atropurpurea</i>
Seemani	brachyptera
tinctum	andromedæfolia
Veitchi	Bridgesi
venustum	flexuosa
* <i>Williamsi</i>	ternifolia
<i>Athyrium Goringianum</i>	<i>Woodsia polystichoides</i>
tricolor	Veitchi
* <i>Blechnum corcovadense</i>	<i>Selaginella africana</i>
occidentale	atroviridis
* <i>Brainea insignis</i>	cæsia
* <i>Davallia Mooreana</i>	arborea
* <i>polyantha</i>	<i>Kraussiana aurea</i>
Tyermani	rubella
* <i>Didymochlena truncatula</i>	

The kinds marked thus (*) are strong growers.

S.

Gymnogramma "gloriosa."—Under this name M. Linden, of Ghent, showed at South Kensington last week a beautiful Fern which appeared to be the same as that shown at the late Ghent show by M. Maron, under its true name, *G. schizophylla*. It is unquestionably an extremely finely developed specimen of this specimen, but it

certainly does not appear to differ sufficiently from the type to justify even a distinctive varietal name much more a new specific name, and that an absurd one, for a Fern. Dubbing plants with unauthoritative names can only lead to confusion, particularly when the new names are intended to supplant the recognised ones. *G. schizophylla* is one of the loveliest Ferns that has yet been introduced, and no better example could possibly be seen of it than that shown by M. Linden.—*FILICES.*

A novel Fern basket constructed of Ivy stems as thick as a man's finger is sent to us by Mr. E. Sandford, gardener at Dale Park, Arundel, who says he has made a quantity of them for suspending Ferns in. The basket is about a foot in length, and is sugar-loaf shaped, the diameter of the widest end, which is the mouth, being 6 inches. The stems are held together firmly by zinc wire. The basket has a rustic appearance with the stems clothed with shaggy, dry roots, and here and there sending out green leaves.

Drymoglossum piloselloides.—The reviewer of "Indian Ferns," after giving a good description of this *Drymoglossum*, states that he is not aware that this species has ever been brought home in a living condition, having never seen or heard of it being in any collection. For the benefit of your readers, particularly those who are lovers of Ferns, I wish to state that there is a living specimen of this Fern in the collection here. I am not acquainted with the length of time during which we have had it, but it is now growing freely, and gives promise of being in a flourishing condition in the course of a few months.—*THOMAS JENNINGS, Botanical Gardens, Sheffield.*

THE BEST CULTIVATED FERNS.

(Continued from p. 418.)

DAVALIA TENUIFOLIA STRICTA, a native of the Pacific Islands, is no doubt only a handsome form of the before-mentioned species, of the same mode of growth, being also deprived of rhizomes; but it is a much stronger grower, its more robust fronds often reaching the height of 3 feet. They are erect, with pinnæ broadly cuneate, and of a very pleasing colour. This forms a very decorative plant in a short time, and is exceedingly useful for indoor decorations. It is also one of the Ferns whose fronds last a very long time when cut and mixed with flowers. Greenhouse.

D. TENUIFOLIA VEITCHIANA.—An extremely beautiful variety from the East Indies of recent introduction. It is by far the handsomest of all the *Davallias* without rhizomes. Its elegant feathery fronds, from 2 feet to 2½ feet long, are borne on slender stalks of a rosy colour, which contrasts singularly with the pale green of the pinnæ, cuneate in form and finely cut. Although of robust growth, it is most elegant in its general outline, as the fronds, which are produced in great abundance, are tripinnate and ovate-lanceolate in shape, with their edges slightly incurved; the light pinnæ loosely set give the plant a very plumose and delightful appearance. It makes a very fine object when in a basket suspended from the roof where good space is allowed all round, so that its fronds can develop freely. Stove.

D. TYERMANNI.—This very striking species is distinguished at first sight by its slender rhizomes, which are densely clothed with large silvery white chaffy scales. They produce, but rather sparingly, handsome deltoid tripinnate fronds, triangular in shape, about 8 inches or 10 inches in length and of about the same breadth at the base; the pinnæ, cuneate in form, are finely cut and rich dark green in colour. This species is exceedingly useful for covering dead Tree Ferns, on the stems of which it grows apace and makes a very pretty object, the silvery points of the rhizomes peeping out in all directions. Greenhouse.

DENNSTÆDTIA.—This genus is composed of beautiful and mostly strong-growing Ferns, provided with creeping rhizomes which differ from those of *Davallias*, inasmuch as they require to be kept underground, or partly so, to be of any benefit to the plants. Most of the species possess a bold

stock of hardy plants, was favoured by Mr. Nelson with the stock of this plant, which seems to be a free seeder. He doubts if it should be classed as a perennial, but time will settle this point. At any rate there is no doubt but that the best habited kinds may be increased freely by cuttings, and if that be so, its value is much enhanced, not only as a border plant, but also for pot culture. It may be asked why, if coming so freely from seed, should it be propagated by means of cuttings. To that query there is a reasonable reply. From seed the hybrid assumes various habits and characters more or less desirable, the very best forms being seen in the beautiful plants shown at Kensington by Mr. Dean, whilst others, if less showy, are so only because they are so very dwarf and tufty, and seemingly are as pretty for rockwork as could be conceived. Then, though the suffused tint pervades all the flowers, none are of poor quality. Again, all those seedling plants which have pale or woolly foliage are tender, and do badly. If only the best form be selected, no doubt the seed stock will presently become quite set and true, although there is a botanical theory prevailing that the seed progeny of true hybrids always exhibits a tendency to revert to the types of its parents. However that may be, it is interesting to find that a hybrid is so fertile in the production of seed. A plant of similar habit, and not less beautiful, the hardy *Cheiranthus Marshalli*, held to be a true hybrid, is, however, quite barren. So much has been done by selection from time to time by persevering florists, that there can be little doubt persistent effort will presently overcome the hybrid's erratic nature, and create a strain that shall be as true as can be desired.

J. K.

THE WHITE TRUMPET DAFFODILS.

A VERY interesting chapter could be written on the different varieties of the white Trumpet Daffodil, but at present we are concerned with what are supposed by the older writers to be natural varieties. Parkinson assigned them to Spain, and, so far as the knowledge possessed by the present generation of amateurs, there is no proof either for or against Parkinson's statement. Haworth describes four varieties of these, but at present there are only three in cultivation, and form the subjects of the woodcut representing the flowers half the natural size. No. 1, the largest, has a remarkably long trumpet, terminated by an elegant rim-like flange, and on first parting from the perianth is a pleasing sulphur colour for a few days, when it changes to white. The divisions of the perianth in a good specimen of this variety are considerably shorter than the trumpet; it is called *albicans*. No. 2 is a somewhat smaller flower than No. 1, with a straight trumpet, which slightly expands at the mouth and is elegantly scalloped; when first opening the trumpet is light sulphur, but very quickly becomes white. The divisions of the perianth are somewhat shorter than the trumpet and more or less twisted; this is called *tortuosus*. No. 3 is the smallest, and it may be said the most elegant, differing mainly from No. 2 in the divisions of the perianth being as near as possible the same length as the trumpet. This is called *cernuus*, and is supposed to have given the two beautiful Double white Trumpet Daffodils, now very scarce.

At some future time I may give some account of the new beautiful white hybrid Trumpet Daffodils, of which I have several in my collection, but only two kinds in sufficient quantity for commercial purposes.

PETER BARR.

12, King Street, Covent Garden, W.C.

Birds destroying Primroses.—Birds have been very destructive here this spring in picking off the blooms of the various kinds of Primroses. Some plants they pulled off every one, completely covering the ground round the plant. Nor did they confine themselves to the garden kinds, but helped themselves with some of the common kinds we have in shrubbery borders, the double sorts as well as single. Some have thought

it was for want of water; others think there is some insect they get from them. Be this as it may, I watched the chaffinches pull the flowers off and throw them on the ground, and did not appear to pick anything out of them. They quite spoilt them this season. This is the first time they have done so.—J. C., *Farnboro'*.

HARDY PLANTS AT THE MANCHESTER AND LONDON SHOWS.

OPINIONS will vary as to the character of the exhibition which took place at South Kensington last week, but my own opinion is very decided on the matter. I think that it can hardly be questioned that there is a lamentable falling off in the character of all our metropolitan exhibitions. The Crystal Palace is but a shade of its former self; and although there was a slight improvement this year, yet those who remember it in days gone by must surely write "Ichabod" on its glories. The Botanic, by far the prettiest of the three, shows manifest symptoms of decay; and although it secures what the Royal seems unable to do, the patronage of some members of the Royal Family, yet it cannot secure the collections of plants that it at one time did. It is a delightful promenade, and on a bright sunny day such as it had this year nothing can be more charming than the appearance of the gardens, so happily laid out by Mr. Marnock, when the fashionable world flock in thousands to enjoy the same. As to South Kensington, the show seems to be going down the broad incline which the Society itself has so rapidly been taking. It had not even the attractions of the Botanic; there was no space for a promenade, for all the space round was filled up with implements, while an unpleasant odour of fish and cookery made itself very manifest the moment one left the tent, and I met with no one who did not feel the same kind of despair as to the Society's position. We are sometimes told that the frequency of these exhibitions in London has detracted from their popularity. Now, an *habitué* of these shows is hardly a fair judge on such a point; he is *blasé* with them. I could, before entering the tent at South Kensington on Tuesday last, have pretty well indicated what plants would be there, and who the exhibitors would be; but although the same thing holds good at the Botanic, that does not prevent thousands of people from attending, and the same with the Crystal Palace. But the simple truth is, the gardens at South Kensington are not a fashionable lounge, and horticulture fails to win its way.

But whatever opinions may be held on the merits of the show as compared with the Whitsuntide exhibition at Manchester, there can be no question that in two classes of plants, representing, if I may so say, the two extremities of the horticultural scale—Orchids and herbaceous plants—there is a woful distance between the merits of the two exhibitions. We have many large and successful growers in and around London, but, as a rule, they are conspicuous by their absence. Well, if I had a collection of Orchids I should probably do the same. I should hardly like to expose choice plants to the possibility of cold and even frost for two days. In Manchester all this is provided for in the heated show house; the same reason does not hold with regard to the herbaceous plants, for if Orchids are the aristocrats of horticulture, these are without doubt the bourgeois; if the one is the rich man's hobby, the other is one which even the cottager can indulge in; and yet what a miserable display—if display it can be called—these made the other day at South Kensington, and evidently how very different to that at Manchester. I had not the pleasure of being there this year, but those shown last year by Mr. Brockbank, Messrs. James Dickson & Co., and others gave a rich treat to all lovers of this class of flowers. Of those exhibited at South Kensington the other day, I can emphatically say they were rubbish, and hardly worthy even of the second prize which was awarded them. Why is this? Why does not Mr. Ware, who surely owes much to the revived

fancy, do something to show the world what treasures there are within their reach? Mr. Parker, of Tooting, used to do them well, but he is no longer a grower of them. I have heard many men say, "Oh! I can sell enough without exhibiting." I do not think this is quite right; it may be so, but at any rate let us see these things. We have private growers, too, around London whose gardens are famous for these things. It is all very nice for them to expatiate on their beauties, but surely they would be conferring a kindness on their fellow-mortals were they to bring them forward on such occasions, for I can truly say that if anyone wished to take up their culture, and went to the show the other day, he would come away with the strong determination to have naught to do with them.

I am quite at one with Mr. Brockbank as to the absurdity of showing large forced masses of flowers as herbaceous plants where the character is altogether gone. For instance, I saw a mass of *Opuntia Rafinesqui* shown at Manchester last year, with large leaves and large expanded flowers, which had evidently been brought forward in a greenhouse with artificial heat. How deluded a person would be who imagined he was going to grow it in the open ground in the same manner. I believe the most satisfactory way would be to have two classes, one of sturdy alpine plants, limiting the height at which they were to grow, and the other of herbaceous plants; and excluding Lilies from these, there are ample materials for both classes of exhibits, and it would tend, if rightly done, to a greater interest being taken in the cultivation of these valuable plants—valuable, not as Orchids are valuable for the high prices which they bring, but valuable as affording at all seasons of the year something to please, and it is with the hope of helping forward this good end that I have made these few remarks on the exhibits of herbaceous plants at Manchester and London, and have shown how much we have, as in many things, to learn of these enthusiastic exhibitors. I am a rigid florist where florists' flowers are concerned, but ready to acknowledge and welcome beauty wherever I see it. DELTA.

LILIES OF THE VALLEY EXPOSED AND IN SHADE.

EVER since I was a boy I have been taught to believe that the only satisfactory way of growing Lilies of the Valley in the open air was to plant them in a shady place. It did not matter whether the crowns were to be taken up and forced, or whether they were to be left to flower at their own time; it was thought that growing them in the shade was absolutely necessary, in order to secure fine plump crowns that would give fine spikes of flowers. I am willing to grant that, in some soils and in favourable situations, the practice may be right, but it does not necessarily follow that it is applicable to all cases. Having to deal with this Lily where it is required in rather large quantities, and in a soil and situation unfavourable to an early maturation of the crowns (a most essential point when required for early forcing), I find that when they are prepared for forcing by being grown in a shady position, the result is not by any means satisfactory. There is not only a scarcity of flowers, but the few that are produced are poor and weak, a result attributable to our cold, ungenial soil and high situation. Finding this to be the case, some years ago I decided to prepare my stock for forcing by planting them in the full sun, and the result, I am glad to say, is eminently satisfactory. The preparation of the soil has been in no way unusual, for we always make it fairly rich by the application of well-rotted manure. In order to keep up a supply of plants, we have to make a fresh plantation every year; and as it takes three years to secure fine strong crowns, some amount of forethought is necessary to prevent a break in the supply. We select a position for our Lilies in the narrow borders of the kitchen garden, which lies well to the sun. Generally we make new plantations in April, just as the young growth is peeping through the soil, but we are not very particular in this matter. If work presses, we

plant as soon afterwards as may be convenient, and I should not hesitate to plant in June. If well watered after planting, and the border is kept shaded for a week, the plants soon take hold of the new soil, and are but very little the worse for the change.

Respecting the advantages of growing Lilies of the Valley in a sunny position when required for forcing, little or no argument is necessary. Between those grown in the shade of a wall or a building and those grown fully exposed there is at least ten days' difference in the starting into growth in spring, that is to say, those plants which have the benefit of the sun are ten days earlier than those grown in the shade; and if there is that much difference in the early growth, it seems clear that there must be a corresponding forwardness extending through the summer, viz., those grown fully exposed are earlier in coming into flower than those in shade. There must, too, be an earlier maturation of the growth, so that from the first stage to the last there is a decided gain. Experience proves this to be the fact, for the foliage of those grown in the open garden dies away fully three weeks earlier in autumn than that of plants cultivated quite in the shade; and no one experienced in early forcing need be told that the earlier any plant goes to rest in the autumn, the better condition it will be in for forcing. It not only responds more readily to artificial heat, but the flowers or fruits will be finer, owing to their having had a longer resting time. It is proper to remark that we force our Lilies in boxes made specially for our use at the Weston-super-Mare potteries; they are 28 inches long, 6 inches deep, and 9 inches wide. To fill these boxes closely with crowns, we grow them thickly on the ground; therefore we simply drain the boxes, and put 2 inches of soil in the bottom; then we take them to the bed, and with an edging knife cut out the crowns in masses exactly the size of the box in which they are placed without disturbance. A little fine soil shaken over the surface makes all neat and tidy. A thick layer of green Moss is then laid on the surface, with a view to start the crowns in darkness, and then the boxes are taken to a cold pit for a week or two prior to being placed in heat. On the subject of planting it may be truly said that Lilies of the Valley may be planted at any time; but unquestionably the earliest results are obtained from spring planting. When, however, this is not possible, they may be removed with perfect safety at any other time, if only ordinary care is observed, and the succulent roots are not allowed to remain exposed to the air for too great a length of time.—*Field*.

Raising Anemone coronaria from seed.—I should like just one word more about these flowers to correct "S. D." in his assumption that I have either advised or practised the sowing of seed in heat. I have advised the sowing of and do practise the sowing of it under glass, but not in heat, because heat is not at all needed to induce it to germinate freely. Were the notion to get abroad amongst amateurs that heat was necessary to induce germination, it might seriously tend to make unpopular one of the hardiest, easiest grown, and most beautiful of garden flowers. It is all very well to practise sowing in the open ground when the grower has ample seed and a genial soil in which seeds can germinate freely, but it is not every one who is so fortunate. Those who have but a seedman's packet to start with will do well to sow in shallow pans or boxes, and when the seedlings become thick and strong shake them out singly and dibble them 6 inches apart each way into a bed of rich, well-prepared soil. No practice can be simpler or more successful, and, what is important, every seedling plant is utilised. I recommend shading the seed pans with newspaper or some similar thin substance, until the seed has germinated, and specially so is it desirable that amateurs should take such trouble, because they are not always at hand to see that water is needed at a critical moment. The seed will not be a bit longer in germinating on account of the shading, which need only be given during the hottest hours

of the day. I have plenty of seed to sow, but I could not trust it outdoors in such tenacious soil as I have here. I have had truly beautiful flowers from seed sown in the middle of June.—A. D.

"Golden-leaved" Cow Parsnip.—Will your correspondent "J. M.," Charmouth, be kind enough to spare me seedlings or seed of his gold-leaved Cow Parsnip? There is a magnificent plant lately imported from Japan called *Heraclium Frederici splendens*, which I can recommend to "J. M." It is to be obtained of M. Mater, Leyden, Holland. It is a large variegated kind. Some years ago a correspondent of THE GARDEN mentioned a variegated Rhubarb in his possession. If any reader of this has such a plant, I would be most grateful for a little seed.—FRANK MILES, Bingham, Notts.

Names of Poppies.—We agree with your correspondent, Mr. Denis Knox (in your issue of the 12th inst.) that the nomenclature of the Poppies is undefined. This may be mainly attributable to some Continental cultivators, who obtain their supplies from uncertain sources, and thus propagate the errors in this country. There are two varieties of *P. orientale*, natives of South Europe and the Levant. One is a crimson self; the other crimson with black spots. This latter variety, again, much resembles *P. bracteatum*, which has, or should have, a harder constitution, being indigenous to Siberia and the Caucasus. This species has also been called *P. pulcherrimum* by some botanists. There is thus a strong likeness between *P. bracteatum*, *orientale*, and *pulcherrimum*, and all are very handsome plants. It is evident there is some confusion in the nomenclature of Poppies which ought to be set right. Mr. Wolley Dod's statement that *P. umbrosum* is yellow in colour surprises us. The species we offer under this name is an annual, about a foot in height, and is of a crimson-scarlet colour, with a black blotch at the base of each petal.—JAMES CARTER & Co., High Holborn.

SHORT NOTES.—FLOWER.

Lychnis dioica with a forked spike, one branch bearing pink the other with pure white blossoms, is sent by Mr. Kingsmill, of Eastcott, who rightly considers it very peculiar as well as very pretty. We have never seen a similar instance before.

Tulipa sylvestris is one of the most graceful of spring flowers; its clear, yellow, delicately cut hanging bells have rather the look of a Fritillary. *Tulipa florentina*, almost identical from a gardening point of view, is of equal value.—G. J.

Diseased garden Anemones (J. R. D.).—The disease is not caused by a scale, but by a parasitic fungus named *Æcidium quadrifidum*. The wild Anemones of our woods are often attacked by an allied species named *Æcidium leucospermum*. The former plant has brown spores; the latter white.—W. G. S.

Hairbell and Bluebell.—If Gerard is referred to, it will be found that *Scilla nutans* is called Harebell on account of the hares eating the leaves in spring. This I write from recollection. Hairbell and Bluebell are probably *Campanula rotundifolia*. A little investigation on this point from those who have time to look up the question might be useful.—F. M.

Aquilegia glandulosa is undoubtedly the best of all the Columbines, and for the first time in Berkshire I have succeeded in flowering it. It seems to require a stiff, retentive soil, but ours being on the sandstone I have always failed with it. Last autumn I planted it in old, well-decayed cow manure mixed with rich yellow loam, and have had very successful results.—A. BROWN, Pusey Gardens, Faringdon.

Helleborus niger maximus.—The other day I questioned a friend who has been in the nursery trade for some thirty years as to the origin of this Hellebore. He said as far as he knew it originated in Aberdeenshire about fifty years ago. Wherever he met with it its origin could be traced to Aberdeen. It was first known to him as *Helleborus niger major*. In his capacity he bought and sold thousands of it yearly. The late Miss Hope, of Edinburgh, sent a special messenger to Aberdeen for it.—R. FARQUHAR, Fyvie Castle.

NOTES.

NICOTIANA AFFINIS.—If I were asked to name the best of all the "soft-wooded" plants of recent introduction I should say it is this sweet-scented Tobacco. A plant of it has been in flower with us for the last four months, and the long leafy shoots are now fairly laden with its long-tubed flowers. Seeds sown now and the young plants grown on in a cold frame until October, and then housed along with winter blooming zonal Pelargoniums, will flower from January onwards until June, or even later if required, and by successional sowings I feel assured the plant might be had in bloom all the year round. Although introduced two years ago or more, this plant is not seen so often as it deserves to be, and yet only yesterday the representative of a large seed merchant wrote to make inquiries about it and where its seeds might be procured. Here it seeds but rarely, and cross-fertilisation has not assisted us to a crop in any way. By crossing a large-flowered red variety of *Nicotiana Tabacum* with the pollen of *N. affinis*, however, we have abundance of seeds, and a sowing having been made we are awaiting the results of the experiment with some little curiosity.

THE BRONZE LEAF.—"And what may 'Veronica' mean by the Bronze Leaf?" writes a lady amateur who has a right to be proud of a well-stocked garden. "Can it be *Rodgersia podophylla*? If so, I think Rodger's Foot Leaf seems to be the most appropriate English name." Yes, *Rodgersia podophylla* is, as I take it, the Bronze Leaf by all good right; but everyone to their taste. It was discovered and is named after Commodore Rodgers, who found it in Japan, and it is figured in the *Botanical Magazine* (t. 6691). It is a most remarkable plant, call it what you will, but I am afraid neither Mr. Maries nor Messrs. Veitch were the first to introduce it to our gardens. Grown in deep, rich, peaty earth, in full sunshine, it is one of the very finest of all hardy fine-leaved plants.

MODERN ORCHID SALES.—Now and then we get a genuine Orchid sale. Genuine sales, indeed, are plentiful enough, but what I mean to express is that now and then such genuine and well authenticated plants are offered that they fetch sometimes more than their weight in gold. The late Mr. Dodgson's sale the other day is a case in point, and after hearing a good deal of "bad times" it is a little refreshing to read of the prices *bona-fide* good varieties realised under the hammer. *Cattleya Trianae* Dodgsoni fetched 185 guineas; *Lælia anceps* Dawsoni, 82 guineas; *Cattleya exoniensis*, 56 guineas; a smaller plant, 50 guineas; *Cattleya Trianae* Osmani, 215 guineas; and *Dendrobium Ainsworthi*, 66 guineas; and these, be it noted, only a few of the plants which sold well. The day's sales fetched something like £2000; indeed, as a friend writes, "talk of bad times, why, what are we coming to?" This sale seems to point a moral for all who import Orchids. As we know, in recent times consignments of ordinary varieties have, in many instances, barely paid expenses of collection and carriage. The fact is the country is flooded with weedy Orchids of all kinds, and many amateurs now will only purchase varieties known to be, and what is more guaranteed to be of the first quality. The time of indiscriminate collecting abroad is over; buyers now-a-days seem to wish value for their money. Only the other day Mr. Low told me that he sold Mr. Dodgson a dozen plants for £10 some years ago, and from that nice little lot these two varieties originally came.

HYBRIDISM OR CHANCE SEEDLINGS.—In THE GARDEN for March 31 (p. 296) there is an "American note" on "tree sports"—not a good heading, by-the-by, since some of us like to limit the word "sport" to vegetative or bud vagaries rather than to variations originating from seeds, whether they be of hybrid or cross-bred origin. Mr. Robert Douglas, the veteran nurseryman of Illinois, says that he is sorry to be compelled to confess that all

and rather handsome habit, and will succeed well in either the cool or the warm house, where, on account of their peculiar appearance, they make a special feature. Although mostly adapted for planting out in the conservatory, several of them make elegant specimens under pot cultivation. They are all of very easy culture and grow apace in a mixture of peat, loam, and coarse sand in about equal proportions, with thorough drainage, requiring, as they do, a good supply of water at the roots, and heavy syringings over their foliage during the growing season.

D. ADIANTOIDES (*Sitolobium adiantoides*).—This very ornamental species from Tropical America is an exceedingly handsome and free-growing kind, with very thick rhizomes, producing in quantities its splendid bi or tripinnatifid fronds from 3 feet to 4 feet high. These are of a cheerful bright green colour, with obtuse pinnules, and have a very striking appearance on account of the sori being large and prominent. Although it grows fairly well in a cool house, it is grown to perfection and is altogether finer in the stove.

D. ANTHRISCIFOLIA (*Dicksonia anthriscifolia*).—A Tropical American species and a very handsome, strong-growing plant, with fronds 3 feet to 4 feet high, bi or tripinnatifid, of a bright shining green colour, and borne on robust fleshy stalks; the pinnæ are extremely long, sometimes exceeding a foot in length, and the segments of the pinnules are broad and obtuse. Besides the above distinctive characters it is thoroughly evergreen and peculiarly distinct through its prominent and reddish brown sori, which produce a charming effect. Stove.

D. CICUTARIA (*Dicksonia cicutaria*).—This is also a strong growing and handsome Fern provided with underground rhizomes, producing fronds in great abundance; these are tripinnate, almost triangular in shape, and often reach 4 feet in height; they are of a bright light green colour, which they keep until they quite wither away. It is essentially evergreen, and propagates itself very readily when planted out in the border, and although a species native of Tropical America, it grows luxuriantly in a cool or intermediate house, but in any case requires a quantity of water at the roots.

D. DAVALLIOIDES (*Sitolobium davallioides*).—A very elegant Australian species, and one of the most graceful of all the genus. The fronds, which are bi or tripinnatifid, are produced in enormous quantities from thick fleshy rhizomes; they grow from 2 feet to 3 feet high and about 15 inches in breadth, with pinnules cuneiform and pinnæ cut into small segments, of a dark, rich green colour, and rather pubescent. It is also an easily managed species. Greenhouse.

D. DAVALLIOIDES YOUNGI.—This highly ornamental species is a native of the New Hebrides, and of very robust habit and vigorous growth. The underground creeping rhizome is thick and fleshy, and produces fronds of noble proportions, attaining the length of 10 feet, and have stout, erect, or sub-erect stalks, quite smooth, rounded on the underside and flattened on the opposite or upper side with a furrow running along their entire length. The leafy portion of the frond is beautifully arching, bi or tripinnate, broadly lanceolate and acuminate; the pinnæ are sessile or subsessile and spreading; the rachis is furrowed on the upper side like the stalks, and the pinnules are of a light, cheerful green and finely cut. The aspect of the whole frond is very airy and graceful. It is a grand Fern for a warm conservatory, and is unsurpassed as an exhibition plant, and as a central subject in grouping where bold and spreading foliage is required. It is also a very rapid grower. Stove.

D. PILOIUSCULA (*Dicksonia punctiloba*).—An elegant and comparatively dwarf growing species from North America, all the more interesting as it is perfectly hardy under this climate. The underground rhizomes are slender and very abundant, and produce in profusion their pretty lanceolate and subtripinnate fronds which seldom exceed 18 inches high, so that it is not only the hardiest, but also the dwarfest species of the whole

genus; the stems are slightly hairy, the pinnæ very finely divided and of a light green colour; the habit of the plant is rather erect, differing on that point from all the other species in the genus, which are all more or less arching, even the strongest-growing kinds.

DEPARIA MOOREI (*Cionidium* and *Trichocarpa Moorei*).—This evergreen species from New Caledonia is a very conspicuous looking Fern, inasmuch as the sori are situated upon the apex of the veins, which are extended beyond the margins of the fronds; these are from 12 inches to 18 inches high, bipinnatifid and triangular in shape with pinnæ distant, the lower pair being pinnate. It is a compact habited plant of rich dark green colour, not so much cultivated as it deserves, as it has a sin-

INDOOR GARDEN.

THE BIRD PLANT OF MEXICO.

(*HETEROTOMA LOBELIODES*.)

THIS is so called on account of the suggestive form of the flower, which fancifully gives the idea of a bird in flight, with its wings meeting above the body. It is very pretty and curious, though not very showy. The corolla is split to the base on the side nearest the stem, and is prolonged below into a large spur, which secretes at the bottom a large quantity of nectar, alluring, no doubt, to insects, which perform at the same time the operation of pollination. This spur is of crimson-lake colour, and the upper part of the



Flowering spray of *Heterotoma lobelioides* (colour, crimson and yellow). Drawn from a plant at Munstead.

gular and unique appearance produced by the sori standing out beyond the margins of the fronds, like if they were supported on little thread-like footstalks, yet it is a very manageable plant of good growth provided that it be potted in good fibrous peat and silver sand, and has a good supply of water at the roots, but it dislikes syringing overhead. Stove.

D. PROLIFERA.—This species, from the Sandwich Islands, forms with the one just described the entire genus *Deparia*. Like the preceding one, it is a most distinct and handsome species, and will thrive equally well under a similar treatment. The fronds, which grow from 2 feet to 3 feet high, and are somewhat triangular in shape, rise from a stout creeping rhizome; they are bipinnatifid and light green in colour, and occasionally bear young plants on their points, hence the specific name. The sori are marginal and situated on the extremities of the veins, as in *D. Moorei*. Special attention must be given to the drainage, which should not be allowed to be deficient in any way, as it is the principal cause of failure in the cultivation of *Deparias*. Stove.

PELLÆA. The corolla is canary-yellow. The raceme bears from twelve to sixteen flowers, and they measure from the anthers or head of the bird to the tip of the spur or tail rather more than an inch and a half. Good specimens are flowering in the Cambridge Botanic Garden, where they usually grow about 2 feet high; in growth they are erect, and every stem comes from the base bearing rather rather handsome cordate-ovate leaves with long points. These plants were kindly presented by Mrs. K. L. Davidson, of Salisbury, and have been grown chiefly in a warm greenhouse, which appears to suit their requirements. They have been potted on into 6-inch pots in a mixture of about half peat and loam, and as the pots become well filled with roots, a saucer for water was placed under each, which evidently has been of great advantage. It appears likely that good flowering stems will grow only from the base, and therefore it would be desirable to cut away old stems for the purpose of encouraging strong growth from below. If the plants are made to branch much, it is probable that the individual inflorescences will be small. Cuttings which have been put in appear likely to

strike without difficulty. Insects have not yet given any trouble, but a tiny white fly (*Aleyrodes*) has evidently a great liking for the plant, though it appears to do very little or no harm.

R. IRWIN LYNCH.

[Our illustration was drawn from a specimen from Miss Jekyll's garden at Munstead, but it unfortunately was not a well developed one. The flowers are shown to be nodding forward about a quarter of a circle from the true position. A few days ago Mr. Lynch sent us some extremely fine specimen long shoots terminated by a numerous raceme of large and highly coloured blossoms. Grown as it is at Cambridge, it must be a really pretty plant. It is at present a very uncommon plant, though it was first introduced in 1861.]

WINTER PELARGONIUMS.

OF all greenhouse plants *Pelargoniums* I think the most useful, especially the zonal section, both single and double, as by a certain course of treatment they may be had in bloom quite nine months out of the twelve, and many sorts even the whole year round. To get them to flower during the autumn and winter, when they are of the most value, it is necessary to prepare them specially, and the way to do this is to stand or rather plunge them out doors in some exposed spot where they can have the full influence of the sun, as the great point is to harden the growth, for unless the shoots become well consolidated and ripened they never bloom in the free manner they ought.

THE BEST plants for winter flowering are those struck early in spring, which should now be shifted on into 6-inch or 8-inch pots, according to the size and strength of the plants, but as a general rule the less root room they have the better they do, for if they want help that can always be given at any time by watering with liquid manure. The soil most suitable for zonal *Pelargoniums* is a fibry loam, which may be improved by adding just a sprinkling of soot, and incorporating the same with it, as the soot not only acts as a fertiliser, but assists greatly in keeping out worms, and adds to the colour both of blossoms and leaves, to the latter of which it imparts a deep healthy green. Towards autumn, just before taking the plants in, it is a good plan to keep them a little dry that they may have a short rest, and it will be found that directly they go under glass they will begin to send up their blooms. To have these at their best and prevent damping the plants should be stood on shelves or other positions where they can get plenty of light and air, and a temperature ranging between 45° and 55°, which degree of heat is requisite to keep them steadily moving. Although most varieties will flower during the entire winter, there are some better adapted for that season than others. The best winter bloomers are *Vesuvius*, *Jessica*, and *Ianthe* in the single class, and *F. V. Raspail* and *Wonderful* in the double. Not only do zonal *Pelargoniums* required for winter bloom do best when grown outdoors, but those required for the embellishment of greenhouses during summer are greatly improved by similar treatment, but they should not be placed out till they have been prepared for the change, as any sudden transition from the protection and shelter of glass to the open is sure to injure the leaves, which under such circumstances become scorched and discoloured.

SHOW AND FANCY KINDS, though perhaps not so serviceable as the zonals, are very beautiful, and make a grand display at this season, while some may be had in soon after Christmas. The best for that early period are the old *Alba multiflora*, *Alma*, and some of the new varieties, such as *Crimson King* and *Duchess of Edinburgh*, both of which are very fine. To have any of these good early, cuttings must be struck at once, and old plants intended to be kept cut back, that they may break again and become refurnished below. The later flowering sorts also require the same treatment, but before cutting them back it is necessary to have them well ripened. The ripening may easily be brought about by standing the

plants in the full sun and keeping them rather short of water at the roots, which at once lessens the flow of sap and causes a general hardening of the shoots. Many lay the plants down on their sides, but that way of bringing about ripeness is a very objectionable one, it being much too sudden, as the bark becomes contracted and the tissues dried up instead of the parts being made hard and woody, which is the point to be aimed at. In cutting back, *Pelargoniums* they should be shortened to within three or four buds at the base of each shoot, but if extra large plants are required they may be left longer, so as to form a frame, as it were, to furnish up with young growths. The proper time to shake the plants out is as soon as the buds have started, when the roots should be trimmed in a bit and the plants re-potted in smaller pots, giving them the same kind of soil as that advised for the zonals. The potting complete, the best place for the plants is in a pit or frame, where they can be kept somewhat close and shaded for a week or so to give them a fair chance of making a start. What assists them very much in this is a syringing overhead both morning and evening, which, by keeping the atmosphere moist, is much in their favour. As soon as fresh growth commences the plants should have full light and plenty of air to induce the young shoots to become short-jointed, sturdy, and strong. Although the show and fancy kinds do well up to a certain time in pits, they will not winter there without

SPOT COMING ON THE LEAVES, a disfigurement generally regarded as a disease, but it is not so, and only occurs through the action of damp and a low, unsuitable temperature. The most suitable place to winter the plants is on light, airy shelves up near the glass, where, if not over-watered, they are sure to remain healthy and strong. The fancy varieties, being a little more tender than the show sorts, require a little more heat to do them well, and for these the temperature should never be allowed to fall much below 45°. Excepting aphides, which are very troublesome, this latter class are not subject to insects, but to keep them clear from green fly requires much vigilant watching and frequent fumigation by Tobacco of the house they are in, which is the safest and best remedy against this pest, and kills it quickly without harming the plants. D.

CULTURE OF EPACRISES.

AMONGST greenhouse plants now in cultivation none are more serviceable than *Epacris*, as not only are they of great use for decorative purposes, but they are of much value in a cut state, their long, slender shoots clothed with gay blossoms being just the thing for vases, where, if kept supplied with fresh water and not subjected to a dry heat by being placed too near a fire, they last a long time in perfection. *Epacris*, being hard-wooded subjects, are generally supposed to be difficult to grow, but in reality they are not so; on the contrary, they may be managed much more easily than *Heaths*, as they will endure a confined atmosphere better, and do not object to a certain amount of artificial heat, of which most *Heaths* are exceedingly impatient, and soon show signs of the injurious effect which it has on them by becoming mildewed and falling into a bad state of health.

EPACRISES ARE NOT DIFFICULT TO GROW, but they are to propagate; as this, however, is carried out extensively by professional and skilled hands in nurseries, and as plants may be bought very cheap, it is hardly worth while attempting to strike any; indeed the attempt to do so would be more than likely to end in failure. Those who would like to begin their cultivation should purchase plants at once; by getting them now when in flower, choice may be made of the sorts. When the blossoms have faded, cut back the shoots in order to induce the plants to break again below and form a number of young ones at their base; it is on these young shoots that the flowers of the following year will be borne. The extent to which they should be pruned depends on their

strength, but in a general way about a couple of inches of the old wood is quite enough to leave, and to insure this portion breaking well, it is always advisable to stand the plants in a house where they can be kept tolerably close and have a warm, moist atmosphere just to give them a start. A slight syringing now and then on the mornings and evenings of bright, sunny days will help this matter materially, and as soon as they are fairly on the move it will be high time for potting all that require a shift. The only

SOIL that suits *Epacris* is peat, which should be of as fibry a nature as it is possible to get it, and when chopped up tolerably fine have a heavy sprinkling of sharp silver sand cast over it and the whole thoroughly mixed together. In repotting it is important to have nice clean pots, and to see that they are well drained by having an inch or so of finely broken crocks in the bottom, over which should be strewn a little dry Moss to prevent the interstices becoming filled up with the soil. The pots prepared in this way, all will be ready for shifting the plants, and in doing this it is very necessary to ram the peat hard in around the old ball, so as to make it as solid as possible, otherwise the water when given will pass through and leave that part unmoistened, and the plants will languish and die. *Epacris* make their growth best under glass, but when that is complete they should be stood in some shady position outdoors, where, exposed to the air and night dews, they keep more healthy and are enabled to ripen their wood. D.

THE BEST CASSIAS.

ALTHOUGH the species of this genus number several hundreds, those of a sufficiently ornamental character to merit a place in the garden are but few. As seen growing under natural conditions, many of the *Cassias* are strikingly attractive, especially those of an arborescent character, the general appearance of which is said to closely resemble that of our own *Laburnum*. The difficulty, however, of reproducing those conditions which are essential to many of these and other beautiful tropical trees makes it almost impossible to cultivate them with anything like success in this country. We have, however, about half-a-dozen useful *Cassias*, speaking horticulturally, and in addition to these there are several species to be met with in botanical collections. Of the ornamental kinds, the annexed woodcut represents one of the best, viz.:—

C. FLORIBUNDA.—This is a handsome yellow flowered species, and one which thrives in a warm greenhouse or stove where it yields an abundance of flowers almost all the year round. It forms a compact shrub, grows very freely, and is easy to manage, being at home in any open soil, and likewise suffering very little from the attacks of insects.

C. CORYMBOSA is a handsome greenhouse species, of which a description and cultural information were given in Vol. XXI. of THE GARDEN. It may be used for sub-tropical bedding in the warmer parts of the country, and if planted in good soil in spring, it forms a good sized shrub in a short time and flowers very freely.

C. ALATA may be treated in the same way, and is quite as handsome as the last mentioned. *C. Sophora* is a good plant for training along rafters or pillars, as it is very accommodating, growing freely and flowering literally during the summer months. *C. florida* is another shrubby species, which bears large panicles of deep yellow flowers.

C. MARYLANDICA is perhaps the best known of the *Cassias*, being often used in the herbaceous border. It is a very pretty perennial, growing to a height of from 3 feet to 4 feet, and thriving well in any garden soil. This species is largely cultivated in North America for its leaves, which form one of the *Sennas* of commerce; it is sometimes called wild *Senna*. *C. Fistula*, the Pudding-pipe tree, *C. angustifolia*, *C. angustiloba*, and *C. Alexandrina* are the most important of the species, possessing valuable medicinal properties. B.

FLORISTS AND THEIR FLOWERS.

TO THE EDITOR OF THE GARDEN.

SIR,—If it were true that the florist is responsible for the displacement or neglect of the garden Auricula, "J. M.'s" indignation with him would, no doubt, be abundantly justified, but I do not see that the charge is sustainable. The old florists, whose work is being continued now, were, as is well known, toilers in the town, and it scarcely fell within their scope either to promote or to hinder the cultivation of purely garden flowers. They did the work that lay to their hands, and beautiful work most of us think it is. Fashion is mainly answerable for the neglect of the Auricula, as it has been for the temporary obscuration of hardy flowers generally, and of many another good thing besides. It would probably be much nearer the truth to say that we owe it to the never-ceasing devotion of the florist to this flower that the Auricula has been kept before us in any shape. "J. M." appeared to be under

(p. 442), "is naturally a rock plant, like a dry soil, and is easily managed in pots." We only seek to give it in this way essential conditions which we cannot guarantee it in the open ground. But if the florist's Auricula requires this partial protection in our over-moist climate, it amply compensates us by its strength in another direction. It defies the smoke fiend, before which so many other beautiful hardy plants succumb. With those other favourites of the florist, the Carnation and Picotee, it is, for this reason as well as for its beauty, of priceless value to us townsmen. In regard to form in the florist's Auricula, which "J. M." says is condemned by the educated artist, who is best fitted to judge of the matter, I should wholly decline to take the judgment of the artist alone as to the value or quality of the work of the gardener and the florist. The artist is a poet, and looks at flowers from the poetical standpoint. He would give us little else but the Dog Roses and the Daisies and the other simple types of flowers



Flower branch of Cassia floribunda (much reduced).

the impression that the "pip men" were regardless of the beauty of the garden Primrose, but I was able to show him that the Primrose had no more earnest and practical friends than the very "pip men" he derides. He is, I think, equally unjust to them in the case of the Auricula as he was in that of the Primrose. But even if we assume that the florists are blameable in not having taken up the culture of the garden Auricula, that does not, as "J. M." argues, prove that the work which they have done in their own line is contemptible. He may rightly or wrongly reproach them for what he considers their neglect in one direction, but that gives him no title to disparage what they have actually accomplished in another. In the matter of hardiness, I venture to think that the garden Auricula is not so universally hardy—if by "hardy" we mean the capacity of thriving under all influences—nor the show Auricula so tender as "J. M." alleges. I know the way Auriculas can be grown in the country. I had some last year and the year before with root-stocks, as "J. M." describes, like Turnips, but this did not avail them in my inferior climate against the excessive wet of the spring, which rotted nearly all of them. Of my show sorts, on the other hand, bought last summer and "coddled," as "J. M." would say, in pots and cold frames, I have not had to lament the loss of a single plant. The Auricula, as Mr. Brockbank usefully points out

—beautiful indeed in their simplicity. This, it may be allowed, might please the aesthetic sense of the artist, but it cannot be pretended that it would satisfy the longings of humanity. The artist and the florist has each his vocation, and the more they get to know of each other's work, the more likely they will be to understand and appreciate instead of misconceiving and undervaluing it. In connection with the question of forms and colours, "J. M." finally asks, "What is a green edged Auricula but a monstrosity?" I answer that a monstrosity is something ugly and hideous. But a good green-edged Auricula is beautiful in its shape, beautiful in each separate feature, and exquisitely harmonious in its colours. I have no pretension to call myself a florist, but even to my uneducated eye it seems like a want of appreciation, almost parallel to that of colour blindness, which can lead to the describing of a flower like Colonel Taylor or Lancashire Hero as "a monstrosity."

As to the advancement of our knowledge of the garden Auricula, which "J. M." has so much at heart, the florists are pretty well occupied with their work as it is, and the accident of their location would preclude many of them undertaking much in the direction "J. M." indicates. But if "J. M." can do anything to improve or extend the cultivation of the garden Auricula, he may rely upon it that the affection of the florists for this

flower can only render them his most hearty well-wishers.—M. R.

—"J. M." blames florists for not producing garden Auriculas; if he will come to Brockhurst I will show him Auriculas grown outdoors as well as indoors, on the rockeries and beds as well as in frames, but I do not risk valuable sorts worth a guinea apiece, to the chances of slugs and weather when I can conveniently protect them. The Auricula is hardy if anyone likes to plant it out, and a great many Auriculas are planted out. He then states that the Primrose is not grown as it deserves; but if he will come here, I will show him as fine Primroses as he ever saw, and these by hundreds. The Primrose has been as carefully fostered by me as has the Auricula, and in the course of six years of florist culture it has been immensely improved, and not only in my garden, but the whole district has followed suit, and beautiful Primroses abound everywhere around us. The florist aims at the production of perfect flowers, and the rules by which their qualities are judged are well settled and acted upon. They are the outcome of a century of florist work, and I believe that in every case it can be shown that they are based upon true principles of floral beauty and perfection. This applies to the Carnation, Dahlia, Tulip, Pink, and Auricula. Each has its model before it, and it is the pride and pleasure of the florist thus to strive for perfection of form. I think it cannot be denied that this is a wholesome hobby, and when we bear in mind that working men for the most part constitute the florists in any society, and that they have not long purses and large gardens, it is scarcely wise to give them nicknames, and to flout their honest endeavours after beauty and perfection as "J. M." does. If he wants to establish a society to grow shapeless common flowers for anybody's garden, let him set to work and give the example, and we will come to his show at South Kensington and see how it looks. It is my pleasure and privilege to know a great many florists who are hard-handed working men, and I can testify to the good influence this growing of florists' flowers has upon them. I only wish there were more such societies as the National Auricula Society in our busy centres of industry, and that more gentlemen than the few there are associated with working men in a pursuit of common interest and of an elevating tendency.—WM. BROCKBANK, *Brockhurst, Didsbury.*

—I am sorry to trespass further on your valuable space by noticing "Peregrine's" lucubrations on this subject in THE GARDEN (p. 445), but I fancy I see my way to eliciting a wholly new and original piece of information, which will doubtless be of much interest to many of your readers. Speaking of what he calls "popular races of flowers" and the improvement which has been effected in them, he says, "it was only when the work was taken out of their (the florists) hands and conducted on broader lines that any great strides in improvement were made." I pass over the rather contradictory statement in the preceding paragraph when he states that "florists have had but little or no hand in such work." What was never in our hands can hardly with propriety be said to be "taken out of them." But what I demand to know is this: What are the flowers which have been thus taken out of the florists' hands, and have made great strides in improvement in consequence? This is really an important question, for if "Peregrine" can sustain his statement, he goes far, indeed, to convict florists of being the worst enemies of floriculture. This is, to say the least, so novel a position, that he must expect that we shall demand that the proof shall be ample. Nothing less will suffice than a list of the plants which were once in the florists' hands and were taken out of them, and great strides in improvement made in consequence. When one reflects on the work which has been effected by florists, it seems almost ludicrous to be obliged to defend them against such charges as "Peregrine" brings. He evidently knows nothing whatever about florist's flowers. But surely this is no justification for assisting those who do. As well might

I denounce a pigeon fancier for making much of certain points and qualities of which I know nothing about; or a print collector for setting great store on some rare copy "before letters." "Peregrine" may care as little for the florist's pursuit as I do for those mentioned; but I certainly do not feel called upon to express my contempt for pigeon fanciers or print connoisseurs, or to presume to tell them the rules by which they proceeded were narrow and contracted. Yet this is the sort of criticism which "Peregrine" has no hesitation in using towards florists, for the simple reason that he knows nothing and cares nothing about their pursuit. Well, we can put up with his censure as best we may. I doubt that our florist will see the error of his ways in consequence of such criticism. In the meantime we await with interest such a justification of his charges as I have indicated.—FREDERICK TYMONS, *Cloghan, Co. Dublin.*

—Mr. Tymons (p. 417) does not appear quite to understand the objections which the lovers of flowers in their natural state have to the productions of the florist. The first objection is the tendency to produce varieties of hardy flowers which will not stand the rough usage of open ground cultivation. This is an objection which only affects people who put their trust in named varieties, as anyone can with a little care and selection raise good hardy varieties of all hardy florists' flowers which can be cultivated in the open border without protection. The secret objection is that the florist's ideal is a totally wrong one, and that as regards form what he aims at is ugliness, not beauty; degradation, not improvement. Nature is the standard of all beauty; art must go to Nature for her canvas; not promiscuous Nature, but Nature in her highest and most perfect expressions. Even ornamental or decorative forms are good or bad as they approach or recede from natural forms. When we begin to attempt improvements on Nature we must keep to her lines and style, or we go utterly wrong. We may enlarge her flowers, vary their colour or markings, or even double them, so long as we retain delicate and subtle curvature of outline and marking, play of light and shade, and harmony and grace of form. The most legitimate double flowers are those of the Aster, or composite family, for these are not truly double, and we only do with them what Nature does in the Dandelion. Additional petals may be an improvement, as in the Carnations and Pinks. Stamens and pistils may even become petals, as in the Rose, so long as grace, variety, and harmony of form are not interfered with. When, however, the beautiful forms of Nature are cast aside, and the florist dictates that a Tulip must consist, not of six spoon-shaped divisions of beautiful form such as Nature makes, but of six badly-formed petals forming a cup with a margin as nearly straight as possible. That a Carnation or Picotee must have all its petals alike, and all marked alike; that a Pansy must be flat, and a perfect circle, so that the two upper petals are almost totally hidden; and that an Auricula must present a series of rigidly concentric circles; then every one who appreciates the true beauty of flower-form must object to this substitution of designs borrowed from the draughtsmen's room of a machine factory for those subtle natural outlines which require some years of systematic study of drawing before they can be transferred to paper correctly. That kind of improvement is simply attempting to bring down Nature to the level of wholly untrained perceptions of form instead of endeavouring to train up the perceptions so as to be capable of appreciating and enjoying the beauty of Nature's handiwork. Take, for instance, Mr. Tymon's favourite flower, the Auricula; the increased size of the flower; the lasting of the first flowers until the whole truss is expanded; the varied and distinct colours are all commendable, but the circular outlines are the reverse of that. The circle is the ugliest of curves; it has no variety, and curved forms only become beautiful as they recede from circles or parts of circles. Take a single Auricula bloom simply as a decorative

rosette in colour. The natural form of petal is very beautiful, especially when the indenture in the centre of the tip of each petal is distinctly marked; the attempt to improve such a form is to spoil it. To treat such a simple rosette in four distinct colours a decorative artist might allow the centre to be a circle, but he would certainly abolish the circular paste and make that project with an obtuse point into the base of each petal. Then the best treatment for the margin or lacing would be to start almost at the paste with a fine line, increasing in thickness towards the tip of the petal, and dipping into the petal with a neatly outlined widening just at the indenture in the centre. The outlines between the colours would by such a treatment be harmonious and advantageous to the display of distinctly contrasted colours. Run-back seedlings from laced Polyanthus often show a tendency to that form of lacing, showing that such a form could be easily perfected. J. D.

LEAVES FROM THE SOUTHERN ALPS.

COMPOSITE PLANTS are very largely represented in the Tasmanian flora—Eurybias or Asters, Helichrysums, Senecios, Brachycomes, and many other genera comprising a large number of species represent this class. I shall have something to say about the Eurybias when I come to discuss my friends on Mount Wellington. In the Domain the composites are chiefly represented by three or four forms—two Helichrysums, a very pretty Australian Daisy (Brachycome), and the Leptorhynchus squamatus, an unattractive herb with a number of yellow heads like Pansy pips. Both Helichrysums are yellow and very pretty. First and most attractive is the little yellow Immortelle, *H. apiculatum*, grown in England, and, I believe, largely used where Evergreens are in demand. The leaves, like those of many of the Helichrysums and Gnaphaliums, are covered with a dense coating of silky wool, and the corymbs of flowers rise well up and are of a very bright, deep canary yellow. *H. scorpioides* is another Domain variety, larger and looser in habit than the one just mentioned, but a handsome flower of a deep corn yellow. I may go out of my way to mention here a fine Helichrysium which I found at New Norfolk, a Hop-growing settlement about forty miles up the Derwent. It is *H. semipapposum*, a singularly handsome plant if somewhat lank and loose in habit. It has a rigid stem 1 foot to 3 feet high, clothed its whole height with long linear leaves. The great beauty of the plant is its large clusters of very small brilliant yellow heads, as nearly approaching the colour of bright gold as any plant outside the Lichen family does. This is a Helichrysium which I think might become a very fine garden subject under cultivation, especially if a dwarf habit could only be induced, for I must acknowledge that, beautiful as the golden flowers are, its gawky, sprawling habit detracts seriously from its merits as a garden plant. The specimen of this plant that I have before me now is just as fresh and rich in the colour as when plucked, and the same may be said of the apiculatum species. I afterwards fell in with *H. semipapposum* in Victoria.

YELLOW seems to preponderate amongst the Domain wild flowers, for of a very bright Buttercup colour is the little creeping *Goodenia hederacea*, a very prostrate spatulate-leaved plant that would look neat and bright amongst low-growing rock plants. Very attractive, too, is the low-growing *Pimelea humilis*, the small, though not the smallest, representative of a Tasmanian family of seventeen. I shall have occasion to notice some of the shrubby members of this family in dealing with the Mount Wellington flora. *Pimelea humilis* grows in small clumps from a very woody root to the height of 3 inches or 4 inches; my herbarium specimen, root and all, measures about 6 inches. Each plant has several stems clothed their entire length with ovate leaves somewhat silky in texture. Each stem bears one or more tassels of florets mounted on a pretty whorl of bracteal leaves. The small funnel-shaped florets are of a creamy white, and are gathered

together in pretty thread-looking tassels, which are, however, not pendent, but upright. A very curious order of Australian plants, the Stylidiaceæ, is represented here by the interesting

STYLIDIUM GRAMINIFOLIUM, or Grass-leaved Trigger plant. It takes its generic name from the curious arrangement of the stamens and style, which join into a column, bent back with its top resting on the lip of the corolla. When the column is touched it springs back suddenly to the other side of the flower, and by the violence of the movement scatters the pollen and secures fertilisation. The flower no doubt is—at any rate it ought to be—in cultivation in English gardens. The Tasmanian waysides and pastures are in some places red with its slender spikes of bloom. Amongst hundreds, possibly thousands, of plants in flower I came upon one white specimen, which I dug up carefully and packed away with other specimens to be sent home. Most people know something of the

LITTLE GODDESS OF THE WOODS, the pretty blue Dianella, which at the time of my visit was somewhat past its best, the blue seed berry being formed in most cases. Yet it is of such frequent occurrence, that I was able to come upon one here and there in a state of good preservation. It has long, narrow leaves, and the panicles of flowers rise high, sometimes 2 feet or 3 feet above the ground, the stem dividing and redividing into many rigid branches, which terminate in numerous slender wiry filaments on which tremble the little azure disks, set off in the centre with rich golden stamen threads and brown velvet anthers. The species are far from distinctly separated, so that I do not venture to give a name to the specimen which I secured. The Dianella is the very ideal of a wild flower, not perhaps very effective at a general glance, but one that grows upon you the nearer you look at it, like the pink-spotted blossoms of some of the Saxifragas. Under the lens it is extremely beautiful, for only then is the full beauty of the interior of the flower fully appreciated. The last Domain plants I shall notice are two not very attractive in themselves, but having points of interest, nevertheless. The one is *Acæna ovina* and the other is *Xerotes longifolia*. The *Acæna ovina* is a near relative of our *Sanguisorba*, which is native also of Tasmania and Australia. *A. ovina* has some of the *Potentilla* foliage with very tall flower-stems, surmounted by a tenacious little ball or burr like its New Zealand congener. The adhesive calices of this *Acæna* are said to be very troublesome, and the name would indicate that it is more particularly a wool pest. The *Xerotes* is a peculiar Australian genus of the Rush family, in appearance something like a Sedge, with much branched panicles of flowers, the greenish prickly florets being arranged along the scape in little balls. A corner of the Domain facing the river Derwent is occupied by

GOVERNMENT HOUSE AND GROUNDS and by the Royal Society's Gardens. Government House is a somewhat ornate and very handsome building of sandstone; the stone for which has evidently been taken from quarries in the Domain, one of which is filled with water, and devoted to the cultivation of Water Lilies and frogs. The other has been put to no purpose, and is now overgrown with a growth of young Wattles and various native and British weeds that like a ledge of sandstone to hang over. In front of the governor's residence, and, indeed, forming a continuation of the grounds, are the Royal Society's Gardens. They occupy a piece of undulating ground sloping to the Derwent and command a large number of very lovely views of this very beautiful river, and of the blue Eucalyptus-clad hills that rise up on all sides round Hobart and stretch away in gentle rounded lines, growing bluer and bluer till they vanish in the distance. From some seats glimpses of the town and shipping may be seen; from others little pieces of the river between the trees with the pleasant little headlands and receding bays on the other side towards Kangaroo Point, forming a very pretty background. The gardens are evidently

under very careful and intelligent management, and I must here acknowledge the courtesy of Mr. Abbott, director of the gardens, in showing me over them, and the valuable assistance he rendered me in identifying the flowering plants that I collected. Trees, shrubs, and flowers from all lands are well represented in

THE GARDENS OF THE ROYAL SOCIETY. If I have any fault to find with them, it is that the flora of Tasmania is very inadequately represented. There are good collections of New Zealand and Australian shrubs. Amongst the former were specimens of *Metrosideros diffusa* (in flower), *Pittosporum* of kinds, *Brachyglottis*, and *Entelea*. One large bed was devoted to Palms, amongst which I observed large plants of *Areca*, *Seaforthia*, *Chamærops*, *Corypha*, and *Cycas revoluta*. The various Pine families were well represented, and it was very pleasant to see magnificent large specimens of conifers, familiar enough to me in a smaller state, and to make acquaintance with some absolutely new to me. Norfolk Island Pines (*Araucaria excelsa*) were well represented by fine, straight, well-grown trees rising like spires. The Maiden-hair tree (*Salisburia adiantifolia*) of Japan was also there, and the glaucous-leaved *Amboyne* Pine of Borneo (*Dammara orientalis*), the Moreton Bay Pine (*Araucaria Cooperi*), *Cedrus Deodara* and *atlantica*, various *Piceas*, and *Pinus* of many kinds. Strange to say, both in Tasmania and Australia there are few specimens to be seen of the *Araucaria imbricata*, a fact which, though I mentioned it to various horticulturists, I did not have satisfactorily explained. In Victoria—particularly in the Melbourne Fitzroy Gardens—there are magnificent specimens of the Queensland *Araucaria Bidwilli*, a tree which when well grown is quite as beautiful as *A. imbricata*, though its beauty is of a different kind, its habit being looser and less formal; but I do not remember seeing a single *Araucaria imbricata*, though, no doubt, trees are to be met with here and there. Those to whom I remarked the absence of this tree were of opinion that it could not withstand the heat of Victoria, but this will not explain the rarity of its occurrence round Hobart. One particularly interesting feature about these gardens is a long and high brick wall, one side of which is covered with a large selection of well-grown

CLIMBERS. The height of this wall might be about 15 feet, and in most cases the climbers reached the coping. All of them were not in flower at the time of my visit, but there can hardly be a spring, summer, or autumn month in which something is not in flower. There were the two varieties of *Bougainvillea* bearing a few racemes of mauve blossoms. *Ipomæa Leari* was there, a magnificent plant, but not in flower. Afterwards I saw it richly laden with bloom on Melbourne verandahs. The Clematises were represented by *C. flammula*, with small dusky blooms; *C. leptophylla*, a North American species with a much cut leaf, and various hybrid varieties. *Passifloras* by *P. peltata*, *P. elegans*, *P. Ballotti*, and others. *Tacsonias* were numerous, and included *Van Volxemi*, *Morti*, and a very fine example of *exoniensis*. *Tecomas* were also in good variety, but the remembrance of them pales beside the recollection of the *Tecoma splendour* which I afterwards saw in Melbourne. A very fine plant of the Canadian *Aristolochia sempervirens* was covered with its amber cornucopias. *Rhynchospermum jasminoides* was very large and loaded with fine flowers. A very interesting plant on this wall was the Kumquat (*Citrus japonica*), bearing at the same time fruit and flower. The small Citrons were about the size of a Spanish nut and of various degrees of ripeness. The flowers were very pure and very substantial—not unlike a single pip of *Stephanotis*, and very strongly perfumed. A large sunny slope facing the Derwent is devoted to a collection of

HERBACEOUS PLANTS and bulbs, natives of all countries. Amongst other plants I observed—taking bulbs and herbaceous plants indiscriminately—*Brodiaea coccinea*, *Calochortus Somisti*, *Ixia alba*, which I remarked for the great purity of its white; *Cooperia pedunculata*, with a very

lustrous white flower of the shape and size of a Sparaxis; *Oxalis esculenta*, its leaf rising about 12 inches from the ground and divided to the stalk, the divisions forming a sort of dome or umbrella, and the pink flowers rising in large clusters well above the leaves. There was a good collection of Campanulas, some good, but some weedy, including *C. glomerata*, *C. sarmatica*, pale lavender; *C. alliariaefolia*, white flowers with edge of petal scalloped; *C. pyramidalis*, *C. Speculum*, *C. Groszeki*, *C. grandiflora*, *C. grandis*, and a good many others; *Callirhoe macrorhiza*, the pretty blush flowers having five fringed petals; *Silene*, *Saxifrage*, *Coronilla iberica*, a fine showy yellow rock plant; *Minuria Candollei*, a pretty Australian composite; *Geum coccineum*, *Erigeron glabellum*, with Aster-like flowers of a pale lilac; *Phyteuma comosum*, various herbaceous *Veronicas* of dwarf or medium height—*V. incana*, *orientalis*, *argentea*, *amethystina*, and others, *Omphalodes verna*, *Achillea Filipendula*, *Eriogonum macrocarpa*, *Papaver bracteatum*, and *Papaver pilosum* with salmon-coloured petals. Besides these and many other plants, beautiful in themselves or interesting from the associations connected with them, the gardens were a blaze of colour from the various annuals and florists' flowers that grew in profusion in all directions. Of these I may mention only the wonderful specimens of Ivy-leaved Geraniums, which seemed to grow without training into fine large pyramids covered with bloom. There is a clearness and freshness in the blooms of *Pelargoniums* grown in the open in Tasmania which we here could only hope to have under glass. Altogether, what with the delightful weather, the brilliancy of the flowers, and the depth, variety, and freshness of the greenery, the Hobart Gardens were as fair a bit of garden scenery as I can ever hope to see. Though I afterwards found the Melbourne Gardens grander and more instructive, I cannot say that they gave me so much pleasure.

PAKEHA.

TREES AND SHRUBS.

FORESTRY FOR JUNE.

TOWARDS the end of the month coniferous seeds will commence to germinate. The beds should be kept carefully weeded, and in the case of tender species a little protection should be afforded if found necessary. Gather Elm seeds, and have them sown at once before the coating on the seed begins to harden. Young seedling *Wellingtonias* are sometimes apt to be cut over by slugs and worms; a slight dressing of salt, powdered lime, or both will assist in getting rid of these pests. Look over all young stock and disbud, cut back, or remove all rival leaders at the top. *Rhododendrons* as they finish flowering should have their dead flower-trusses cut off, which not only gives the plants a tidy appearance, but is better for their health. Standard plants that have been grafted should be examined, and any suckers that may appear at the roots below the graft should be pinched off. Prune young Oaks and other deciduous trees by removing all superfluous leaders, and cutting back any strong rambling branches in order to form a well-balanced, uniform top. Stem-prune by cutting off all side branches for a distance of one-third the height of the tree. By this means the foundation will be laid for the formation of clean, sound, valuable timber. Trees that have been managed according to the above rule in early life seldom require much attention in the way of pruning after they attain a medium size.

LARGE ORNAMENTAL TREES on the lawn or in the park that have had any branches broken off by wind should have the wounds dressed by paring off all splintered wood in order to render the surface hard and clean, and so prevent decay by the lodgment of water. Large branches and limbs that run the risk of being torn off by storm and wind should be cut back in order to lighten them and lessen the risk of accident. Holes in the trunks of trees where branches have been torn off are open receptacles for insects to

lodge and breed; these should be cleaned out and all dead wood pared off, and the places washed out with a strong mixture of lime and water, which will not only banish the insects, but also destroy their eggs, and kill all cryptogamic or other vegetable growths, and assist in the formation of clean, healthy bark. Old trees that are showing marks of decay should be thoroughly examined, and the forester should take a note in writing of the apparent cause of failure, which will be of use as a reference when he is about to apply a remedy. Towards the end of this month young plantations should be examined, and all young trees that are being choked by grass or weeds should have them cut away, care being taken not to break off the terminal buds on the leaders of the young plants. See that all standard trees and shrubs on the lawn are properly protected from the inroads of cattle. Young shrubberies and ornamental plantations will be benefited by having the surface soil stirred with a hoe, even in places where no weeds are appearing, yet the plants will thrive much better after the operation. Oak barking will soon be drawing to a close in the south of England and Ireland, but in the north it is at its height. In felling large timber care should be taken not to allow the falling tree to crash into its neighbour, as serious damage is often done in that way which takes a series of years to repair, and indeed sometimes never can be repaired. In the case of coppice wood have the stoles dressed in such a way that water cannot lodge on the top to cause rot. Take advantage of fine, dry weather to have wood and iron fences painted where necessary. Carts, wheelbarrows, &c., should get a coat of paint in dry weather, which will not only assist in preserving the wood, but also give them a clean, tidy appearance. Rid every place of weeds before they begin to shed their seed, bearing always in mind that cleanliness and neatness constitute one of the principal points of good forestry.

J. B. WEBSTER.

Eucryphia pinnatifolia.—In the garden of Mrs. Hammersley, next door to Mr. Veitch's, at Coombe Wood, are three immense plants of this splendid shrub. They are growing in sandy peat with a gravelly subsoil; the highest is more than 9 feet. In autumn they are smothered with flowers. This garden once formed part of Mr. Veitch's nursery and is full of specimen plants, including the largest *Bambusa Metake* I have ever seen.—FRANK MILES.

New plantations.—When the formation of these is contemplated the ground should be fenced and all wet places properly drained, in order to give it time to drip and cleanse itself before being planted. In the case of flat peat bog it should be drained several years before planting operations are commenced, and the first or preliminary step to be taken is to lay off the main arterial drains in such a way, if possible, that they will answer the double purpose of a fence and outlet for the principal flow of water. The next step to be taken is the formation of roads. These should not be too broad, otherwise they would never get dry and firm, say about 24 feet broad, and by cutting a drain on both sides and parallel to each other the bog will gradually subside and get firm, thus forming a base for harder material. Summer is the best time to have this sort of work carried out, and before commencing great care should be taken to have all the levels properly taken, in order to save trouble and extra expense in carrying out the works. I have generally had this sort of work done by contract, the prices for which vary considerably according to the texture of the bog and other local circumstances. After the preliminaries have been finished and the surface water drained off, the small minor drains may then be cut when convenient.—J. B. WEBSTER.

Trees in Old and New England.—I have seen in an hour's drive in various parts of England more numerous and finer trees (excepting the American Elm alone) than I have seen in all New England.—EMERSON'S "Trees and Shrubs of Massachusetts."

Clematis montana.—This is, I consider, one of the prettiest of all the climbing flowering plants. Its pure white blossoms, borne so profusely, look at a few yards distant like clusters of Stephanotis. Here against a wall it rambles at will for about 8 yards or 9 yards. As the flowers last well in a cut state, it would, I think, be a good subject for growers for market; and it is usually in bloom at Whitsuntide, when white flowers are scarce. The foliage, unlike that of most of the Clematises, is very useful for cutting during the summer months. This species stands the hardest frost with impunity.—A. BROWN, *Pusey Gardens, Faringdon.*

Magnolia Campbelli in Ireland.—One of the most annoying and (to florists) bitterly disappointing effects of the almost unexampled prevalence and long continuance of harsh north-easterly winds, with bright sun and low night temperature, during the month of March to which we have been subjected along the seaboard of Cork harbour, has been the postponement for another year at least of the flowering of the magnificent hardy Himalayan *Magnolia Campbelli*, which has not yet bloomed in the United Kingdom or indeed anywhere in Europe save in one or two favoured gardens on the banks of the Lago Maggiore, in Italy, notably in the nursery of Messrs. Rovelli, where it has also ripened seed. The finest of several well-grown specimens growing in the richly-stocked shrubbery of Mr. W. Crawford, at Lakelands, near Cork, and some 35 feet in height, showed some thirty bloom buds this spring for the first time, produced singly on the ends of young and slender twigs, but on attempting to cast their outside protecting envelopes towards the middle of March, the delicate petals inside were shrivelled up and burned black by the severe and ungenial weather that at that time prevailed.—W. E. G.

Pernettya mucronata.—Your excellent coloured plate of Mr. Lennox Davis's new varieties of *Pernettya* gives a very exact picture of the plants, and I should like to say a word in favour of these new and beautiful berry-bearing Evergreens. We have fourteen of these new varieties on a new limestone rockery here, and although they are in bud, the bright berries of last year remain thickly clustered on many of them, making a beautiful show against the limestone. For rockery purposes there is no better Evergreen shrub, as it affords a shelter without encumbering the ground, and admits of the choicest alpine plants being placed close upon its roots. No more remarkable result of patient care in the crossing of beautiful sorts, and the successful production of new forms in every shade and colour, with varieties of habit and foliage, has ever been achieved than in these new *Pernettyas* by Mr. Davis, and I can strongly advise all who are cultivating rock plants to obtain a supply of them. They are more beautiful in winter than in summer, and will be valuable for indoor decoration as well as in the hardy garden.—W. BROCKBANK, *Brockhurst, Didsbury.*

RECENT PLANT PORTRAITS.

CALADIUM L'AUTOMNE (*Revue Horticole*, May 16).—A seedling raised by the well-known raiser of nearly all the finest varieties of these handsome foliage stove plants, with leaves of the peculiar golden hue of Poplar leaves when about to fall.

ALLIUM GIGANTEUM (Regel's *Gartenflora*, plate 1113).—Apparently the largest of all the family, producing huge spherical heads of small bluish flowers on the top of straight stems of about 3 feet in height, with broad loose foliage resembling that of a *Yucca*.

BATEMANIA BURTII AND **B. MELEAGRIS** (*Gartenflora*, plate 1114).—These are two brown flowered Orchids; the first and larger and more conspicuous flowered of the two is a native of Costa Rica; the latter, which has smaller and paler coloured flowers, and comes from the Brazils.

W. E. G.

GARDEN FLORA.

PLATE CCCXC.

THE PITCHER PLANTS.

(WITH PLATE OF *NEPENTHES MASTERSIANA*, CHELSONI, AND *MORGANIAE*.)

YESTERDAY on a steep mountain side in County Wicklow I was looking at the charred turf and Furze, from which the fresh young Brake Fern fronds were springing as if quite unconscious of a scorching fire having swept over their roots a week or two ago. I was the more interested in the fact since I saw just the same thing in Singapore, only that instead of Brake Fern it was *Nepenthes* of different kinds, but principally *N. Rafflesiana*, which cropped up so luxuriantly after the forest or jungle fires. *Nepenthes* are so emphatically the offspring of a climate in which the chief essentials are heat and moisture that I have often wondered at their springing up thus, Phoenix-like, from the ashes of a scorched and blackened sod. Some plants, however, seem to like the *débris* of the fires. I shall never forget the luxuriance of *Adiantum diaphanum* growing on the site of former camp fires at the base of Kina Balu when I first had the honour of exploring the rocky sides of that great grizzly giant among Bornean mountains for Mr. Harry Veitch, and this brings me to the home or head centre of the whole *Nepenthes* family. Here on the sides of Kina Balu, or "Chinese Widow Mountain," the most strange and gigantic and interesting of all Pitcher plants are found as wild, and as free, and as unrestricted as Dock roots in an English ditch, or as Daisies and Buttercups in an English meadow. I particularly want to emphasise this point, for I find it so hard to convince ordinary stay-at-home people that all introduced plants, however rare and valuable here at home, are absolutely wild on some portion of the world's surface; all are but Groundsel or as Dandelions—weeds in the world's great wild gardens. So "weedy" are they "at home," that, as I have already said, not even a raging jungle fire blown by a north-west monsoon can eradicate their firm grip of mother earth, all of which seems to us gardeners here at home most unaccountable, seeing how erratic and exacting to boot *Nepenthes* are under cultivation in our hothouses.

HEAT AND CONSTANT MOISTURE they must ever have under cultivation, and shade is congenial alike to their health and beauty. In large airy or roomy structures they rarely succeed; a moisture-laden atmosphere suits them exactly, and too much air should not be given; indeed, very little is necessary, and more than a modicum artificially afforded proves actually detrimental to their welfare. So also of direct sunlight, which turns their leaves of a rusty colour; nor do the pitchers attain their full size or colour if too much light be admitted into the house wherein they are grown. In this way *Nepenthes* seem to be the exception proving the rule, for the largest and most highly-coloured pitchers I ever saw abroad were those on plants when growing in the shadiest part of the forest, or in deep ditches, or in water-worn gullies near rivers, and the finest and most richly coloured of all were those completely buried in dead and rotten leaves, wet moss, and rich forest *débris* of different kinds. Mentioning this fact in a letter to Mr. David Thomson some time ago, he said, in reply, that his own observation also bore out this

* Drawn from plants in the Royal Exotic Nursery, Chelsea, in September last.

fact, and I am quite sure if cultivators would take a hint from Nature in this case they might enhance the charms of these plants in the manner above indicated, and at but little trouble to themselves. Although, without a doubt, almost all the species are terrestrial, yet they seem most amiable and manageable when we suggest a sub-epiphytal mode of culture here at home. As a rule they resent pot culture, or do not arrive at full luxuriance when so grown. In loose, open compost of fibrous peat and living Sphagnum with charcoal nodules intermixed, they have been well grown in pots, but generally speaking basket culture is the better and less troublesome system, especially in the case of the dwarfer growing kinds, and I observe that the plants are never so vigorous as when the black hair-like roots escape from the heat and wind around the teak rods of the baskets or stitch themselves in and out of the living Sphagnum. Of all things when so grown drought or even moderate dryness is fatal to them; indeed I firmly believe that when the roots of a *Nepenthes* are in question dryness and death are synonymous terms. Constant syringings with tepid water is life to them. Some of the very finest

SPECIES are epiphytes pure and simple. *N. Veitchii*, *N. Lowii*, *N. Edwardsiana*, and some others are of this class naturally, although the first-named lends itself to basket culture fairly well here in our hothouses. Even *N. Rajah*, although really terrestrial at home in Borneo, seems to like its roots in fresh open compost through which moist air can permeate freely here with us. A seedling plant of it given to me by Mr. Veitch absolutely refused to grow, and was well-nigh rootless until by accident the root-stock became exposed below the compost, when it at once emitted roots and is now growing away quite freely. *N. Northiana* (of which an illustration lent by Messrs. Veitch appears at p. 496), from the limestone rocks in Sarawak, also seems similar to the last in growth, and may also do best under cultivation if treated in a sub-epiphytal way. Both these plants are naturally so robust and noble in leafage that probably these cultural hints may enable growers to manage them even better than already has been done. I must again reiterate here my opinion that

THE DAY OF PITCHER PLANTS is yet to come. We yet want two or three of the very best of all the Bornean species. *N. Wardii*, a grand species from the Seychelles in the way of *N. Lowii*, is as yet quite unknown in our collections; then there are the species from New Guinea; and who shall say what noble species there are not yet to be found on the limestone peaks of Mount Molu or in the cloud-zone of Tilong, in North-eastern Borneo, not far from the place where poor young Hutton, the explorer, recently fell a victim to science, with his faithful Dyaks around him. Even if we knew not—hoped not for other kinds—those we already have are really wonderful in interest and beauty when well grown. To see the range of houses devoted to these plants as I saw them recently is a great treat—none the less enjoyable because I have seen a large proportion of the species in a wild state. Pleasant as it undoubtedly is to see the finest of all the kinds growing among the wet Sedges and dripping rocks on Kina Balu, one can none the less enjoy the sight of great urns dangling by the hundred in the houses at Chelsea, which one may at any time do quite safely and pleasantly without either the



possibility of snakes or the certainty of hungry mosquitoes being near one. So much for the wild species of *Nepenthes*, but we must not forget

THE HYBRID or "home-bred" kinds raised by patience and industry in our gardens at home, and by Mr. Taplin in New Jersey. Messrs. Veitch have given me a complete list of all the hybrids raised at their Chelsea Nursery, and I hope Mr. Taplin will some day at his leisure give us details as to that fine batch of seedlings he was lucky enough to raise in America some few years ago, and one of which (*N. Morgania*) is represented in the plate. Messrs. Veitch's list will be so handy for future reference, that it is best to give it in full.

NEPENTHES.	SEED PARENT.	POLLEN PARENT.	RAISER'S NAME.
<i>Dominii</i>	<i>Rafflesiana</i>	species	Mr. Dominy.
hybrida	<i>distillatoria</i>	" spotted	"
" maculata	"	" "	"
<i>Sedeni</i>	"	"	Mr. Seden.
<i>Chelsoni</i>	<i>Dominii</i>	<i>Hookeri</i>	"
hybrida maculata elongata	species	<i>Dominii</i>	Mr. Court.
<i>intermedia</i>	"	<i>Rafflesiana</i>	"
<i>Courti</i>	"	<i>Dominii</i>	"
<i>lyrata</i>	hybrida	<i>Rafflesiana</i>	"
rubro-maculata	species	hybrida	"
<i>Rafflesiana</i>	"	"	"
<i>pallida</i>	hybrida	<i>Rafflesiana</i>	"
<i>Mastersiana</i>	<i>sanguinea</i>	<i>distillatoria</i>	"
		(Glasnevin variety)	"

OF ALL THE HYBRIDS, however, none are to my mind so distinct, so robust, or so handsome as *N. Mastersiana*, which rivals its beautiful mother even in boldness of form and in its rich blood-crimson colour. It is a grand success, and Mr. Court may well feel proud of having originated such a noble plant, second to no other, I consider, of the *Nepenthes* we have at present in our gardens. Its constitution is so robust, that it succeeds where many of the ordinary kinds fail to grow, and those who cannot obtain *N. sanguinea* rubra may content themselves with this plant, which is nearly equal to it in beauty, and even more vigorous in habit, while its cost is very much below that of *N. sanguinea*, and below what it is likely to be for some time to come, at least. And yet if perchance some one climbing Mount Ophir on business or pleasure intent should come across a stalk of brown pods filled with good seed, it might soon be otherwise.

AT CHELSEA they have an especial knack of persuading the slender Pine leaf-like seeds to grow if once they come there with life in them. As to the beauty of *Nepenthes Mastersiana*, I need say no more; the plate tells this story pretty well, and is certainly not exaggerated in size or in colour. I may point out, however, the fact that this plant is likely to exceed all others in usefulness, since not only is it vigorous and compact or dwarf in habit, but it is singular in its power of retaining its old leaves and their dependent pitchers fresh and beautiful for a long time, longer by far than is the case with any other *Nepenthes* at present known. At Chelsea, where the plants figured were drawn by Mr. Moon, I recently saw leaves and urns quite two years old, and yet they were almost as fresh as the six months old pitchers beside them. Altogether this hybrid may be considered one of the best ever raised—the best we should say in its own family. *N. Chelsoni* raised by Mr. Seden, and *N. Morgania* raised by Mr. Taplin when at South Amboy, New Jersey, are both good varieties of great beauty, and therefore most valuable from a decorative point of view. F. W. B.

SEASONABLE WORK.

FLOWER GARDEN.

PAMPAS GRASS.—This is one of the noblest and most graceful of all the large ornamental Grasses, but, unfortunately, it is not perfectly hardy, scores of plants having died from the effects of the severe winters of 1880 and 1881; therefore, in exceptionally sharp frost a little protection is necessary, and there is nothing better for this purpose than Bracken, worked round about the base and crowns of the plants. In deep, loamy soil this Grass attains a height of from 10 feet to 12 feet, the spikelets of flower growing even taller than that. The most suitable positions in which to plant it are single specimens in front of evergreens. The plumes of flower are thus shown off to the best advantage. Another equally good position is on the banks of a lake and in large clumps in woods, especially in such spots as can be seen from the windows of the mansion or the walks of the pleasure grounds. It is easily raised from seeds sown in heat in spring, and by division of the roots at the same season.

SUB-TROPICAL PLANTS.—Having finished planting ordinary kinds of bedding plants, sub-tropical plants should now be put out without delay. As to arrangements, they must necessarily be varied according to plants at command, position of garden—sheltered or exposed—and size and shape of beds. Our opinion, confirmed by practice, is that an entire bed of a species looks better than the incongruous mixtures that one sometimes sees; but this is a point that is best settled by each planter for himself. The following were among our most effective arrangements last year, some of which it is intended to repeat this: A large oval-shaped bed of *Ricinus Gibsoni*, with central plant of *R. Obermanni*, undergrowth of *Gnaphalium lanatum*, and edged with *Chamaepeuce Casabonæ*, or *Fishbone Thistle*. A large circular bed had as a central plant *Eucalyptus globulus*, *Wigandia caracasana* over the whole bed, and an undergrowth of *Salvia argentea* and *Perilla nankinensis* alternated. Another round bed had for a centerpiece a plant of *Solanum giganteum*, next three plants of *Solanum marginatum*, then filled out with *Solanum robustum*, the edging and groundwork being *Lamium maculatum*. Beds of *Cannas* are planted in mixture, care being taken that the tall kinds have the central places; an appropriate edging plant for these is *Centaurea candidissima*. Palms, *Dracenas*, *Acacis* *lophantha*, and *Yuccas* look well in mixture, and a bed or two of these is desirable by way of variety. As soon as planted the plants should be staked and the surface mulched; there will then be no risk of a check either from drought or wind.

HERBACEOUS AND MIXED FLOWER BORDERS.—These are now very gay with *Pyrethrus*, *Aquilegias*, *Campanulas*, *Delphiniums*, *Geums*, *Pæonies*, *Potentillas*, &c., all of which need an occasional overlooking as to ties and supports, the removal of dead flowers and weeds. Any open spaces should be filled up by the planting out of seedling biennials, such as *Wallflowers*, *Sweet Williams*, *Canterbury Bells*, and *Delphiniums*, or, failing these, with *Asters*, *Stocks*, *Zinnias*, and *Everlastings*, and in back part of borders with single *Dahlias*, *Sunflowers*, and *Hollyhocks* for autumn flowering. Bulbous plants that have matured their growth should have their tops cleared away, and if time can be spared for such work—which, unfortunately, is very rarely the case—the bare places should be filled with surface-rooting plants, such as *Sedums* and *Saxifrages*.

GENERAL WORK.—This now principally consists of mowing, clipping turf verges, Box edgings, the watering of lately-moved shrubs and *Roses*, and the syringing and washing of the latter to free them from blight, which is this season very prevalent. Keep bedding-out plants well supplied with water, and peg into form all that need such attention. It will be an aid to quicker establishment and more profuse flowering of the plants if the flowers now showing on *Calceolarias*, *Violas*, *Ageratums*, *Heliotropes*, *Pelargoniums*, *Verbenas*,

and *Petunias* be picked off, and the straggling growths of the plants pinched back.

INDOOR PLANTS.

HARD-WOODED PLANTS.—These in most cases will now be either carrying a crop of flowers or making growth vigorously, and will therefore need proportionately more moisture than in the winter, when they are comparatively dormant. With bright sun and drying winds, moisture gets quickly dried up independent of that which is absorbed by the roots, and where the latter lie thickly packed against the inner surface of the pots, they are sure to suffer if there is an absence of moisture if only for a few hours. *Cape Heaths* potted a short time back must be carefully watered until the roots have fairly entered the new soil; still they must not be allowed to get dry, or the leaves will turn brown. Give plants growing freely, or that are bringing forward a crop of flowers, enough water to support them. The freest growers require most moisture; but all should have sufficient during the active season of growth to keep the roots moving well, being careful never to give any until enough is required to moisten the whole ball.

WINTER-FLOWERING PLANTS.—Amidst the many things that occupy one's time at this season it not unusually happens that the winter-flowering stock of such subjects as are annually propagated from cuttings does not get proper attention in the matter of pot room, the result being that the plants through getting cramped at the root do not grow freely afterwards. The different kinds of *Begonia*, *Plumbago rosea*, *Thyracanthus rutilans*, *Eranthemums*, *Sericographis Ghiesbreghtii*, *Salvias*, and others of a similar character should, immediately they require repotting, have prompt attention; the dimensions which the plants are required to attain will necessarily determine the size of the pots they are to occupy at the time of flowering. In the case of most things of a quick-growing character, like the different plants under notice, it is not advisable to move them too often; consequently as soon as the young stock has fairly filled with roots the 3-inch or 4-inch pots they may now be supposed to be in, they may in most cases be moved to those in which they are intended to remain. Much may be effected by the constant use of manure water from the time the soil gets pretty well occupied by the roots, provided there is no falling off in its application; in this way comparatively large, well-furnished plants can be grown and flowered in pots no bigger than would barely suffice to keep them alive without the aid of liquid manure, and if grown under favourable conditions as regards light, they will make stout, bushy growth that will often yield a greater quantity of flowers than larger plants in bigger pots less favourably circumstanced. Attend to stopping the shoots of all those things that require to be so treated in order to insure a bushy condition that will do with the least amount of sticks and ties, which should always be looked upon as necessary evils to be used as sparingly as possible.

POINSETTIAS.—If some of the old plants that were dried off after flowering were started a short time back, they will now have made shoots large enough for propagating; they should in all cases be taken off with a heel of old wood attached to them; cuttings thus secured will root in a fortnight in a brisk heat, but they must be kept sufficiently close and moist to prevent flagging. If very large heads are required, some of the old stools should be placed in larger pots, say 10 inches or 11 inches in diameter, and grown on with single stems, keeping them all through the season with their heads close to the glass, otherwise they get very tall. Smaller examples will often be found preferable to larger stock grown in the way described; but where there are large stoves to keep gay through the autumn and winter, big plants with their large heads associate best with other things amongst which they are placed.

EUPHORBIA JACQUINIEFLORA.—Everything necessary to insure free growth should be done

with the stock of this most useful winter-blooming plant, for the quantity of flowers forthcoming is dependent on the size and strength which the plants attain, and especially their ability to produce a second crop of bloom. Plenty of light and heat, with a little shade in the middle of the day, are essential to their well-being.

AMARYLLIDS.—Every needful attention should now be given to Amaryllids after they have flowered. Comparatively little pots suffice; but still, root cramping must not be carried too far, or the bulbs will not attain their wanted size, and their increase by means of offsets will be less than if more vigour was infused into them. Where additional room is required, give pots an inch or two larger, using good yellow loam if it can be got, in all cases ramming the soil hard in the pots and adding sand sparingly. Keep the stock sufficiently supplied with water at the roots, syringing freely every day to keep down insects, and let the plants be fully exposed to the sun. Among *Pancratiums*, *Crinums*, and *Hymenocallis* many will now be making new leaves; where large spikes of flowers are looked for the plants must have liberal culture, but with these no amount of attention in other matters will compensate for a deficiency of light; yet the foliage of some of the *Crinums* appear to be less able to bear full exposure to the sun in the middle of the day than that of the *Pancratiums*, which is tougher, but in all cases no more shade should be used than is found to be requisite to prevent scorching.

CINERARIAS.—These, like *Calceolarias*, *Primulas*, and some other plants that used to be all but exclusively propagated from suckers or by division, are now so much improved that varieties good enough for any purpose can be had from seed. Amongst these it often happens that a few plants of unusual excellence make their appearance. In such cases it is well to preserve them. When the seed which they bear is ripe the flower-stems should be cut away and the plants turned out in light soil mixed with vegetable mould, selecting a place where they will not be exposed to the mid-day sun. So treated they will make abundance of suckers that can be taken off and potted.

ORCHIDS.

EAST INDIA HOUSE.—Perhaps there are no more interesting, beautiful, or easier grown plants than the East Indian *Dendrobiums*. Most of them are now making their growths, and as these push rapidly from the base of the pseudo-bulbs, new roots also push freely from them, and whenever this occurs any plants that require shifting should at once receive that attention. In doing this all decayed composts ought to be removed without disturbing the roots. Nearly all deciduous *Dendrobiums* may be subjected to this treatment, and those that should be in every collection are *D. nobile*, *D. lituiflorum*, *D. Bensoniæ* (this species is always later than the others), *D. Falconeri*, *D. Wardianum*, and *D. crassinode*. In repotting or placing them in fresh baskets, see that the potting material (good fibry peat, Sphagnum, broken pots, and bits of charcoal) does not cover the young roots, as they like to run out on the surface and strike downwards themselves. The plants will require to be freely watered, as they would be injured if allowed to get dry. If any shoots start from the upright stems they will also root freely. They should be cut off with a portion of stem attached, and be planted in small pans or baskets. They like a high, moist atmosphere while they are making their growths, and up to the time when the growths are completed. *Dendrobium Dalhousianum* and the allied species, *D. moschatum*, are not so much grown as they ought to be; they form noble pendulous spikes, and if the plants are removed to a cool house when the spikes open they will last nearly a fortnight. If left in the warmest house they will not last more than five or six days. They require good supplies of water while developing their spikes. It is not necessary to repot them often, as they make the best growths when rather pot-bound. Much arti-

ficial heat will not now be required. It is easy to keep the temperature up to 70° with a little air on all night. Atmospheric moisture should be kept regular by means of evaporation from the stages and paths. The young growing shoots of *Dendrobiums*, such as *D. Devonianum* and *D. Falconeri*, may be syringed every day to keep red spider in check.

CATTLEYA HOUSE.—There will now be a great wealth of bloom in this house, and it must be kept in good condition as long as possible. A very moist atmosphere, especially if there is little or no warmth in the hot-water pipes at night, causes the flowers to spot. We do not care to throw any water about in this house, say, after three or four o'clock p.m., and if the pipes are kept comfortably warm with sufficient air on all night, the blooms will last a long time if the plants are also kept dry at the roots. Treated in this way, *Cattleya* flowers will last for three or four weeks. *Odontoglossum citrosimum* is also in great beauty, but the flowers of this have even a greater tendency to spot than those of the *Cattleyas*. They require much the same treatment. We ought to say that letting such *Orchids* become comparatively dry at the roots may be slightly injurious to them. *Odontoglossum Roezli* is also now in great beauty; the flowers of these last well on the plants. As soon as removed, dip the plants in the solution previously recommended to kill red spider and thrips. The same remarks apply to *O. vexillarium*. The different species of *Anguloas* are now in bloom, and with the flowers the young growths will be pushing strongly, and consequently the roots also; they will, therefore, require plenty of water. The yellow aphid, which is very troublesome, must be eradicated very speedily on its first appearance, or it will get into the insides of the flowers and will be difficult to dislodge without spoiling them. On *Vanda suavis* flower-spikes are now showing themselves freely. This is a very showy, nay, a grand, species when well clothed with foliage and flowers. It succeeds best in a *Cattleya* house, and when it is found that plants of it retain their foliage in any one part of the house better than another, and grow more freely, it is best to leave them there. One of the best of the *Aerides* is the Indian Fox-brush (*A. Fiedlingi*), now in flower; its long-branched flower-spikes, usually very freely produced, are generally admired. Its leaves are sometimes infested with thrips, which must be cleared off with soap-water to which a little Tobacco liquor has been added. Green fly will also get amongst the flowers when they are opening. Brush it off before it does any injury. If the *Sphagnum* is kept in a healthy growing condition on the surface, the plants usually do well. In potting we fill the pots well up with clean drainage; the potting material consists of about equal parts broken pots, charcoal, and *Sphagnum*, finishing off with clean live-chopped *Sphagnum* on the surface. The temperature of the house will range about from 60° to 65° at night.

COOL HOUSE.—The largest proportion of the choice *Odontoglossums*, such as *O. crispum*, *O. cirrhosum*, *O. Pescatorei*, &c., will have now passed through the flowering period; of course, some are yet in flower, and others will bloom at intervals through the summer, the great value of *O. crispum* being its tendency to produce flowers all the year round. We have had plants which produced fine, strong spikes for three or four years in succession, and out of a dozen plants we had some of them in flower every month in the year. After flowering so freely for that period, the strain upon them seemed to be too much, for they did not make strong growths, and produced very weak flower-spikes for the next two or three years. The question is, should not the plants be prevented from flowering so continuously, especially when the flowers are allowed to remain on them until they fade? We think they should; the ultimate result would be more satisfactory. *Odontoglossum vexillarium* will flower itself to death in a period of four years, or at least become so exhausted, that the plants are not of much value afterwards. We have a few plants in this

house that ought to have been potted early in the year, but for several reasons they did not receive that attention. These will be seen to at once, or if they cannot be potted before May is out, perhaps it will be better to leave that operation until the autumn. The beautiful *Oncidium macranthum* is quite a feature in the cool house, its large golden flowers are so different from those of any other kind. It seems to like a good supply of water when making its growth, and the slugs are particularly fond of the young roots which are formed above the surface of the compost. The flowers are now opening on some of the plants, but as a rule this species does not flower until the end of June or July. Every night the plants ought to be looked over for slugs or small snails.

MARKET FRUIT GARDENS.

GOOSEBERRIES are now one of the principal crops requiring attention, not only as regards gathering and marketing in a green state, but also as respects warding off the attacks of caterpillars, which have for the last few years been very destructive. In plantations in which they were allowed to strip the foliage off unchecked last year there are very few Gooseberries to gather this season. Hand-picking, dusting with Hellebore powder, fresh slaked lime, and other remedies, such as placing under the bushes sacks smeared with tar on which the caterpillars are shaken, are being used. A good crop of Gooseberries, even at a moderate price per sieve, is a very remunerative one, as the yield per acre is very great where the land has been well treated. Small starved berries on bushes that look yellow and make hardly any young wood are useless for market; large berries grown quickly on bushes that are deep green in colour, owing to high feeding at the root, are the ones to pay. Where good rotten farmyard manure can be obtained there is probably nothing to surpass it as a winter dressing forked in lightly about the roots. It is a common practice to grow bush fruits under standard Apples, Pears, Plums, &c., and thus situated they do very well for a few years, but if really first-class bushes are wanted to yield annually heavy crops, there is nothing like letting them have the land to themselves. On good land, planting them 9 feet apart each way is not too much space. Red and White Currants should now or soon have the tips of the growing shoots pinched off, an operation which greatly helps the swelling of the crop, and assists the buds on the spurs to swell up and ripen well for next year. There is at present a great quantity of caterpillar, fly, and other pests on fruit trees and bushes. Washing with soft soap dissolved in water so as to make a mixture like strong soap-suds, and applied with force from a powerful engine, such as is employed for washing Hop bine, is the usual remedy in this part; even if the foliage gets partially destroyed by vermin the chance of next year's crop is gone, as well as the present one, that invariably drops prematurely if the foliage is injured to any extent.

HOING by manual labour, or scarifying with a horse or pony, is now being actively carried on, for, in addition to the need for destroying weeds, the production of a mellow, friable surface-soil is of great benefit to the growth of both trees and bushes. Large, heavy horses are not required for this operation; a pony, or even a donkey, will draw a light set of hoes set in a frame, and, with a careful driver to avoid injury to the trees, a large amount of surface soil may be stirred in a day, and as the trees or bushes are planted in straight lines each way, there is very little ground left unstirred, except close to the stems, where a man following with a draw hoe completes the work.

GRAFTED TREES require frequent attention, for where growing strongly the ties will need loosening, or they will cut the bark. As soon as the shoots get long enough to sway about with the wind they must be staked on both sides and loosely tied with stiff bast; this will keep them from snapping off. Trees grafted last year will now need divesting of all shoots produced by the stock,

so as to concentrate the energies of the trees in the grafts; take them off close to the stem with a sharp knife. Espaliers or wall trees, whether on farm buildings or other walls, should have all surplus shoots pinched back to three or four leaves while they are yet soft, removing all curled or blighted foliage, and washing the remainder with soft soap or Gishurst compound, consisting of about 4 oz. to the gallon.

FRUIT.

CHERRIES.—When the fruit on the early-forced trees is ripe, keep a free circulation of air through the house and damp the floors and walls every day, but discontinue wetting the foliage in near proximity to the fruit, which must be kept perfectly dry. If the house is light and bright, and it is thought advisable to keep the fruit in a plump condition for a considerable time, it will be necessary to shade lightly when the sun is very powerful, but shading must not be overdone, neither must it be left on the roof where it is not wanted, otherwise the fruit will soon mould and perish. The best shade of all for ripe Cherries is the tree's own foliage, and to insure this great care should be devoted to stopping, tying in, and regulating the young growths, so as to have a regular spread over every part of the house. This remark applies to permanently planted trees, as trees in pots, which soon leave off making much growth and only form spurs, can be removed to other houses, or even a dry, airy fruit room at pleasure. When all the fruit is gathered, good syringing will be necessary, and if the roof-lights are portable they may be taken off the house without delay, while pot trees may occupy a light, open, but sheltered situation in the open air where the roots can be protected with Fern or litter to economise watering, and the heads can be washed with the engine to preserve the foliage and keep it free from insects.

PLUMS.—If Plums and Cherries have been grown together, the difficulties which have often been pointed out will now be felt. All goes well with these two valuable additions to our early dessert until Cherries, which come in quickly, begin to ripen, and it then becomes imperative that we find fresh accommodation for one or the other, hence the importance of growing the Plums or Cherries in pots or tubs, and as either submits kindly to pot treatment, the choice is a matter which may be governed by circumstances. If the two are only divided by a glass partition, then the Plums may have more heat than would be good for Cherries, provided a liberal supply of air be admitted, and the swelling of the fruit is helped forward by early closing on fine afternoons. Continue the regular syringing of the trees until the fruit begins to change colour, using clear, soft water, or water which will not deposit sediment, for the purpose. Mulch permanently planted trees and water copiously with tepid water, but avoid producing a too gross habit in vigorous young trees by feeding before they begin to feel the weight of the crop. Top-dress pot trees with rich material, and feed with good liquid at every watering. Stop all strong and surplus growths at the fourth or fifth leaf, and guard against over-cropping, particularly where the best late kinds, like Golden Drop, are expected to become very fine, and to hang on the trees for a considerable time after they are ripe.

PINES.—A long period of bright dry weather having been highly favourable to sharp forcing without the aid of over-heated pipes, early started Queens have made rapid progress, and successions are throwing up clean vigorous shows, as is generally the case after a mild winter. In the fruiting department maintain the temperature ranging from 70° at night to 85° by day, and give moisture in proportion to the amount of fire-heat required. Also keep the evaporating pans regularly charged with water, to which strong liquid or a pinch of guano may be added twice a week, and lightly dew the plants over with tepid water after closing, and when the axils of the leaves become dry. If not already done, see that each fruit

is properly secured to two sticks, with cross-ties for keeping the crowns upright. Rub off all gills and offsets and reduce the suckers to one, unless the stock is scarce, when two may be left without robbing the fruit. As the greater portion of the September potted plants will now be showing fruit increase the supply of stimulating liquid, and if not previously done make them firm in the pots by placing pieces of fibrous turf round the stems. If any have missed fruiting, draw them out and submit them to a month's rest by plunging in a bottom heat of 75° with a free circulation of air. Dispense with fire heat as much as possible; let the temperature range from 65° by night to 80° by day; discontinue overhead syringing, and only give sufficient water to prevent the roots from feeling the ill-effects of drought. Keep successional plants growing on without a check until the pots are well filled with roots. Pot up small batches of suckers at short intervals, and divide the whole stock into small sections where a continuous supply of fruit is expected from a limited number of plants.

VINES.—Gradually reduce the temperature in early houses in which the Grapes are quite ripe, and maintain a fresh, healthy atmosphere, by damping the floors, and by giving just enough gentle fire-heat to admit of a free circulation of air. Cleanse the foliage with clear water as the Grapes are cut, and stop any extra strong growths to encourage a general break of laterals all over the Vines. Succession houses in which the fruit is now colouring may have more air whenever the weather is favourable, and a nice circulation throughout the night will be highly beneficial to the Vines, particularly where they have been hard pressed and perfect finish is doubtful. If Madresfield Court Muscats are growing with the Hamburg, see that the roots at the time they commence colouring are in a nice growing border, neither too wet nor too dry. Mulch well to keep in moisture, as moisture after the skin is set causes many of the berries to crack, and allow all the laterals to grow to their full extent until after the fruit is cut. It will then be necessary to shorten back, and give more water to plump up the buds. Look over the main crop of Muscats, also the choice late kinds intended for autumn and winter use, and if any of the berries show signs of remaining small, let them be removed while there is yet time for those properly fertilised to fill up the weakest parts of the bunches. In the selection of the bunches of Gros Colmar and other sorts intended for bottling always give preference to medium-sized taper bunches of good outline, as they generally set well and keep better than larger clusters through which the air cannot pass so freely. Persevere with thinning the latest crops as they become ready. Mulch and water the inside borders as soon as this tedious operation is finished, stop gross laterals where they are likely to rob the fruit and weaker growths, and then help them along to the stoning period with plenty of heat, air, and atmospheric moisture. If late spring planting has not been finished free young Vines from this year's eyes may be put out up to the end of this month with every chance of their filling the trellis. Two points are essential to success; the borders should be made inside the house, and the temperature of the compost should not be less than 70° when it is placed in contact with the roots. For this kind of planting Vines struck in sods of turf are preferable to those which have been grown in pots.

KITCHEN GARDEN.

THERE is no operation in this department so useful or so profitable as mulching. It keeps the ground moist, smothers all weeds, and forms the finest path possible to walk on to gather the produce. Spring Cauliflowers are also mulched, and so strong and healthy are our plants, that after the heads are cut they send up strong offshoots, which in due time form small heads just the size for table. Hoeing among growing crops is the very life of vegetation. During the last six

springs Onions have turned yellow, occasioned by the sharp cutting east winds. We now sow them in the last week in March. It is a great mistake to sow small seeds outside early; they come up weakly, get stunted, and generally end in failure. Young Broccoli and other plants now making their appearance will be much benefited by being slightly damped the first thing in the morning and dusted over with a little soot and dry sand; small plant beetles play sad havoc among them, except such attention is paid to them. Sowing Lettuces (White Cos) on the Celery ridges where they have to stand is a step onwards. We never grew such fine examples of Lettuces as those sown with the Onions and allowed to stand and come to maturity; in fact, this practice of sowing seed where the plants are to stand is creeping slowly, but surely, to the front. Of Broccoli, we are still cutting some very fine specimens of Cattell's Eclipse.

KITCHEN GARDEN.

YOUNG CARROTS.

WHERE these are in regular request, as long as the weather will favour their growth, sowings must be made. For the first sowing we put up a hotbed about the end of January, and in order to secure a lasting temperature we use three parts leaves and one of stable manure. A frame furnished with glass lights is put on the bed, and about 6 inches of rather fine soil is placed in that on the surface. The seed is sown in drills 6 inches apart. Only an ordinary degree of attention is required in the way of watering, covering, and air-giving in order to produce young Carrots as large as one's finger by the end of April, and this is the size most in favour. The first crop to be obtained from the open ground should be sown early in February on a warm south border, the soil of which is light and rich. The most sheltered position should be selected, where they are not likely to feel the effects of late spring frosts, for even on south borders there is often a great difference as regards frost effects. For pulling when young I like all outdoor crops to be sown broadcast, and thinned if they come up rather thicker in places than is required. Where the demand is great another sowing should be made the third week in March, near that first sown. These two crops will invariably carry on the supply until the main crop, which is generally sown early in April, comes into use. To maintain a supply of successional crops a fresh sowing must be made in the open ground once a month up to the middle of August, after which the season will be too far advanced for sowing out-of-doors. For summer crops the seed may be sown in any part of the garden that is fully exposed to the sun; but as a large space for each sowing is unnecessary, a south border is as suitable a place as any for them. I may mention here that I like the old English Short Horn as well as any of the sorts for drawing when young. In gardens where pits and frames cannot be devoted to the production of a supply through November and December it is a good plan to sow a rather large breadth on a south border about the middle of August, and when frost occurs in November to cover the young plants up with dry leaves or Bracken. This will afford a supply for several weeks, but they will not be so fresh and tender as those protected by glass lights and kept free from frost; therefore where a brick pit can be spared it should be used for them. Bottom heat is not a necessity in this case, but the pit must be filled with half-rotten manure or some other material, and 6 inches or 8 inches of soil should be put on the top of it so as to bring the surface within 10 inches of the glass. The seed should be sown the second or third week in August, but the lights need not be put on until the middle of October; even after that time, however, plenty of air must be given, and the glass protected during frosty weather. In ordinary seasons a supply from this source ought to be obtained up to the middle of December.

J. C. C.

CUCUMBERS AND MELONS.

WHEN bedding plants are put out, pits and frames cannot well be better employed during summer than in growing Cucumbers and Melons, either of which do exceedingly well in such structures. To enable this to be done, however, they must be fairly started on a little bottom heat and the longer this lasts the better will they thrive and bear fruit. The first thing, therefore, is the fermenting material; the best and most desirable, so far as heat is concerned, is

TAN, which may be got in almost any quantity in towns for a mere nominal sum, and often for the labour of carting. The great point is to obtain it fresh, as that which has been lying exposed to the rain and weather loses its virtue and strength, and does not retain its warmth long, but fresh material will keep in a regular state of fermentation for months. Being of a mild, sweet nature, tan requires little or no preparation, but may be put into the pit at once, and the bed made and the plants turned out as soon as the heat gets up.

STABLE MANURE AND LEAVES, or the former and tan, also make capital hotbeds, the manure being almost indispensable for beds to stand frames on, as they cannot well be built up without it, the tan or leaves being altogether too short alone. In using horse manure it will be necessary to be very careful, as it is fiery stuff, the fermentation of it being violent, to correct which and get rid of the injurious gases it evolves, the manure should be got together in a large heap and turned over several times during the week. This will let out the rank steam and sweeten it, and as soon as this is done, it will be in fit condition for use. The size of the bed must be ruled by that of the frame, but for this latter to have plenty of base to stand on, it is always as well to build about a foot larger all round, the proper height being about 2 feet 6

inches when settled, which body of stuff will hold the heat for a considerable time. When built and the frame on, the next thing is to get in

THE SOIL, but before doing this it must be decided whether Melons or Cucumbers are to be

garden earth does very well for Melons, and this, when put in for them, should be trodden down, and as soon as it gets warmed through all will be ready for the plants. These should be young, healthy, and vigorous, and to fill each light

properly, two are needed, as one can then be trained from the middle to the front, and the other be led to the back. The way to manage

MELONS, so as to get them to cover the spaces quickly, is to stop the main shoot by pinching out the end, when, soon after, the plants will break below, and the shoots formed can then be trained out by the aid of a few pegs in any direction required. As soon as the ends have reached the boundary allotted for them they must again be stopped, the laterals and the main branches then throw out speedily numbers of flowers. These must be set when expanded by taking the male blossoms and using the pollen by touching them with it in the centre, by doing which they become impregnated and at once begin to swell and grow larger. As soon as they are about the size of Walnuts or eggs, and it can be seen they are safe, the fruit should be thinned, from four to five being quite enough for a single plant to carry out and finish off to perfection. It should be borne in mind that Melons when swelling their fruit want plenty of water, which ought always to be warm, and may be poured over them through the



Miss North's Pitcher Plant (*Nepenthes Northiana*). Pitcher about half the full size. Recently introduced from Borneo. (See page 492.)

grown. If the latter, the soil cannot well be too rough or loose, as Cucumbers like it in that way to run in, and though Melons likewise prefer coarse soil, it is necessary to make it very firm for them, or they grow far too strong and are shy in their fruiting. What Cucumbers do best in is the parings from the edges of Grass verges or newly-dug turf, which, chopped up, is just the thing for them, as being so full of fibre it affords them the food they require. Heavier stuff or even common

rose of a watering-pot, so as to wet the foliage, which, if done, as it should be, early in the afternoon before closing the frame, is very refreshing. As the fruits approach the ripening stage it is requisite for the plants to be kept drier, or the fruit will be of inferior quality, but to maintain the leaves in a green healthy condition it will be necessary to syringe or sprinkle them both in the mornings and afternoons on hot, sunny days.

CUCUMBERS enjoy this treatment too, and the atmosphere for them cannot well be too moist, as a humid, warm air is what they delight in. Many who grow Cucumbers go to great pains in setting the fruit in the same way they do Melons, but unless seed be required they are better without that operation being performed, as it helps to fill the fruit with seed and pulp in the middle. In growing either Cucumbers or Melons in frames or pits, the thing is to make the best use of the sun by closing at three o'clock or soon after, as then plenty of heat is shut in for the night, and the moisture which it keeps the plants strong and healthy. S. D.

Diseased Cucumbers (*F. G., Saxmundham.*).—Your Cucumbers are badly attacked by the disease termed by gardeners "gumming." It is immediately recognised (especially if a lens is used) by the small pieces of exuded material which greatly resembles gum arabic. It is sometimes accompanied by a fungus (as in your case), termed *Glaeosporium*. The disease is probably brought about by some defect in the mode of culture, but Cucumbers under the best treatment often show this disease, and it commonly baffles all treatment, even by the most experienced hands. They may improve as the season advances; if not, discard them and begin afresh. —W. G. S.

Late Peas.—Like Mr. Clarke (p. 455), I have not one word to say against *Ne Plus Ultra* or *British Queen*, although I consider the former the better Pea of the two. But of all Peas that I have tried, I, like Mr. J. Muir (p. 455), find none to equal Laxton's Omega for the last crop. It has this advantage over the other two varieties, viz., that it is dwarf and can be easily netted, an important point with regard to late Peas, in the case of which birds, especially tits, are very troublesome. I have had whole rows of the tall sorts spoilt by them, while Laxton's Omega has been secured under nets. —J. PARRIS, *Northham.*

—We annually grow a goodly quantity of late Peas, which are a daily necessity until far in October. We cultivate several kinds. *British Queen* is wholly discarded, and *Ne Plus Ultra* is occupying much less ground than formerly, both being replaced by Laxton's Omega, in every respect a most desirable variety. It is indeed the best late Pea with which I am acquainted. The other kinds just mentioned do not turn out at all satisfactory in wet autumns, being all haulm and no pods, and even in favourable seasons, not remunerative, as they require too much ground compared with the crop which they bear. —JOHN ROBERTS, *Tan-y-Bwlch, Merionethshire.*

Stott's Monarch Rhubarb.—Since I have known this fine Rhubarb I have been pleased with it. It is a sturdy sort, a real giant among Rhubarb, but in spite of its size it is tender, juicy, piquant, delicious, and, to my way of thinking, there is no sort grown which can compare with it. I write this, as your correspondent "A. D." says "there is no desirable feature in it." Now, my opinion is that every feature it possesses is desirable, and it grieves me to hear an old friend so spoken of. My opinion of Stott's Monarch Rhubarb (introduced by Stuart & Mein, Kelso, N.B.) is that if known no other Rhubarb would be grown in English gardens, except for forcing purposes, for I do not think it would bleach well. Late in the season, too, when old and past itself as a "pie plant," as the Americans call it, it makes a most delicious preserve. —W. H. CULLINGFORD, 7, *Phillimore Gardens, Kensington.*

Varieties of Rhubarb.—When I came here, now over ten years ago, I found two sorts of Rhubarb, both of which I had no recollection of having met with previously. The earliest sort is a really fine one, and quite distinct in flavour from all others. Its stems are rich crimson in colour, and as they sprang up so very early, I enclosed them in boxes on the ground for first use; with this protection only they came in in the beginning of February, and in mild weather sometimes sooner. It is small both in stalk and in leaf, but

very tender and delicious. Another, growing somewhat similar and nearly the same in colour, but stouter in the stalk, comes in just about the same time as the Victoria, and is preferred to that strong-growing variety, with which it is associated. I have not met with Johnston's St. Martin, but from descriptions of it which I have seen I have always fancied it to be the same as the early variety just mentioned. The second sort named can hardly be reconciled with "A. D.'s" Champagne (p. 460), as, although comparatively dwarf, it is much stronger than the first, which is contrary to his description. —R. STEVENS, *Paston, Northumberland.*

ROSE GARDEN.

ROSES AND THEIR ENEMIES.

THE Rose has so many enemies that it is hard to say which does it the most harm, but I think we are safe in concluding that the two principal ones are the aphid and the "worm i' th' bud," the latter being (I gather in translating from Lacharme's interesting book, "*Le Rosier*") the larvæ of the hymenopterous *Selandria excavator* and of the saw-fly (*Hylotoma rose*). On my Rose trees this spring I notice two distinct kinds of grub at the points of shoots on the standard Brier working vigorously at the newly-inserted buds as well as on those Brier buds which were left to draw up the sap, but on my dwarfs they are strangely conspicuous by their absence, hence, I presume, I am honoured by the presence of both the species named; on the other hand, the dwarf Roses seem, as if by mutual understanding, to be the peculiar prey of the aphid. For this caterpillar there seems to be no effectual remedy beyond a vigilant use of the watchmaker's lens, and a small penknife wherewith to open the tender, almost brittle young leaves in search of it, of course instantly crushing the marauder in case of a successful find. Where it is too late and the mischief done, we may derive some consolation from the fact that the young bud sends out in most cases two shoots in place of the one eaten, though the blooming of the Rose is delayed a month. It is almost impossible to find the young of the sawfly earlier than when operating, for the female deposits her eggs in a longitudinal incision made in the bark of the Rose tree by its saw, the minute head only of the larva afterwards being visible. By a wise foresight the fly, after laying the eggs in parallel grooves, gives a cross-cut above them and at right angles (similar to the cross-cut in budding), so as to arrest the downward flow of the sap which would otherwise heal up the wounds, and at the same time effectually entomb the young grubs or eggs. This cross-cut also causes the shoot to bend slightly, by which the presence of the enemy may frequently be detected. It is very admirable, but annoying also to note the wisdom of the sawfly in depositing its eggs near the summits or ends of the young juicy branches, so that a suitable repast may be at hand for the sustenance of its progeny. I may remark that where the "worm i' th' bud" is plentiful it will be better for more attention to be given to the cultivation of Roses on the Manetti or on own roots, my experience being that the standard Brier is their home and happy hunting ground. For the prolific viviparous aphid with its one sexual acquaintance sufficient for the birth of six succeeding generations, no one word of good can be said. Born alive at the rate of seventy per day from one mother, it instantly digs its beak into the soft skin of the young shoot or leaf and feeding on the juices of the plant, itself in turn giving birth, as Canon Hole says, "without love, courtship, or matrimony," to the next generation. We must, however, in our wholesale crusade against the aphid remember that we have many allies, sparing them when examining our trees, for they are even more intent than we upon the destruction of the pest; in fact, were it not for its wonderful fecundity it would soon succumb to the survival of the fittest. Although dealing with insects, it would be unfair not to mention the number of

small birds which we should entice to our Rose beds by a few bread-crumbs, so that whilst there they would no doubt catch sight of the aphid and work their way up the branches, consuming thousands. Ants also should be encouraged in the open garden instead of destroyed, for they are so fond of the sweet excrement from the aphid that they will seek them out and suck them to death. Next amongst our friends comes a very small ichneumon fly (*Ophion lutea*), which alights on the body of this aphid and deposits an egg in it; the wounded victim then separates from its companions, changes from green to rose colour, then to bronze, finally drying up in favour of the larvæ within it. The larvæ of the fly (*Syrphus pyrastris*) has a most curious and interesting method of helping us. The female lays its eggs, eighteen to twenty in number, from early April to September on Rose leaves laden with aphides; about a fortnight later the young larva appears, being provided with a spear or dart in its head. It has the power of standing on its hinder quarters, so to speak. Seeking in all directions for the aphid, and finding one, the spear is instantly protruded into the body of the victim and withdrawn with it impaled, from which the contents are sucked. This is done so rapidly that one has been seen to catch and consume six aphides in seven minutes. A keen watch in spring time with plenty of syringing (washing off the early female aphid, mother of the summer crop of many generations) is, so far as we are concerned, the most we can do. They rarely have strength to resume operations so far away, whilst should any of our little friends the ants or flies go with the rest they are no worse for the drenching. In various works we are told to suspect all insect life, yet as suspicion does not necessarily mean condemnation, I suggest to Rose growers that every insect and grub on Rose trees should be spared with the exception of the aphid and the self-evident grub frequenting any shoot points. R. A. H. G.

Horsforth, near Leeds.

ROSE PROSPECTS.

"D. T. F." writes so despairingly of the prospects of the forthcoming Rose season, that I cannot help thinking and sincerely hope that his case is altogether exceptional, and his losses must be due to other causes besides bad weather. Here in Durham the prospects never looked brighter, and with ordinary weather from now (May 28) Roses promise a glorious harvest of bloom, and this too in spite of the recent cold north-east winds and severe frosts in March. My own plants, pruned closely down early in February, are at the present time full of stout healthy shoots, and instead of there being a paucity in this respect, the only regret seems to be the nerve and time required to reduce the number of fine healthy growths to a reasonable number to prevent the plants being overcrowded. The only losses here are a few small plants on own roots, planted out early in April, and which ought properly to have been potted on and planted later; but Roses do so well here on Manetti and seedling Brier, and the plants never seem to grow old, that any extra trouble with own-root plants is so much time wasted. I think a great deal of harm is often done by late pruning, which often results in weak, unhealthy growth. The greatest drawback we northern exhibitors have to contend with this year is the lateness of the season, which will prevent us showing at the early shows, for it is hardly probable that the plants will be in bloom before the second half of July; but even this is difficult to foretell at present, for with snow in May sufficient to stop the traffic on the railway within twenty-four miles from here (here we had cold rain), who knows but what we may have a touch of tropical weather before long, for surely the seasons now are difficult to understand.

Darlington.

J. BURRELL.

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FLOWER GARDEN.

HARDINESS OF PANSIES.

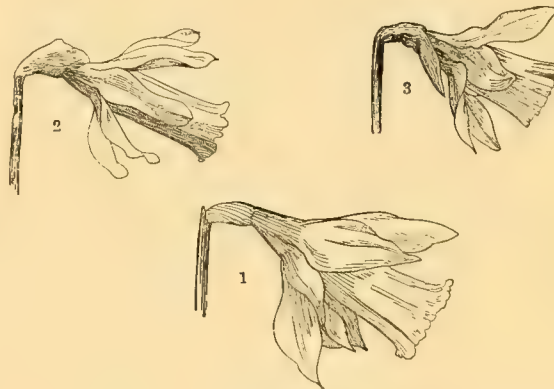
IN "R. A. H. G.'s" description (p. 439) of what seems to be a judiciously planted small villa garden, he mentions the protection of Pansies during six winter months. As the Pansy is one of our most valuable hardy plants, more especially in cold localities, it is as well amateurs should know that, if properly managed, Pansies require no winter protection, but may be safely left to themselves in the open border. I planted out a lot of seedling Pansies in September, 1880 (show, fancy, and Bugnot's International Prize); they made good stocky plants before winter, and were just coming into bloom when frost caught them. They passed through a severe winter, being frozen hard for many weeks, and had to stand as much as 18° of frost on two occasions, and several nips of 15° and 16°. They opened a few blooms at midwinter, and were the first flowers I had in the spring, continuing in bloom until July. The purple selfs seemed to be the hardiest, then the crimsons, then the yellows, whites, and belted kinds, while the latest to bloom were the blotched flowered kinds with light grounds and the russet coloured ones. Not a leaf was injured of any of them, although the blooms, which were frozen hard for six weeks, were injured. The locality is cold and fully exposed to east and north winds. A part of one of my beds is excessively exposed to north and east winds, the wind being concentrated by buildings and shot across it as from a pair of fanners. The cutting frost winds of last March damaged in this bed the springing leaves of Tulips, *Anemone coronaria*, *A. fulgens*, Phloxes, Hepaticas, Daffodils, Polyanthus, Narcissus, *Gentiana gelida*, and *Scilla sibirica*, and destroyed those of Polyanthus and Primroses, but Pansies and alpine Auriculas escaped unhurt. If an amateur has a good collection of named Pansies, he can keep his decorative beds and borders stocked with strong seedling plants sown in July or August with hardy biennials, and treated the same as these. Seedling Pansies are very accommodating as to soil and situation. I have a few now planted in a shady border where they never see the sun, and where they trail between clumps of *Spiraea japonica*; they do not flower freely, but give blooms in the heat of summer. I have also grown them successfully on a hot, sunny border facing south-west, with the help of a plentiful dressing of leaf-mould, and watering late in the evening when the ground had cooled. The method described by "R. A. H. G." is the readiest for propagating anything that may be thought worthy of preserving either as regards flower or habit.

J. D.

HARDINESS OF THE AURICULA.

THE Auricula exhibitor who told "J. M." at a late show that the Auricula could not be well grown out of doors must only have known the plant under glass. Gardeners and thousands of cottagers know better. Named varieties of Auriculas were amongst the first lots of hardy plants ordered by me for the garden here ten or twelve years ago, and though I have added to the stock since by seed and otherwise, I have still many of the original plants divided and replanted at times, and not one of them have ever received the least protection. I have been familiar with the Auricula as one of the hardiest border plants since I first grew it in my father's garden many years since in a cold locality in Scotland. Our plants are large, and at present are as vigorous and broad-leaved as young Cabbages. I have cut off lumps with the spade this season, and in times past as big as my head, to give away, and that is our usual way of lifting and planting them. I had plants moved from a border in April just throwing up their flowers, six roots of which filled

a wheelbarrow, and on one of these plants now on the rockery I counted to-day close upon forty trusses bearing about 500 flowers at least, for they were too numerous to count, and many had faded during the past warm week. We have scores the same, and have been cutting basketfuls for a long time back. Two or three-year-old plants from seed do best, but offsets do well also, and the hardiness of the plant depends a good deal on the situation. It is most enduring on the rockery, but flowers best on a rich border. I know nurseries where they are grown by the thousand from seed, and one noted Auricula grower at least makes a good thing by selling his seed to the trade for outdoor culture. Even the flower-buds are wonderfully hardy. In March we had a spell of frost and cold winds which did much damage to shrubs and other things, but did not harm a single Auricula bud that was not expanded; they never were finer with us than they have been since. Why the Auricula should be so little grown in flower gardens has always been a puzzle to me, but I believe that in many cases it is because gardeners entertain an erroneous impression of its hardiness from the teachings of the



Varieties of white Narcissi (all much reduced).

2, *N. tortuosus*.1, *N. albicans*.3, *N. cernuus*.

florist. It is pretty well known, moreover, that those who grow Auriculas by the hundred or thousand under glass are not actuated by mere love of the flower. It is their interest to foster its culture as a florist's hobby, and some of them make a good thing of it in a commercial sense.

J. S. W.

NOTES ON HOLLYHOCK CULTURE.

CHOICE varieties of Hollyhock are usually grown in pots during winter; they are propagated in spring, and the young plants raised in that way are placed under glass until large enough to be inured to the open air, after which they are planted where it is intended they are to flower. Our plants have been out for some weeks; at first cold nights sadly checked their growth, but since the weather has taken a favourable turn they are making good growth. Hollyhocks, being gross feeders, like a rich soil, and their full beauty cannot be ensured unless the ground has been deeply trenched and plenty of manure worked into it. When well grown they rank amongst the most stately of autumn-flowering plants, and certainly no good garden ought to be without them; but what is the fact? I have visited many good gardens and large gardens—gardens in which there was no lack of means to purchase all the plants that might be thought necessary for every purpose, but there were no Hollyhocks. Fashion seems to have selected Sunflowers for the place once occupied by Hollyhocks. Sunflowers that used to nod their heavy heads in cottage gardens are now sought after by people of high degree. Owing to the neglect into which Hollyhocks have thus fallen, there is now some difficulty in obtaining them, and when one does obtain them the chances are that we get

DISEASED PLANTS. Ours were supposed to be free from disease, but it could be seen in a virulent form on them even in midwinter. It was useless to throw the plants away, for I did not know where to look for healthy ones. The plan I adopted, however, seems to have been so far successful, as now, when the plants are growing freely, they do not show any trace of fungus. Every leaf that had any upon it was pinched off and burned, and the plants were dipped in a strong solution of soapy water, into which a considerable quantity of flowers of sulphur was mixed. I carefully watched them every day for many weeks; during that time the disease did re-appear on them, but the instant a fungus spot was apparent on any of the leaves they were picked off and destroyed. In one or two cases the plants were almost defoliated. At intervals the remaining leaves were soaked in the soap and sulphur mixture. We shall be careful in future in introducing any fresh plants into our collection, and if the disease is fortunately stamped out, we are not likely to be troubled with it again, as there are no Hollyhocks, clean or unclean, anywhere near us. While the air remains cool there is not much danger from

RED SPIDER, but when hot, dry weather sets in this pest is likely to get troublesome, and unless it is destroyed the leaves assume a brownish, rusty colour, which will prevent the development of well-formed flowers. This pest is destroyed by soapy and sulphur water, or it may be kept in check by frequent syringings with clean rain water. Mulching the ground round the plants is also beneficial. See that the flower-stems are tied to the sticks as they increase in growth, which will prevent them from being injured by high winds. This is a good time to

SOW SEEDS of Hollyhocks. They may either be sown on a piece of fine soil out-of-doors or in pots and boxes in a frame. In the latter case the young plants ought to be pricked out as soon as the first rough leaf is formed. They should be cultivated in the open ground during summer and be planted out where they are to flower in September; by planting them at that time the plants become established before winter, and unless the latter is an exceptionally bad one they seldom sustain injury; indeed, few are killed by either frost or wet.

J. DOUGLAS.

IBERIS GIBALTARICA HYBRIDA.

THE finely flowered and singularly charming plants of this new hybrid *Iberis* shown at South Kensington the other day by Mr. Dean could hardly fail to direct attention to its merits not only as a hardy perennial, but also as a decorative pot plant. The plants in question were in 6-inch pots, and were about 9 inches in height and literally masses of bloom, the trusses being about midway between those of the little grown and somewhat coarse habited *gibraltarica* and the better known *superba*. The individual blooms were large, and, though opening white, soon deepen to a soft peach or lovely rosy lilac hue. Though grown in pots and kept in a frame for the winter, the plants shown had been in the open air for several weeks past, so their true habit and colour were clearly indicated. This new *Iberis* was raised by the late Mr. Nelson, of Aldborough. It is not believed, however, to have been an artificially obtained hybrid, but seems to have been a chance seedling, having *gibraltarica* for its seed parent, with, it is assumed, the dwarf growing biennial *Tenoreana* for its pollen parent. What is certainly remarkable is, that whilst neither of these kinds are specially hardy, some of the forms of the new hybrid are very hardy, though others, and particularly those which seem to follow after *Tenoreana*, die freely both outdoors and under glass, chiefly, it is believed, from damp. Mr. W. Thompson, of Ipswich, who has sent out from time to time so many beautiful additions to our

his attempts to produce anything good from hybrids have been absolute failures. Whatever he has produced of value has been produced by sheer accident, and in nearly every instance from common seeds sown in the nursery beds or nursery rows. This is depressing enough, but in the very next note on the same page (p. 296) it is reassuring to read that some of the finest of American fruits have been raised from the seeds of native or common types fertilised with pollen of superior varieties. After reading that note from the *Prairie Farmer* anent Mr. Robert Douglas's failures we thought of what Knight, Rivers, Dominy, Seden, Court, Denny, Laxton, and half a hundred others of our own hybridists had done for us, and we pitied the man who so frankly acknowledges therein that Dame Nature had beaten him. She beats all who do not understand her—all who disagree with her; but then what a reward she has in store always for those who with knowledge help and assist her in her work!

MECONOPSIS NEPALENSIS is just at this season one of the most stately and effective of all hardy plants in flower. No other flower I know has such softness in the pale yellow of its petals, and their delicate satin-like lustre is made yet more effective and conspicuous by the tassels of rich orange anthers which tremble within the cup-shaped blooms. Even as a fine-leaved plant of distinct and noble port, this Nepaulese Poppy well deserves culture, but as a flowering plant it also is quite unique. Raised from seeds in the spring, the young plants are fit for planting out in June or July, and the strongest flower during the year following. M. Wallichi, with blue flowers, is not so common, and M. simplicifolia, with its large nodding solitary blue flower, is still more rare in our gardens.

THE ORRIS ROOT, OR FLORENTINE IRIS, a mass of glaucous sword-like leaves and great soft lilac flowers, is just now a fit companion to the crimson and rosy-flowered Pæonies, the Tulips and Pansies of this early summer-tide. Even the common German Iris is a beautiful object when well grown either on the Grass or on the open borders among Solomon's Seal and nodding Bluebells, also among the many pink and flesh-coloured and white varieties of the latter which are just now among the freshest and most graceful of all hardy bulbous plants. Purple Honesty and golden Wallflowers make quite a show of themselves, but of all our hardy flowers none please us more at this season than do the great clumps of Florentine Iris, bearing, as they do, such noble broad-petalled flowers.

PLANTS FOR ROOMS.—One of the very best and most satisfactory of room plants is the evergreen *Aspidistra lurida* and its white striped variety, but perhaps, all things considered, the green-leaved variety is hardiest and best. I have seen specimens recently having from twenty to thirty leaves which had been grown in windows for the past seven or eight years. Water occasionally and sponging when the leaves become dusty is all the attention this plant requires. *Cyrtomium falcatum* is one of the best of all room Ferns, and as a distinct and effective window plant none are finer than *Aralia Sieboldi* when laden with its seven-lobed digitate leaves, but nothing can be finer or give less trouble than the *Aspidistra*, or Parlour Palm. In Holland, I am told that the last named and Siebold's *Aralia* are amongst the most generally grown of all window or room plants, and to my mind they are far preferable to the ephemeral subjects too often used as domestic ornaments.

THE TIME OF IRIS BLOSSOMS.—Now that the Daffodils are well-nigh gone, and the Tulips are on the wane, what grace and variety of colour the many-hued Irises bring to our gardens. The Spanish and English bulbous kinds (*Xiphion*) are spearing up their swollen stems eloquent with promise of bud and flower. Iris sibirica has its elegantly pencilled blooms poised like butterflies on the slenderest of wand-like stalks, and I nudi-

caulis, I. pumila, with many others are now gay in the sunshine, but of all the Irises we look forward with some anxiety to the blooming of the I. lævigata or I. Kämpferi race, which promise us flowers as large as *Clematis lauginos*a, and of the most startling diversity in form and colour. Hearing of these being submerged in marshy or bog beds in Japanese gardens, we planted some in a border near the pond, where, after being under water most of the winter, they are now most strong and vigorous.

CHOICE BORDER PLANTS.—We have a plant flowering here now which is to almost all our visitors a stranger. It is a rosy-flowered form of the old Leather Columbine (*Thalictrum aquilegifolium*) growing 2 feet to 3 feet in height, each stem being crowned by a terminal corymb of rosy lilac finely fringed. White and yellow varieties of *Thalictrum* are common enough, but as rosy ones are rare, this one the better deserves notice. Another plant not at all too abundant is the vivid scarlet-flowered *Ourisia coccinea*, a plant of dwarf and compact habit, and worthy of the most careful culture. Those who have it not should note it as a "good thing." That the pure white *Anemone sylvestris*, the vivid Oriental Poppies, double-flowered *Narcissus poeticus*, and plenty of late blooming Tulips should be grown in quantity wherever borders are devoted to hardy flowers goes without saying, but just now for effect the Pæonies and Irises and Anemones blazing in the sunshine bear away the palm.

CHOICE WALL SHRUBS.—"What curious blue-flowered shrub is that on your wall?" is quite an everyday question, and the blue-flowered shrub is *Solanum crispum*, or, as "F. W. B." would no doubt call it, the Potato Tree. Quite near it the wall is rosy with the dense rosy clusters of *Spiræa bella*, and the white-flowered mountain *Clematis* (*C. montana*) hangs its white starred wreaths over the old grey stones. Here *Clematis alpina* is a mass of deep green leaflets, studded with its soft blue bells, and there the lilac spikes, or panicles rather, of *Veronica Hulseana* are tossing in the breeze at the foot of a warm wall. Tiny Banksian Roses nestle among their waxy foliage, and already ere June comes does our old Gloire de Dijon give us a foretaste of that sweet time of Roses which is to be. Broad masses of golden-leaved Ivy are now at their freshest and best. *Choisya ternata* and *Vella Pseudocytisus* alike add beauty to our wall drapery. —VERONICA.

FRUIT GARDEN.

GOLDEN QUEEN GRAPE.

I HARDLY understand what "W. W. H." wishes to imply in his remarks (p. 404) respecting this Grape. I do not say that it is destitute of good qualities, but I do say that it is never likely to take a high rank amongst Grapes. I grant that it is a good grower and fruitful and that it sets well, but it requires very careful ventilation to keep the foliage in good condition; nor is its colour in any way pleasing, for unless the bunches are exposed well to the light during the later stages of ripening they assume a dingy brown hue, and the berries have a very poorly defined transparency that does not add to their appearance. Moreover, the sugary, unrefreshing character of the flesh is not likely to gain for them many admirers. All this I regret, because as regards matters of cultivation, if the foliage is kept right, I have nothing to say against it. It is certainly distinct; it has glaucous foliage and a peculiarly shaped berry which no one can fail to recognise. In a word, I may say that it is what I call a "gardener's Grape," by which I mean it is not a difficult variety to cultivate. It is sure to show plenty of bunches, and the berries set thickly without involving any of the trouble that belongs to the Muscats, and it will ripen in a temperature intermediate between that which suits Hamburgs and Muscats. Moreover, it is a fairly good keeper. —J. C. CLARKE.

Small-flowered Peaches for forcing.—"W. W. H." (p. 469) wishes to know the points by which I consider Dr. Hogg Peach and Lord Napier Nectarine are superior to the kinds he enumerates for early forcing. As he desires the term (early forcing) not to be misunderstood, I will fix the date for the fruit to be ripe—about the 15th of May—which will, I think, be quite within range of the usual acceptation of the term. 1st, I prefer Dr. Hogg Peach for its uniformity in size of fruit; and 2nd, for its great solidity, which renders it most valuable if required to be sent a long distance, especially by rail. As to Lord Napier Nectarine, its quality generally, and for forcing especially, it simply has no equal. —MR. WESTCOTT, *Raby Castle Gardens, Darlington.*

Grape nomenclature.—Will Mr. McIndoe, of Hutton Hall, be so good as to furnish the history of the white Grape shown in his collection at Manchester, and named Early Smyrna Frontignan. I cannot find the name of it in my edition of the "Fruit Manual," in "Vines and Vine Culture," or in the "Gardener's Assistant." To me and others who saw it, but did not taste it, it looked as like the Royal Muscadine as two Peas, only not quite so large in the bunch, and if it possessed the Frontignan flavour, I would have said it was the White Frontignan, such as I have seen exhibited at the same society's show by Mr. Tegg, late of Clumber, and which has many synonyms. I see by a report of the show that the Grape shown by Mr. McIndoe is described as being "the best early white Grape in cultivation," but I have an impression it is either the one or the other of the above old acquaintances, and which can be determined by the flavour. —J. S. W.

Small-flowered Peaches the best.—"W. W. H." has done right in calling attention to this, and it will be well to bear his words in mind. He says small-flowered varieties are the best for forcing, but I would go a step further and say that small-flowered Peaches and Nectarines are much the surest fruiters at all seasons and in all situations. I have seen many instances in cool houses, and in the open air too, where all the trees were completely clothed with bloom, but while the large flowering ones did not form a full crop or require any to be thinned, the small flowering ones formed many more than were required. I have been told by others that the same thing occurs frequently with them; in fact, it is the rule; and I am of opinion that fine full crops of Peaches and Nectarines would be much oftener secured if the greatest attention was devoted to small flowered varieties. —J. MUIR.

Fruit prospects.—After the effects of the past spring on Peaches and Apricots (the latter mostly), the subject as to the best protective material for fruit trees is again brought before our notice. Whether it is desirable to wire walls for these tender fruit instead of nailing seems to be an open question, but these are two important points in connection with the culture of fruit trees against open walls. As the season is near at hand when we shall be having the annual report of the fruit crop, I would like to ask those who contribute to it if they would note the kind of protection used in spring, and if the trees are nailed to the walls, or the walls wired. The neighbourhood they write from, too, is important to know in order to be of real value. In this garden we have but a thin crop of Apricots, and these are on shoots close to the wall; not one is to be found only in that position. The walls are nailed and covered with thick blinds. This induces me to think that wiring in our case would have been a mistake. —J. C., *Farnboro', Hants.*

Mouldy Strawberries (W. H. T.).—I believe the white powdery matter on your Strawberries is, as you suppose, a fungus, but so little was left on the fruit that I cannot be quite certain. Some fungi are as fond of dryness as others are of moisture. Are your plants kept too dry and without sufficient ventilation? Strawberry plants should always have moisture and plenty of fresh air. —G. S. S.

PLANTS IN FLOWER.

LITTONIA MODESTA.—As a cool house climber this is very effective. It is a Liliaceous plant, nearly allied to *Gloriosa*, and during the winter is kept in a dormant state, but with the return of spring its growth is rapid, and at the present time the pretty golden yellow bell-shaped flowers are expanded. In flower at Kew.

LILAC CHARLES X.—Dotted here and there in the shrubberies at Kew this Lilac stands out prominently from all others by reason of the deep rich hue of its blossoms and the massive clusters in which they are borne. Though there are now an almost endless variety of sorts, this is still one of the best of its class.

DOLICHOS LIGNOSUS is not only a pretty, but a most distinct greenhouse climber. It is a free-growing plant, producing Pea-shaped flowers in dense clusters. When first expanded, they are of a bright rose colour, but afterwards change to mauve. It helps to enliven the roof of the conservatory (No. 4) at Kew in a charming way.

CENTAUREA MONTANA RUBRA.—A bright and pretty variety, with tassel-like flowers 3 inches across of a pleasing rosy pink colour. It is, no doubt, as compact and neat in growth as the typical form, which is one of the most useful hardy border flowers we have in May. Messrs. Backhouse, of York, send us some fine blooms of it.

HABROTHAMNUS NEWELLI has brighter flowers than those of the well-known *H. fasciculatus*, and are borne in long pendulous clusters, which give the plant a very graceful appearance. It is now in flower in the temperate house at Kew. It is an excellent plant for adorning a back wall, rafter, or pillar in a conservatory or any other cool house.

GREENLAND POPPIES (*Papaver nudicaule*), in yellow, white, and orange-red colours, are sent to us by Mr. Kingsmill from his garden at Eastcott. The cup-like form of the flowers is handsome, and their bright and varied colours make them most important flowers in the open-air garden at this season, particularly when grown so fine as they are in the Eastcott and Munstead gardens.

DRACENA BANKSI.—Although this is generally grown for the sake of its foliage, it is a very pretty object when in flower, in which condition it may be seen in the temperate house at Kew. A couple of shoots about 4 feet or 5 feet high have each produced from its upper part a large branching spike, which is studded with small pure white flowers, the whole having a light and elegant effect.

SARMIENTA REPENS.—This pretty little creeping Chilean plant produces in great profusion urn-shaped flowers of a bright scarlet colour, bearing some general resemblance to those of *Mitraria coccinea*. It delights in a peaty soil in a cool and moist situation with plenty of drainage. In a cool house at Kew a couple of plants suspended in shallow pans are just now very attractively in bloom.

RANUNCULUS REPENS FL.-FL.—The double creeping Crowfoot is really a pretty plant, having button-like flowers as double as possible and of a bright yellow. Mr. Wolley Dod sends us flowers of it, and remarks that it grows about a foot high, and is twice as floriferous as *R. acris*. The flowers remind one of miniatures of the florist's *Ranunculus*. It does not appear to be much known, for we seldom meet with it.

BLANDFORDIA FLAMMEA ELEGANS.—Among desirable, but neglected, plants must be included the *Blandfordias*, which are seldom seen in gardens, yet when in flower they are really handsome. One of the most showy is the above-named, which from a tuft of Grass-like foliage throws up a scape about 2 feet high, terminated by a cluster of a dozen pendent flowers, each from 2½ inches to 3 inches long, funnel-shaped, and bright crimson in colour, with yellow tips to the petals. These plants are natives of Australia, although the one under notice is said to be a garden hybrid. All

require a soil composed partly of peat, good drainage, and copious supplies of water when growing. We noticed this splendid variety in Mr. Bull's nursery at Chelsea, where several of its allies, particularly *B. princeps*, were rapidly throwing up blossoms.

ANTHURIUM ANDREANUM.—An exceptionally fine spathe of this plant is sent us by Messrs. Heath from their nursery at Cheltenham. It measures 6½ inches in length by 5½ inches in breadth, and the form is more rounded than usual. Messrs. Heath state that the plant from which this was cut has six of such large spathes as that sent; it must be a fine specimen.

PRIMULA SIKKIMENSIS.—Very large and graceful heads of this stately and beautiful Primrose come to us from Messrs. Backhouse at York, no doubt gathered from one of the snug and shady nooks in the unique rock garden in the nursery. The unusually fine growth indicates that it finds a congenial home there, and we should like to hear from Mr. Potter the conditions under which the plants are growing.

SCILLA FRASERI, best likened to a small form of the North American Quamash (*Camassia esculenta*), is really a pretty plant, graceful in form and extremely delicate in colour. The flowers are produced in a long, dense spike, terminating a stem from 1 foot to 2 feet high, and are of a soft mauve tint, a colour not seen in any other hardy bulbous plant in gardens. It comes well grown from Mr. Kingsmill's garden.

RUBUS DELICIOSUS.—This Rocky Mountain species is a very handsome spring-flowering shrub either as a wall plant or when allowed to assume its natural habit of a dense bush. Examples of both styles of growing it are to be seen at Kew. It is a spineless species, with three or five-lobed (not pinnate) leaves, and pure white flowers about 2 inches in diameter, produced in great profusion from the axils of the leaves. During the week we have received some elegant sprays of this plant from Messrs. Backhouse, a certain proof that it thrives well at York.

PROSTANTHERA LASIANTHOS.—The delicate markings of the flowers of this plant would compare with many Orchids both for strangeness and beauty. It is of shrubby habit, belonging to the Labiate family. The flowers, about an inch in diameter and pure white, are covered with hairs, and the interior of the throat is freckled with violet. It is a native of Australia, and may be seen in flower in the temperate house at Kew.

MESPIUS SMITHI, also known as *M. grandiflora*, is one of the most handsome flowering trees to be seen at Kew at the present time. On the lawn at the back of the Palm house is a specimen about 20 feet high. In general aspect it resembles a large Thorn, and the whole tree is thickly studded with pure, white flowers, each over an inch across. For gardens where moderate-sized trees are desirable this handsome Medlar should be taken note of.

CROSSANDRA UNDULÆFOLIA is an Acanthad of easy culture, producing numerous flowers arranged in terminal spikes, and of a reddish orange colour. The peculiar hue of the blossoms renders it very distinct from most of its associates, and with its free habit of growth marks it as a desirable subject for the stove or intermediate house. It is now in flower in one of the stoves at Kew. We have also met with it under the name of *C. infundibuliformis*.

HYBRID AZALEAS.—The old Azalea beds at Kew are just now a gorgeous sight, and well repay a visit. Such a show of bloom is seldom seen, and the situation surrounded by greenery shows the gay colours to the best advantage. The Azaleas occupy several beds on the right of the Sion vista in one of the openings of the wood. It is strange that these Ghent Azaleas are not more frequently planted, as they seem to do well almost anywhere, provided it be not in too dry a situation or in a limestone soil. At Kew they are planted on some rising ground, the soil there being a kind of stiff loam, which has been mixed

with a liberal quantity of decayed leaf mould, and in this the plants flourish admirably. Among the best kinds in flower we noted *Exquisite*, deep yellow; *albicans*, white, bluish tube; *luteo-rubicunda*, pink and yellow; *Empereur*, yellow; *multiflora*, bluish; *vitellina*, deep orange; *elegantissima*, orange-crimson; *alba*, pure white; *Ne Plus Ultra*, bright crimson; *mirabilis*, rose; *insignis*, bright rose; *pardina*, orange and rose; *grandidissima*, large orange; *mutabilis*, cream and rose; *carnea*, flesh. Close by are some *Azalea mollis*, well showing the wide range of colour already obtained among them, and proving worthy rivals to the best of the older kinds.

PAPAVER UMBROSUM.—Of this brilliant annual Poppy, Mr. Wolley Dod sends some fine blooms cut from stems 2 feet high. The flowers are some 3 inches across, handsomely cup-shaped and of an intensely deep crimson, with large and conspicuous jet black blotches at the base of each petal. Those who do not know this showy hardy flower should make its acquaintance, for it makes the garden very cheerful just now with its masses of glowing colour.

MAGNOLIA ACUMINATA AND CORDATA.—Close to the hardy Azaleas at Kew these two Magnolias are in flower; the first is the Cucumber tree of America, being a young, vigorous, bluntly pyramidal tree with, however, smaller foliage than is frequently the case with this kind. The flowers are a sort of greenish yellow, and though interesting do not add much to the beauty of the tree. The other (*M. cordata*) is smaller in all respects, but bears a great general resemblance to the *M. acuminata*.

ASTER PEREGRINUS.—Under this name we have received from the York Nurseries an extremely pretty flower nearly 2 inches across, having numerous narrow ray florets of a delicate mauve and a large yellow disk. We do not remember having seen it before. Messrs. Backhouse also send the large *St. Bruno's Lily* (*Anthericum Liliastrium*), *Phlox subulata atropurpurea*, a dark variety, *Iberis Pruiti* with dense heads of white bloom, and *Trollius japonicus* with bright orange flowers.

PELARGONIUM GLOIRE DE NANCY.—New and distinct varieties of Pelargoniums still come to the fore, among them being this one which belongs to the Ivy-leaved section in Mr. Bull's nursery at Chelsea; it is conspicuous among a host of others on account of the bright hue and large size of its blossoms. It is one of the sturdy, free-growing varieties, bright cerise-red in colour, the whole flower being shaded with violet. Like most of the best belonging to this section, it is of Continental origin.

ERYSIMUM RHETICUM is a bright yellow alpine plant, forming dense tufts, which at this season are densely studded with clusters of blossoms, which help to enliven the rock garden at this season. Some flowers from Messrs. Backhouse show how well it thrives in the rock garden at the York Nurseries. They also send flowers of *Alyssum alpestre*, a very neat little plant of dwarf tufted growth. It is also studded with bright yellow blossoms at the present time. Both should be taken note of by lovers of alpine flowers.

CRINODENDRON HOOKERIANUM.—Of this singularly beautiful Chilean plant a coloured plate was given in THE GARDEN some time ago, and it may now be seen in flower in the temperate house at Kew. From the small size of the specimen there it would appear to be remarkably floriferous. The flowers are globose, about the size of a Filbert Nut, of a deep rich crimson. We notice that its name has been changed to *Tricuspidaria hexapetala*, but no doubt Messrs. Veitch will still continue to distribute it under its better-known original name.

PHYLLOCACTUS FLOWERS from Mr. Peacock's fine Cactus collection at Sudbury House, Hammersmith, remind us of a bright and showy race of plants, but comparatively neglected. All the *Phyllocacti* are more or less showy flowered plants, but the kinds Mr. Peacock sends are particularly so. These are *P. Ackermanni*, *Jenkinsi*, and mul-

tiflorus, all with large crimson flowers, abundantly produced even on small plants, and especially so in the case of *P. multiflorus*. The other species sent is *P. phyllanthoides*, differing from the rest in having smaller flowers of a deep rosy pink. All these are capital plants for the greenhouse, and their flowering season extends over several weeks. They are, moreover, particularly suitable for window culture, and some of the finest plants we have seen of *P. multiflorus* have been grown in a cottage window. It would be a step in advance if the promoters of flower shows would offer prizes for a dozen of the best and most useful ornamental Cacti and such like plants out of the ordinary run of "flower show" plants.

DODECATHEON INTEGRIFOLIUM, one of the North American Shooting Stars, is one of the prettiest plants in the open-air garden at the present time. On erect flower-stems, about 6 inches high, it carries an umbel of about a dozen blooms of a rich magenta colour, with centres of bright yellow. This is one of the best and highest coloured of the Dodecatheons, and a plant that, owing to its being easy to grow, should be found in every country garden. Some fine flowers reach us from the York Nurseries.

LILIUM ELEGANS GUTTATUM.—Under this name we noticed a very pretty and distinct Lily in flower at Mr. Bull's nursery. The individual blooms were comparatively large, borne erect, as in the elegans or Thunbergianum section, and orange-red in colour, with a brighter hue towards the base of the petals, but the peculiarity consisted in the whole flower being profusely and regularly dotted with deep maroon spots. Such a handsome Lily cannot fail to become popular when better known. It is particularly beautiful when grown in pots for flowering in a greenhouse in May.

RHODODENDRON SESTERIANUM.—Some extremely fine trusses of this beautiful hybrid variety are sent us by Mr. Smith, of Guernsey, who says that it flourishes admirably there in the open air. The flowers are 4 inches across, pure white, except faint flushings of rosy pink on the exterior of the corolla. They, moreover, emit a delicious perfume. On one small forked branch there are as many as fifteen of these large blossoms, a sufficient proof that it thrives well with Mr. Smith. The rosy pink unexpanded buds remind us strongly of those of the grand *R. Aucklandi*.

AQUILEGIA GLANDULOSA.—Flowers of the true form of this Columbine come to us by post in excellent condition all the way from Mr. Wolley Dod's garden at Edge Hall, Cheshire, a remarkable fact seeing that Columbines are among the worst flowers to travel when cut. The true *A. glandulosa* is indeed a lovely plant, having large blossoms of a bright violet-purple tipped with white. Accompanying these flowers are others of the true Canadian Columbine (*A. canadensis*), also a beautiful plant with red flowers, and a few bicolorous forms of the common *A. vulgaris*, all distinct and pretty.

WEIGELA ABEL CARRIERE.—The adaptability of the Weigela for covering walls or fences of moderate height is well shown at the present time in Mr. Bull's nursery, where a quantity of this beautiful variety has been utilised for the purpose, and the plants are now a mass of bloom, the hot, sunny position having apparently induced unusual floriferousness. This variety is the best of the rose-coloured kinds that has come under our observation, the flowers being larger and of more substance than in the better-known rosea. It was sent out from the Continent some four or five years ago, but does not yet seem to be much known.

EREMURUS AT BELGROVE.—The handsome, pure white-flowered Himalayan species of *Eremurus* is now blooming beautifully in my garden, one of the plants for the third and the other for the first time, though both of them are exactly of the same age and came from the same batch of seedlings. This plant seems to be perfectly hardy as I have never given it any kind of protection even during the severe winters of 1879-80-81. It has

also the advantage over its more robust growing and larger flowered relative, *E. robustus*, from Turkestan, of starting to grow considerably later in the spring, and so escaping the continued wet and other inclemencies of the months of January and February in our moist climate. My strong plant of the last named fine variety growing in centre of bed between its two Himalayan brethren, which bloomed so finely in summer of 1881 on a stem nearly 8 feet in height, has not since flowered, the growth commencing early in January, and the flower-spike rotting while still down in the undeveloped leaves from the continued rain lodging around it. I hope by some means to prevent this next year.—W. E. G.

AZALEA ROSEIFLORA.—The finest specimen we have ever seen of this Japanese shrub, one of the most charming plants we know, was shown by Messrs. Backhouse, of York, at the South Kensington show last week. The plant, in a pot about a foot in diameter, was a large, dense bush over 2 feet across, and fairly smothered with its double rosetted blossoms of a lovely salmon-pink colour. The plant was the admiration of everyone, being so pretty and so distinct from other Azaleas, or, indeed, any other plant at the show. Few had any idea that the plant could be grown so large, for hitherto it had only been seen in London in a small state. Messrs. Backhouse were appropriately awarded a cultural commendation for the plant.

BLUEBELLS FROM A LONDON GARDEN.—I send a few Scillas from under the trees in my garden. Their lovely colours and graceful habit of growth make them a charming sight. They grow very freely, and with Ferns, Funkias, and other such things, the wilder parts of my garden are just now very gay, and yet with a wealth of soft greenery that sets off the pure colours of the Scillas.—STUART WORTLEY (Col.), *Rosslyn House, Grove End Road*. [A pretty and interesting gathering, including, we should imagine, every shade of tint existing in Scilla nutans and *S. campanulata*. The whites and pinks are extremely pretty, and there are some of a delicate porcelain blue.]

EURUBIA GUNNI.—A long slender shoot of this Australian shrubby Aster from Messrs. Veitch's Coombe Wood Nursery indicates that the plant finds a congenial home there—no doubt against a snug and sunny wall. The specimen is pretty, being wreathed with white blossoms as large as Daisies. It is, we believe, the hardiest of the Eurybias. The musk-scented species, *E. argophylla*, is a plant worth trying against a warm sunny wall. Another species, *E. ilicifolia*, from New Zealand, is a branching, habited shrub with white flowers freely produced, and much in the way of the better-known *E. Haasti*, but are larger and more open. It is now in flower against the herbaceous ground wall at Kew.

THE SPANISH BROOM (*Genista hispanica*) is among the showiest and best dwarf shrubs one can have to enliven the garden in May. It is neat in growth, its maximum height seldom exceeding a yard, and it invariably forms a symmetrical dense bush which for two or three weeks about this season is a complete mass of golden yellow blossoms, brighter even than the double Gorse. Its place is in open spots on the margins of shrubberies where it can get plenty of light and sun, and it is also a capital plant for bold rockwork, as it does not intrude upon its near neighbours, as do many other dwarf shrubs. A fine branch of it laden with bloom comes from Messrs. Veitch's nursery at Coombe Wood, and is one of the finest hardy shrubs we have seen this season.

THE SPECIMEN MARGUERITES shown at South Kensington last week by Lord Lonsborough's gardener (Mr. M'Pherson) from Northwoods, Hants, thoroughly deserved the medal awarded, as they were by far the finest Marguerites that have been shown at least in London. The pair were both enormous plants with symmetrical Mushroom-shaped heads, some 5 feet in diameter, and so profusely furnished with large Ox-eye Daisy-like flowers as to be like dense masses of white. The species seemed to be *Chrysanthemum Halleri*, not the *C. frutescens* which has been

shown hitherto in large specimens. It certainly needed skilful culture to bring these plants to the show in such a perfect condition. Being such an unusual feature, they attracted as much, or more, attention than all the huge specimen plants of the ordinary "stove and greenhouse stamp" that make their annual round of the big London shows.

STEPHANOTIS FLORIBUNDA.—Two glorious wreaths of this favourite stove climber reach us from Mr. Carter, gardener at Downhill, Coleraine. Each shoot is about a foot long, and is completely covered with flower clusters, some numbering as many as ten in a bunch. The chaste beauty of the waxy flowers and the strong perfume make this plant so deservedly popular. Mr. Carter says his specimen is planted out in a stove, and the whole plant is covered with bloom after the manner of the shoots he sends.

INDIAN AZALEAS OUT-OF-DOORS.—I send you some blooms cut from plants that have withstood the last two winters unprotected the single white blooms are from a plant fully exposed in a bed of peat with Ghent Azaleas. The coloured ones are more sheltered and planted in natural decayed leaf mould, which seems to suit them well. We have fifty of them planted out, and they present a most striking appearance, having an unusual brightness about them very distinct from other flowers in the open air.—T. T., *Creech Grange Wareham*. [Very good blooms indeed; scarcely, if at all, inferior to those produced under glass, being large and highly coloured.]

THE PEACOCK IRIS (*I. Pavonia*) is sent us in great beauty by Mr. Smith from his Caledonia Nursery, Guernsey. It is a sweetly pretty flower, not much like an ordinary Iris in form, as the broad petals stand out almost horizontal. The colour of the petals is white or suffused with a faint purplish tint, but the chief beauty of the flower is the rich blotch of sky blue at the base of each broad petal, which, in contrast to the white, is very charming. The Peacock Iris seems to luxuriate in Guernsey, and no doubt in the open air; whereas to grow it well here we must give it the protection of a greenhouse or frame, though we have seen it thrive in snug corners in some places, and notably in the gardens at Redleaf. Though the flowers last only for a day, the spathes carry several flower-buds, which open in quick succession. It is a plant that everyone would be pleased with when in bloom, and is worth a little trouble to cultivate.

NEW PLANTS shown by Mr. B. S. Williams last week at the floral committee meeting included *Cattleya Mossiae Alexandræ*, one of the loveliest varieties we have seen, having large finely-made flowers of a delicate rose-pink; *Cycas elegantissima*, a truly elegant Cycad with long gracefully arching pinnate leaves; *Dieffenbachia gigantea*, a new variety of great promise as an ornamental foliaged plant; *Croton musaicus* and *Masterpiece*, two new and handsome additions to the long list of fine-leaved Crotons; *Odontoglossum marmoratum*, with large well-formed flowers heavily spotted and suffused with rosy purple, a most beautiful variety; the rare *Dendrobium rhodopterygium*, like a small edition of *D. macrophyllum*, and therefore less showy; *Aralia Kerchovi* and *Amayrillis Crimson Banner*, an extremely handsome variety, remarkable for the brilliant crimson colour of the blossoms extending to the very centre, leaving not the slightest trace of light colour in the throat, an unusual occurrence in *Amayrillises*. The flowers are not very large, but are of firm texture and admirably formed. We regard it as one of the finest of *Amayrillises* yet produced, and a fit companion to the Dr. Masters variety, also an admirable one.

Diseased Gloxinias.—Why do the leaves and buds of my Gloxinias turn brown just when the flower-buds have formed? This is the third year such has been the case; before then I had beautiful flowers. I was told they wanted a light, airy self; but this made no difference. I have seen to the drainage being perfect. It is certainly not from a dry atmosphere.—J. S. D. [The leaves

you send are badly infested with the small yellow thrips, which have probably been the cause of the mischief. The best plan would be to burn the plants so infested, thoroughly cleanse the house, and start next season with either new bulbs or with seedlings raised during the present year.—A. S.]

PARIS FLOWER SHOW.

THE show of the Société d'Horticulture de France, which closed on Monday last, took place, as in the past two seasons, in the Pavillon de la Ville de Paris, behind the Champs Elysées Palace. The inside of the pavilion was devoted to hothouse plants, Palms, Ferns, Orchids, Gloxinias; also to Rhododendrons, Azaleas, &c., all tastefully arranged. At the back of the pavilion was a long, wide tent containing Clematises, annual plants, Roses, hardy plants. On the side of the pavilion was again another tent for standard Rose trees and vegetables. The area round the pavilion was admirably arranged as a garden, and at the rear was the show of horticultural implements. This is altogether a most convenient place for holding shows, standing as it does in the centre of the Champs Elysées, in the most fashionable part of Paris. It is easily approached by long and very wide roads on all sides, so convenient for carriage traffic. The show ground is surrounded by avenues of Chestnut trees, which afford a delightful promenade.

The first thing that struck us in the pavillon was a long bed of Gloxinias, from M. Vallerand; some were named sorts and the other seedlings were all very fine. The flowers were enormous; we noted Cecile Michaux, pure white; Jupiter, dark violet; Neptune, violet; and A. de Rothschild, white flower, with the margins spotted with pink. On the right were several groups shown by M. A. Chantin, the grand prize being taken by his Palms, Ferns, Aroids, but the same plants are exhibited year after year, so that we begin to know them. What was more interesting to us was his group of Orchids, Bromeliads, and new plants, amongst which we noted the following: Eucharis Saundersi, roseum, Guzmania tricolor, Disteganthus scarlatinus, Nidularium spectabile, fulgens, Streptocalyx Vallerandi, Canistrum viride, Billbergia Chantini horrida, Tillandsia muscicola, tessellata, Lindenii, Barilleti, Cycas Terkesi, madagascarensis, Pritchardia Vuystelkiana, Dracaena Massangeana, Begonia diadema, Heliconia aureo-striata, and various others.

Orchids were shown in quantity, though not as a rule remarkable for high quality; when the plant was fine the flowers were poor, and vice versa. For example, Masdevallia ignea, Veitchii, and others were shown with one flower, and very few of the rest would have been seen in England even at an ordinary show. M. Chantin had in his group a good and choice selection as regards species and varieties. On the other side of M. Chantin's groups were the exhibits of M. Truffaut, of Versailles, which consisted of a very fine group of miscellaneous hothouse plants, including Bromeliads, Palms, and Orchids. The following were most prominent: Lycaste Skinneri, aromatica, Cypripedium caudatum, Dayanum, barbatum, lavigatum, Harrisianum, villosum, insigne, Sedeni, Cattleya Trianae, intermedia, Mossiae, Skinneri Saccobolium ampullaceum, Masdevallia ignea, Odontoglossum Pescatorei, vexillarium, Roezli, Alexandræ; Miltonia spectabilis, well flowered; Dendrobium nobile, Oncidium crispum, concolor, Weltoni, Chysis bracteata, Trichopilia coccinea, &c. On the same stage were Messrs. Thibaut and Keteleer's Orchids, including Cypripedium lavigatum, caudatum, ciliolare, navium, Hookeræ, &c., Cattleya amethystina, Regnelli, &c.; Oncidium Weltoni, concolor, Odontoglossum Pescatorei, Phalaenopsis, Rossi, Cervantesi, Vanda tricolor, Masdevallia ignea, Veitchiana, Harryana, Brassia guttata, and a good plant of the new Pitcher, Nepenthes Mastersi, well coloured. M. Bleu, the Caladium raiser, had over a hundred varieties of his well-known plants, amongst which stood l'Automne, a new plant lately figured in the *Revue Horticole*, and also a few Cattleyas. Mons. Croux had a good show, including a

group of Rhododendron Michael Waterer in splendid condition, with a border of Kalmia myrtifolia all round and well bloomed, also a grand group of Rhododendrons of the best varieties, well flowered; Joseph Whitworth, Baron L. de Rothschild, M^{me}. Emile Boyan, M^{me}. Masson, fine white; Sir Henry Mildmay, Alarm, Pelopidas, Mrs. Holford, Crown Prince, Helen Waterer, very fine colour; Matchless, Lady Eleanor Cathcart, &c., &c. The same firm had some good Indian and Caucasian Azaleas—Rosetta, bluish; Fama, pink; Pallas, pink and yellow; Coccinea grandiflora; Triomphe de Royghem, yellow; Mazzeppa superba, white. Conifers and Acers also from this firm were to be found outside. M. Christen, of Versailles, showed as usual a good lot of Clematis, varied and in good condition, so did also M. Georges Boucher, of Paris. M. Constant Lemoine, of Angers, had a very fine and striking lot of Dracaenas, all of his own seedlings, well marked, and of good specimens. M. Paillet showed a collection of Conifers, hardy Magnolias, Hollies, Rhododendrons, Indian Azaleas, and the new Prunus Pissardi, with its very dark red foliage.

We found also in the pavilion some big specimen Roses, such as are exhibited in London by Messrs. Turner, Paul, &c., but in quality they certainly did not come up to the English plants, but it shows that the French are taking a lesson from English cultivators. M. Margottin fils was the exhibitor; he showed also Vines in pots with fruits and standard Roses. Among other prominent exhibitors of the Rose were M^{ms}. Levêque & Son and M. Charles Verdier. M. Vilmorin-Andrieux & Co. had, as usual, a fine show or annuals, including Calceolarias, Cinerarias, &c. M. E. André had a lot of his novelties, which he showed well; and M^{ms}. Chantier frères, of Mortefontaine, had a good group of Crotons of their own seedlings besides new plants; this lot was extremely well arranged, and contained an Anthurium Andreanum with many flowers, and a very fine Lega amabilis, one of the handsomest fine-foliaged plants. The show was good and well arranged, thanks to the energy of the president of the show committee, M. Joly, assisted by his secretary, M. Eugène Delamarre.

At the banquet offered by the society to the members of the jury we were told by the president, M. Lavallée, that it was the intention of the society to hold a grand international exhibition in Paris in 1885, the exact date to be fixed hereafter. English nurserymen and amateurs, get ready!

CORRESPONDENT.

PUBLIC GARDENS:

RICHMOND PARK.

If there is no connection now between the Corporation of London and Richmond Park, there was once a very real connection, for in 1649 the House of Commons resolved that the park should be given in perpetuity to the City, to be preserved as a park, and so remain, as a mark of the favour of Parliament, and it was accepted. At the restoration of Charles the Second, however, the Corporation returned the park to the king, with the assurance that they had held it for him only as his stewards. So much is set forth shortly by the late Mr. James Thorn in his pleasant work on the environs of London, and it may be found in other books and documents. Henceforth the standard work, however, will be a handsome quarto volume, which has just appeared, and which, published by the authority of the Corporation, has been edited by Sir Thomas J. Nelson, the City solicitor. Here is given a full history of the transaction from the records of the House of Commons and of the City, together with an interesting description of the park as it is now, from the pen of the City solicitor. The park was given to the City in June, 1649, a few days after Cromwell, at the invitation of the Lord Mayor and Common Council, honoured the City at dinner, in the Grocers' Hall, after attending, with his principal officers, the Council of State, &c., a

public thanksgiving service, on the establishment of the Commonwealth, at Christ Church, Newgate Street. Between 1641 and 1660 a good many notices appeared in the Corporation records of payments in respect of the park. Soon after the death of Cromwell, however, the Commonwealth beginning to show signs of dissolution, and things appearing ripe for the restoration of monarchy, Charles the Second wrote letters from Breda to, among others, the Corporation, whereupon the latter sent a deputation the Hague carrying with them a substantial proof of the City's loyalty in the shape of £12,000, as also the restoration of the park, with which the king was so pleased, that he conferred the honour of knighthood upon all the members of the deputation.—*City Press*.

A park for North London.—A correspondent in the *Times* writes: It has always seemed to me that as from time to time the question of securing spaces for suburban parks arises, one spot in the north-west of London has always been overlooked—I mean Caen Wood. It is obvious that in the event of that property falling into the hands of the builder, not only would Hampstead and Highgate be robbed of their chief sylvan beauty, but the sanitary loss to the whole of London would be irreparable. The heights extending from Hampstead to Highgate practically dominate the whole of London. Let the public acquire Alexandra Park as well, if possible, for the benefit of the northern suburbs; but with regard to London as a whole, there can be no doubt that Caen Wood and the fields between it and Kentish Town would, with Hampstead Heath, form the most important "lung" of the metropolis.

THE Rev. Canon Hole has been appointed one of the chaplains to the Archbishop of Canterbury.

Pelargonium sport.—I enclose flower of Pelargonium showing red and white flowers on one flower-stalk. Is not this an unusual occurrence?—E. A. W. (It is unusual, but the variety you send, which is Vesuvius, is particularly liable to sport. In a sort called New Life there are the two colours in the same flower.)

Tabernaemontana Camassa.—Why does this plant every year lose its buds? I have never yet had a flower out.—J. S. D. (Judging by the specimens you send, the plant is subjected to too low a temperature. It requires a hot and moist stove in order to succeed well. If the conditions of heat and moisture are given, the plant is easy to manage.—T. R.)

Clematises drooping (W. S. B.).—Judging by what you send, we should say that the injury to the leaves of your Clematis is the result of hot sun on them while wet, for they look as if they had been scorched. There seems to be no trace of insects or fungi. The plant will probably recover in course of time, though it is somewhat crippled for the present season.

Grubs (B.).—The grubs are those of the daddy-long-legs or crane fly (Tipula oleracea). They are very injurious to the roots of various plants, and are often most destructive to lawns. They may be caught by burying pieces of Potatoes, Turnips, &c., attached to skewers or small pieces of stick. These traps should be examined every morning, as the grubs often come to the surface during the night; rolling the ground at that time would kill them. Trenches 6 inches wide and 6 inches deep with upright sides will catch numbers of them; they fall in during their nocturnal ramblings, and cannot escape. They should be collected in the morning.—G. S. S.

Names of plants.—J. R. Boyd.—Franciscea confertiflora.—G. Niebt.—Orchid leaf is from a species of Dendrobium, probably D. chrysotoxum; the flower is Dendrobium suavisimum.—G. Potts.—Double Poet's Narcissus (Narcissus poeticus fl.-pl.); a common plant, grown largely for market.—C. M. O.—Spirea hypericifolia (variety); Berberis Hookeri; Sedum Aizoon; apparently Saxifraga aquatica (a pretty plant).—M. & Co.—Your plant is the true Begonia semperflorens.—A. G.—In order to name the Forget-me-nots we must see larger specimens and sent so as to be received here fresh. Send in a tin box or in oiled paper or oil-skin, but with no cotton wool.—C. A.—A singular fusion of several flowers which we do not remember having seen before.—E. Molyneux.—Cerasus Padus (Bird Cherry)

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES.

EXPOSURE OR SHADE.—There is some perplexing evidence respecting sunshine and shade in our gardens, but I am convinced that all plants worship the sun if other conditions are suitable to them. "Well," says an old friend, "try Filmy Ferns in the sunshine, and note the results," and I may agree with him that they are notable exceptions, although I know two pans of Killarney Fern which are magnificent examples of fine growth, and yet they stand on a vinery floor fully exposed to air and light, if not a little early morning sunshine as well. In deep, rich soils, or where moisture lies below the surface ready to be attracted by the drier soil above, nearly all plants do better in sun than in shade. In Holland Mr. Burbidge tells me he saw hundreds of acres of Lily of the Valley growing in flat, sandy fields in the full sun, and this may account for these Dutch clumps flowering so well; but even at home, where many gardeners grow their own Valley Lilies for forcing, they are planted out in the open quarters with the best results. This brings us to the point of my argument, viz., that the position in which plants are naturally found is not necessarily the best one in which to grow them for our own particular uses. Many plants fail to grow in full sunshine simply because they are too dry at the root; planted beside a wet ditch, no sunshine would kill them. Here lies buried the secret of tropical luxuriance—great heat and much moisture.

PACKING CUT FLOWERS.—During a year I receive some hundreds of boxes of flowers from all parts of Europe, and in seven cases out of ten these flowers are completely ruined by being packed in dry cotton wool. Of all packing material for delicate blossoms it is the worst I know. The best is clean fresh wood Moss (*Hypnum*), and a little tissue paper may be wrapped around each flower when large, or around the clusters or bunches when small. If Moss be not to hand, then soft green leaves are preferable to cotton wool, or the good flowers may be carefully arranged among commoner ones without any other packing except a wet newspaper; better still, blotting paper at top and bottom of the box or basket. Nearly all flowers are better cut in the bud stage just before opening. So cut they pack more firmly and travel more securely than when fully expanded, and thus give far more satisfaction on their arrival. The buds of Daffodils, Irises, Water Lilies, Roses, Gladioli, Tulips, Poppies, &c., never carry safely unless packed in some moist Moss or fresh leaves and in the bud stage.

SUMMER WINDFLOWERS.—Will any lover of fair flowers tell us aught of *Anemone alba*, which is said by a friend to be of a dwarfer and more vigorous habit than *A. sylvestris*, with a larger, erect, cup-shaped bloom nearly 3 inches across? *A. dichotoma* is now very pretty with us, a foot in height, bearing several flowers, each the size of a shilling, in an irregular sort of umbel above the radiate involucre leaves. I am not sure that *A. dichotoma* is the right name, but I know the plant is tolerably uncommon, since but few of our visitors recognise it as it grows here, spreading over a border in full sunshine. Beside it *A. Pulsatilla* is now bearing aloft its tufts of Clematis-like seeds, and *A. palmata* (yellow) recently gave us of its richest gold. I wish some of my friends now on the Pyrenees would send to THE GARDEN Office seeds or roots of *A. sulphurea*. Then those beautiful wild *Anemones* of Greece should not be forgotten by all who visit the German explorations and excavations at Olympia. The name and the noble beauty of all Windflowers is Greek in character, but why called Windflowers? Doctors differ.

PLANTAIN LILIES.—A little damp plot of soil in a partially shaded place planted with a collection of Funkias is now a pleasant sight. One or two of the bold golden variegated kinds are very effective, so is *F. Sieboldi*, but all are fine-leaved plants of the best, and that they luxuriate beneath trees or among dwarf shrubs is another point in their favour. Quite by accident some seedlings of the Japan Primrose (*P. japonica*) were planted among these clumps last year, and they are now in full bloom, the whorls of purplish crimson flowers peeping up near the great soft leaves being most effective.

THE SATIN LEAF.—I have often wondered why the North American *Heuchera Richardsoni* (*H. ribifolia* of some gardens, and *H. americana* of others) is not more generally grown for the sake of its rich brown satin-like leaves. There are but few stove plants that can rival its rich delicacy of colour and leaf texture, and that the foliage endures for several weeks fresh and fair after being cut from the plant is a great advantage not to be overlooked. I placed half-a-dozen of its leaves in a Bohemian vase the other day and put a spike or two of *Primula sikkimensis* in among them and the effect was—well, no hothouse productions could have been more admired or more wondered at, for neither the Sikkim Cowslip nor the Satin Leaf have as yet attained that familiarity which is said to breed contempt.

THE SATIN FLOWER.—Can any of the readers of THE GARDEN inform me when or where this name was first applied to *Sisyrinchium grandiflorum*? Will "Rho" kindly enlighten us? I am anxious to know because the other day I was amusing myself by collating my two copies of Parkinson's "*Paradisus Terrestris*" (1st ed., 1629, and 2nd ed., 1656), and in the latter edition I find he has two Satin Flowers, the one our white Honesty, and the other a Leguminous plant—perhaps our French Honeysuckle (*Hedysarum coronarium*). Of the first, or Honesty, Parkinson saith, "It hath divers names as well in English as in Latine, for it is called most usually Bolbonach and *Viola lunaris*; of some *Viola latifolia*, and of others *Viola peregrina*, and *Lunaria græca*, *Lunaria major*, and *Lunaria odorata*, and is thought to be *Thlaspi cratenæ*. In English White Satten, or Satten flower; of some it is called Honesty or Penny Flower."

THE VERNAL SQUILL.—I saw a very pretty wild garden the other day and enjoyed its luxuriant freshness and beauty. Mossy turf was spreading itself like a green carpet over the grey rocks, and the whole garden was a hillside slope, a thousand acres or so, its outer edge touching the cliffs, which hang over the sea at a height of 200 feet or 300 feet. Gorse made the hill-top golden, and the blue *Scilla verna* shone among the young Grass blades like stray bits of turquoise among so many emeralds. Broad breadths of *Silene maritima* hung here and there on the grey rocks, and for contrast *Geranium sanguineum* was flowering among the loose stones, and where former glacial rocks had ploughed deep gullies down the hillside, thus leaving broad ravines or chins down to the sea, the young Brake Fern fronds were thickest and most thoroughly at home. But there was a jewel in the turf that the black-faced mountain sheep had browsed down until it was smooth and even—a little starry blue flower in patches here half an acre, there a rod or two, now in groups a yard across, and now almost solitary, but always fresh and lovely. It strayed about the sunny hillside like a blue-eyed child at play, now up quite near to the prickly Furze, now on the fringe of the little bogs where Sundews and Grass of Parnassus are at home; and of all the hillside flowers the fairest is this *Scilla verna*.

THE GARDEN OF PLEASANT FLOWERS.—An old work on garden flowers, Parkinson's "*Paradisus*," is not met with so often as it deserves to be. I wonder no one has reprinted it, and some day I shall ask Mr. Daydon Jackson's opinion on that point. It is of all the old English works on gardening

the best and most original, and even now it is looked after by dealers in second-hand books, a tolerably good copy fetching at least £2 or £3. His descriptions of Narcissi, Anemones, Roses, indeed of most of the hardy flowers now so popular, are of the quaintest and most characteristic kind, and no one can study his book without being surprised at his knowledge of the plants commonly grown in English gardens so soon after Shakespeare's epoch (1629). This work is to the flower garden what Evelyn's "*Sylva*" is to forestry, and it is not too much to say that no garden library is complete without a copy or a reprint of Parkinson's "*Paradisus Terrestris*;" or, the Garden of Pleasant Flowers.

FLOWER COLOURS.—Mr. Grant Allen has told us that flowers were all originally yellow, and that other colours came as a sort of development of the original plan induced perhaps by climatic changes, perhaps fostered by insect visitation. I know that the mountain-tops of the world, or the higher zones of flowering plants, do offer us many yellow-flowered species; but the question is, are we to take these as the remnants of the race primeval? Insects are certainly less frequent on the mountains than in the plains. Hence one cause of colour variation is thus removed, and yet, notwithstanding this, we have a good many of those yellows which are said to prove the rule. The flowers of *Cheiranthus mutabilis* open yellow and change to dull red; but what are we to learn from *Muscari moschatum flavum* which is reddish purple in bud, but the flowers change into soft wax-like yellow? The more we read of flower colour or of insect agency, the more chaotic does the subject appear; it is so difficult to see through the misty border-land of science, and the question of flower colour and its origin seems to me as yet "not proven."

CATLEYA MOSSLÆ.—A friend who has just been making a little tour in Ireland tells me of a remarkable specimen of this grand old Orchid—a good variety also—now bearing thirty-nine fully expanded flowers in one of the hothouses at Straffan. It is a veritable specimen, well grown, perfect in shape, every leaf perfect, and a great contrast to the "made-up" specimens we now and then see at exhibitions. In the same collection *Disa grandiflora superba* and *D. Barrelli* are growing like weeds in one corner of a house filled with herbaceous Calceolarias. The door stands open quite near to them night and day, but dryness is counteracted by copious syringings. In a few weeks' time they will be well worth seeing, the flower-spikes being both many and vigorous. *Oncidium macranthum* var. *hastiferum* is also blooming in the Straffan collection, its flowers nearly 4 inches across. The purple lip in shape reminds one of a fox's head, and contrasts well with the broad golden petals.

HARDY PLANTS IN FLOWER.—The Edelweiss is now bright and characteristic, each plant studded with its silvery stars. A seedling or two planted on the top of a wall, along with *Erinus alpinus*, is now very pretty and finer in colour than the larger inflorescence produced by plants in the ordinary borders. *Linaria pallida* is worth making a note of by those who have it not; and so also is *Ourisia coccinea*, with its bright green cortusa-like foliage and erect spikes of vivid scarlet tubular Pentstemon-like flowers. *Aquilegias* of the finer kinds are now lovely in the warm breeze, and will for the future be kept up by imported seeds, as no reliance can be placed on seeds saved where many species and hybrids are grown in company. The great spires of the French white Rocket are most pure and fragrant in the gloaming; like the favourite Marvel of Peru of the Persians, this white Rocket is best and most to be enjoyed at eventide.

A RARE WINDFLOWER.—In that same moist and sheltered rock garden, in a spot a little more elevated than that occupied by the tall Poppies of Wales, past a big mass of *Lastrea cristata*, and

near to where *Soldanellas* grow in masses over a foot across (with leaves nearly as large as those of *Cyclamen Coum*), past these there is a clump of the rare *Narcissus Bernardi* in flower; *N. muticus*, from the Pyrenean meadows, has but just faded, and the great broad fronds of *Onclea sensibilis* vie with those of the deep green Holly Fern (*Aspidium Lonchitis*) in strength and vigour. Past all these there are great umbels of what look at first sight like snow-white Buttercups swaying in the breeze. It is a clump of *Anemone narcissiflora*, a plant far more common in books than in gardens, but a great beauty, quite an aristocrat in its own way, bearing eight or ten stout dowering stems towering up 15 inches to 18 inches in height above its finely cut leaves. This Windflower is a great beauty. Close by the speckled trout are fly hunting in the river, and the young herons chatter high up in the tall Spruce Firs as they eat their dinner. Poor flies and ye speckled trout, beware of that long sharp bill!

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THE TIME OF POPPIES.—Having raised many Poppies from seed during the past two years, we now are reaping a good harvest of "buried hopes." Poppies give a brilliancy, a summer-like aspect to the garden quite as characteristic in its way as is the autumnal "tone" of Dahlias, Sunflowers, and Sedum Fabaria. Who will tell us the distinction between *Papaver orientale* and *P. bracteatum*? *P. umbrosum* true seems to be a fine variety of *P. Rhæas* with greenish pollen. *P. caucasicum* forms a mass of pale glaucous leaves, and its soft pale salmon-red flowers are much admired, and of native "weeds" one of the prettiest is *Meconopsis cambrica*, or Welsh Poppy, which thoroughly enjoys a deep rich cool soil and some little tree shade. I saw it the other day, 3 feet or more in height, among some big clumps of *Struthiopteris germanica*, that reminded one of *Dicksonia antarctica*. But of all the Poppies give me the alpine and Icelandic forms of *P. nudicaule*, and especially those of the Munstead strain or race.

VERONICA.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 487.)

DICKSONIA.—Of the several arborescent kinds forming the very interesting group known as Tree Ferns, those belonging to this, probably the least extensive genus, are the most effective as well as the most manageable. They all require cool treatment, coming, as nearly all of them do, from New Zealand and Australia, where they are found growing in valleys and in deep shaded ravines, and where they occasionally find their fronds heavily loaded with snow. *Dicksonia antarctica* especially grows in great abundance on Mount Wellington, in Tasmania, where it is often subjected to a much cooler temperature than the one under which it is usually kept in cultivation, and I believe thrives very well planted outside in sheltered spots in different parts of England, Wales, and Ireland. Wherever a favourable spot exists Tree Ferns should be made use of, as they present a peculiarly beautiful and magnificent tropical appearance by their singular contrast with hardy exotic as well as with native ornamental trees. All *Dicksonias* are strong growers and their immense trunks possess the great advantage of being generally of good proportions and of symmetrical habit; they are besides much more fibrous than most of the other Tree Ferns, thus storing up a much greater quantity of moisture and retaining it for a much longer period fit for the natural and essential requirements of growth, and at the same time necessitating less labour than *Cyatheas*, *Cibotium*, &c.; whilst in other genera may be seen stems of all dimensions, even down to that of an ordinary walking-stick, the stems of *Dicksonia* are all of moderate thickness. They also have the advantage of producing much handsome heads than any other Tree Ferns, and as a rule the quantity of fronds is proportionate to

the bulk of the stem, and it is not at all rare to find stems of good dimensions producing every year from thirty to forty fronds, which they generally retain until the development of the new set, that is, if they do not suffer from want of water during the winter season; for, although they are at rest, still their fronds will soon shrivel up if their stems are allowed to get dry. When grown in pots it is indispensable that water should be freely applied to the roots all the year round, or they will show the effects of one day's neglect in an unmistakable way, and it will take a very long time for them to recover the damage done during that short time; they are all the more likely to suffer from want of water when grown in pots, as these should be of the smallest size possible, according to the sizes of the stems. As a rule, all Tree Ferns do best when potted in pots or tubs, allowing only 2 inches or 3 inches of soil all round the stem. The compost should be a mixture of two parts rough fibrous peat and one of loam, with a proportion of coarse silver sand. However good their growth may be in pots, it cannot equal the vigour of the plants grown in the open ground, in which case the bottom must be particularly well drained, so that the roots may not be rotted by stagnant moisture. To produce luxuriant foliage *Dicksonias* should during the summer have their stems thoroughly well watered twice a day, but these copious waterings should gradually decrease as the season advances, and during the winter the stems should only be kept moist, the heads being lightly shaded during the warmest days only.

D. ANTARCTICA.—This evergreen temperate species from New Zealand, though now the most common of the arborescent kinds in cultivation, is universally admired; its magnificent stem varies considerably in thickness, which, however, is generally in proportion to its height. Although it is said to attain the height of 30 feet or more, the most handsome specimens that one generally meets with measure from 12 feet to 18 feet high, and the spread of their magnificent fronds is from 15 feet to 22 feet. They rise from a hairy crown, are lanceolate in shape, tripinnate and rigid in some specimens, whereas in others they are beautifully pendulous; their under surface is of a light, almost glaucous, green, while their upper surface is of a rich shining dark green. It is admirably adapted for all sorts of decorations on account of the hardness of its constitution, and the marvellous symmetry of its stem and crown of fronds. Greenhouse.

D. ARBORESCENS.—A very fine evergreen arborescent kind found only in the island of St. Helena, and which is still very rare in cultivation. The stem has a peculiarly ragged appearance, for although growing only from 8 feet to 12 feet high, it is generally found with several branches terminated by a crown, each densely clothed with amber coloured silky hairs. The fronds, which are bipinnate with very obtuse pinnules, grow from 5 feet to 6 feet long; they are leathery in texture, light green in colour, and borne on stalks very tomentose; the general habit of the plant is very elegant. Greenhouse.

D. BERTEROANA.—This fine species from Juan Fernandez has a special interest, as being one of the few plants indigenous only to that remarkable island and that we have in cultivation. It is a strong growing kind, with stalks and fronds thicker and stouter than those of any other *Dicksonia*. The stem is of drier substance than that of most of the other species belonging to the same genus; it reaches 7 feet or 8 feet high, and from its dark brown hairy crown a tuft of arching fronds spread gracefully in all directions. These attain the length of 7 feet, and are proportionally very broad, tripinnate, and coriaceous in texture. The pinnules have rounded lobes overlapping each other, producing quite a massive appearance. In its young state the plant is also of elegant and symmetrical habit, although it only begins to show its really beautiful characters when it is about 2 feet high. These characters as above described render it one of the most pleasing conservatory or greenhouse Ferns, among which, on account of its firm and durable texture, it retains its verdant ap-

pearance for an indefinite period, the plant being generally in possession of all its old fronds when the young growths make their appearance in the spring. Greenhouse.

D. CHRYSOTRICHIA.—A very handsome species from Java of recent introduction. Its stem, of moderate thickness, is clothed all over with dark brown, very brittle roots descending from the crown, which is also of the same colour and produces long and gracefully arching, almost pendulous fronds from 6 feet to 7 feet long; the base of their stalks is abundantly covered with short bristly brown hairs which remain on them after their development. The fronds, of a somewhat ovate-lanceolate form, are bipinnate and finely cut with pinnæ 12 inches to 18 inches long and 6 inches to 9 inches broad; the pinnules, rather loosely set, give the whole plant a charmingly light appearance. It probably is found at a great elevation in its native country, as it is found to succeed best under cultivation in a cool greenhouse.

D. FIBROSA.—This fine New Zealand species, which is seldom met with in cultivation, at first sight somewhat resembles *D. antarctica*, from which it seems to be only a variation. It is, however, essentially different and readily distinguished from it by its stem, which is much stouter in proportion to its height, and by its broader and shorter fronds of a dark shining green, and the pinnules of which are turned upwards at the ends, thus giving the whole of the plant a bristly and rigid appearance. The stems attain large dimensions, sometimes reaching 15 feet or more in height; it is very fibrous, being all covered with small wiry roots, which, instead of descending straight from the crown as in other species, seem to intercross each other all over the stem. Greenhouse.

D. SQUARROSA.—A very handsome New Zealand species, particularly attractive on account of its slender, black stem, often found branching by its forming young plants, produced at intervals up the trunk. The habit of the head is beautiful and very effective; it is quite flat and tabulate, and formed of a quantity of rigid fronds, dark shining green on their upper surface, paler beneath; they are tripinnate, 6 feet to 7 feet long, and finely cut with pinnules, acute and closely set; the stalks are black and hairy. It is altogether a most distinct, very elegant, and choice Fern, and one whose appearance is totally different from any other of the same class. The stem, being of a very dry nature, must be carefully kept constantly moist. Greenhouse.

D. YOUNGLE.—This species, native of New South Wales, somewhat resembles the preceding, but the stem, which is not black as in *D. squarrosa*, is more slender; the stalks are of a bright light brown—a very effective colour; moreover the fronds, produced more sparingly, are broader, more massive, and less lanceolate in shape. Instead of forming a flat head they are pendulous and more elegant; they are also of quite a different texture, and of a cheerful light green. Greenhouse.

PHELLEA.

The fernery at The Wilderness, Reading.—Singularly bright and cheerful are the varied tints of green seen in the new fronds of the wondrous collection of hardy Ferns in this garden. Mr. Lees has not only fashioned from out the midst of a dense mass of shrubs an extensive fernery, but by the aid of gigantic boulders, the setting into position of which must have been an herculean task, has given to this fernery an air of reality that is far too uncommon in such matters. A more interesting or better grown collection of hardy Ferns it would be difficult to find growing under similar conditions, and the lover of these charming plants might revel for hours in the contemplation of beauties to which those ignorant of Ferns are strangers. It is worthy of notice that in heat or shade, and there is little of the latter, the plants thrive equally well. Attempts to cover the smooth surfaces of the huge stones with plants have been successful only in the cases of *Ivies* and that singularly effective creeping shrub, *Cotoneaster*

repens, which is one of the very best things to be found for the purpose. The growth is exceedingly ductile, and follows alike cavity and prominence, clinging to the stone without adhering with singularly good effect. This plant has flowered freely, and now is being well set with berries. Mr. Lees has removed all his alpine plants which formerly occupied a portion of the fernery to a rockery specially provided for their reception, and the collection has been largely enriched by additions from Tottenham and elsewhere. Nooks of this kind are very pleasing when dropped upon unexpectedly, and something more interesting than a dense mass of Laurels or other shrubs. Moreover, they enable myriads of hardy plants to be cultivated that could not exist in shrubbery borders or other unsuitable places.—A. D.

Drymoglossum piloselloides.—In the review of the book "Indian Ferns" the writer, speaking of this Fern, says he has never seen or heard of it being in any collection. We have some beautiful specimens of this rare species growing luxuriantly on cork in our nursery, and we have had them several years in our collection. We shall be pleased to show these to anyone.—W. & J. BIRKENHEAD, Sale, near Manchester.

TREES AND SHRUBS.

NORDMANN'S SILVER FIR.

(*PICEA NORDMANNIANA*.)

THIS Silver Fir, introduced into this country about the year 1845, has not only proved perfectly hardy, but likewise capable of accommodating itself to a great variety of soils and situations; and I think I am not exaggerating when I say that it is one of the best trees not only for ornament, but for general utility, to be found among the many fine species in the section to which it belongs. It is indigenous to the Crimean Mountains, where it attains an average height of about 100 feet. As a specimen tree on a lawn it can scarcely be surpassed, its handsome, regular, conical shape and rich dark green foliage rendering it an object of great beauty, and even when planted in cold, bleak situations it never fails to attract attention. It likes the full blaze of the morning and noon-day sun, and is a valuable tree for planting in cold, deep valleys in the immediate vicinity of water, places in which I have seen the Larch, common Silver Fir, and even the Oak severely seared, yet this tree stood on the same ground quite uninjured. As regards

SOIL, it is not in the least degree fastidious; in fact some of the finest trees I have ever seen of this species I planted upwards of twenty years ago on well decomposed peat bog, with which a little soil was mixed at the time of planting. When planted on ordinary soils, however, it seems to prefer such as contain a liberal mixture of organic matter, resting upon an open subsoil, thoroughly drained. In places where the subsoil consists of hard gravel or stiff argillaceous clay this Fir makes decidedly less progress; therefore, under such circumstances it is necessary to have the ground thoroughly prepared by trenching and breaking up the hard crust, and in places where it is desirable to plant for ornament if a little bog earth is mixed with such soils at the time of planting, it will prove to be of great use in promoting the healthy development of the trees. It is

PROPAGATED principally from seed; young trees, however, generally produce cones a few years before any male flowers make their appearance, and even when the latter do appear they only come in limited quantities, and not in proportion to the number of cones on the tree. As the trees advance in age and size this deficiency becomes less marked. In the meantime in cases in which it is desirable to propagate this Fir—and it is well worthy of being propagated—the pollen may be collected and economised by applying it to the canes artificially. Thus when the catkins which contain it are ripe and ready to burst, it should be carefully shaken out on a sheet of clean paper and immediately applied to the cones with a small pencil brush. In order to fertilise them—an operation easily

accomplished—when the tips of the scales reflex which they do at a certain stage, insert the pollen, and when once fecundation has taken place the scales gradually close inwards of their own accord, thus rendering the interior of the cones impervious to wet. I have generally fertilised this Fir between the hours of ten and twelve o'clock in the forenoon. If necessary the pollen of one tree can be applied to the cones of another of the same species with perfect success. The fertilised cones should be collected in autumn and the seeds extracted from them and sown in spring. It is seldom this tree produces

DOUBLE LEADERS, but when such is the case, my practice has been to disbud or cut the weaker of the two clean off with a sharp knife in spring, and by autumn the wound so produced will be completely healed up. On the whole I anticipate a grand future for this tree, and from what I have seen of it I have every reason to believe that in a few years' time it will be planted extensively not only as an ornamental tree, but also as a forest tree. Young trees which I have cut up show the timber to be of a very high order indeed, the concentric rings being firmly packed, clean, and resinous. J. B. WEBSTER.

THE DECIDUOUS CYPRESS.

(*TAXODIUM DISTICHUM*.)

THIS tree is extensively distributed in parks and gardens throughout Britain, but chiefly in the south of England, where fair specimens may occasionally be met with, notably in the Duke of Northumberland's grounds at Syon House, Brentford. It was introduced into England from Virginia prior to 1640 by Tradescant. When young the tree is pyramidal in form, with slender, tapering branchlets, but when old it has a broad Cedar-like head and its branches are characterised by abrupt angular bends. It attains an enormous diameter, exceeding even that of the Wellingtonia. In Florida and Louisiana stems are frequently met with 40 feet in circumference above the enlarged base, the buttressed base itself measuring three or four times that size. The roots of large trees, especially in moist situations, send up conical or bee-hive shaped excrescences or knees, as they are called. These are often 3 feet or 4 feet in height, and rise to the surface from a depth of 6 feet or 8 feet when the tree is grown in a submerged soil. They are always hollow and frequently used in their native country to make bee-hives. The large buttresses of this tree are carried to an excessive extent, the base being generally three times the circumference of any other part of the trunk, and often hollow for about half of its bulk—a character made use of by Moore in his "Lake of the Dismal Swamp," viz., "I'll hide the maid in a Cypress tree when the footstep of death is near."

THE TIMBER is very durable, even under water, and is finely grained and of a reddish colour. A peculiar property of the wood is its adaptability to split straight, so as to serve for planks without the use of a saw. To cultivate this tree successfully it must have good, rich soil, a well sheltered situation and abundance of moisture, not stagnant, which is probably the reason why a sandstone district is preferred, a chalk soil being too dry, and a clay subsoil defective in drainage. The tree is readily propagated from cuttings or seeds, of which latter a good supply is regularly imported from America. It is never planted for profit, but only as an ornamental tree for park or lawn decoration.

THE MEXICAN SPECIES (*T. Montezumæ*) differs chiefly in the less size, deeper green and more slender and tapering character of its twigs and leaves as well as more tender constitution. It also attains a greater size than the foregoing, the famous specimen at Santa Maria del Tule, in Oaxaca, being no less than 200 feet in circumference. Near the city of Mexico are two immense trees of this kind, one of which, at Chapultepec, measures over 90 feet in circumference near its base. This species is rarely met with of any size in England, being too tender for our climate generally.

A. D. WEBSTER.

Ornamental Acers.—Both at Gunnersbury Park and The Wilderness, Reading, may be seen richly-coloured examples of the purple cut-leaved Acer—very striking objects in the shrubberies. In the latter place a fine pyramidal bush of the variegated Dogwood is very handsome, and specially beautiful is the Fern-leaved Beech, a rare tree, and, as seen in The Wilderness grounds, singularly handsome. This latter tree, a high-coloured purple Beech, and a yellow-flowered Pavia make together a very effective trio.—A. D.

Pyrus Malus floribunda.—Among deciduous shrubs now in bloom none are more showy and beautiful than this Pyrus, crowded as it is with delicately-tinted pink and white blossoms that hang in long sprays on the gracefully curving branches, which seem to be quite borne down under their load. For planting as single specimens in conspicuous places on lawns, this Pyrus is quite unrivalled. The best way when used for this purpose is to have standards with tall clear stems, as in this form it displays its pendulous habit, and shows off its blossoms to the greatest advantage. Grown among dwarf shrubs, with the heads standing clear out, this Pyrus is also exceedingly effective, as are likewise bushes of it in the foreground of evergreens, where it associates well with its congener *P. japonica*, and also with *Berberis Darwini* and *stenophylla*, all of which are glowing with colour, and a most lovely and pleasing contrast they make.—S. D.

FRUIT GARDEN.

VINES AND TOP-HEATING.

THE more I see of Grape growing in my visits to good gardens the more am I satisfied that there is very much more to be said in favour of the introduction of heat near to the Vines than is generally assumed. When some time ago I made an observation to that effect in these pages quite a storm of opposition was raised, and, as is invariably the case, the discussion ran off into side issues, and there it ended. No doubt "Peregrine" or some other well-known Grape grower will have something to say in reference to this subject again, but whosoever may do so, I trust they will stick closely to the point of discussion—that is, the relation of top-heating to Grape growing—and will do so more in a spirit of practical enquiry than with a desire to show that I or anyone else must be wrong. There are, I know, not a few vineries in the kingdom in which the plan of top-heating may be said to be partially in operation. These are houses that, being low in elevation, have of necessity the front pipes at least brought into close contiguity to the Vines. We find this specially to be the case in many market vineries, and I have particularly remarked that such is the case in the low houses in which Mr. Wm. Cole, of Feltham, grows his Muscats, than which none better are taken into Covent Garden Market. I have in these houses observed that all his best sets and earliest and finest bunches are always those just over the pipes, which are not more than 18 inches from the Vines, and, indeed, I have seen bunches actually touching the pipes, and apparently liking the heat. But recently I visited the vineries at Chalfont Park, Slough, where Mr. Herrin, a young, but able Grape grower, is getting some capital fruit, and specially was I struck with the grand show of Muscats he had just over his pipes; in fact, the lower third of the Vines showed better results than any other part of the house. It may be that top-heating, or any such method of top-heating as would bring the pipes into close contiguity to the Vines all over the roof, would be more useful in the culture of Muscats than of any other Grapes, although we shall probably be told that as fine Muscats are grown as a rule in lofty houses as are ever seen in low houses. At Maiden Erleigh, near Reading, again, there is to be seen very similar results in the several vineries where Mr. Turton is producing some grand bunches of various kinds, and I think it is very probable that Mr. Wildsmith will not deny that in his low span house devoted to the culture

of Lady Downes he has obtained his best finished bunches from close to the pipes. I admit that these are but few instances, but those of the readers of THE GARDEN who have been favoured with greater opportunities for observation than I have been may be able to adduce similar ones in abundance. I make no suggestion as to how a system of top-heating of houses of any kind may be best applied. We know something of Mr. Cannell's system, and which, in spite of the opposition of hot-water doctors, is a first-rate system for winter use, and is being largely adopted. The same kind of thing, if it be possible, is well worthy of trial in Grape culture, and it is just possible may prove as successful. No doubt I shall be met on the threshold of the discussion with the pessimist obstruction, "we get plenty of good Grapes now, and what more do you want?" Perhaps so, but at what cost, and with how much trouble and labour? Can better results be obtained more cheaply by top-heating, or can they not? The subject is full of interest to Grape growers, and merits intelligent consideration. A. D.

Price of Tomatoes.—In the note (p. 482) on this subject it is mentioned that the price of Tomatoes in London is 4s. per pound, a statement at which I am greatly surprised, for I am a large Tomato grower and am unable to sell my fruit at half the money. It proves the great disadvantage growers are under in not being able to supply the public direct. The middle men must be making an enormous profit.—**FRUIT GROWER, Ridgenay, Malvern.** [With this note the writer sends a sample of his early Tomatoes, which are excellent in every respect.]

Fruits of Persia.—Concerning these M. Bernay writes as follows in the "Bulletin de la Société d'Acclimatation": Azerbaidjan, where I reside, is one of the most fertile portions of Persia. The fruits which grow there are delicious; we have Peaches as large as those of Montreuil and more highly perfumed, but the Grapes are especially remarkable, notably one called Askery, the berry of which is of moderate dimensions, white, sugary, perfumed, and without seeds; moreover, the skin is so thin that one can hardly taste it. Another variety is distinguished by the great size of the berries, which are very sugary and have a thick skin. The bunches of this Grape come to an enormous size. M. Bernay states that he intends sending cuttings of these Grapes to Europe, and it is to be hoped that he will succeed in so doing, as they might prove to be valuable acquisitions.—J. C. B.

The fruit crop.—I am sorry to say that "the promise of May" will not be fulfilled as far as the fruit crop is concerned in this district. With the exception of Apples, most kinds of fruit will be below the average, and Nuts appear to be almost a total failure. Bush fruits in some parts are bearing fairly well, but both Gooseberries and Currants have "run" lately. Plums, with the exception of the Victoria, which seems a perpetual bearer, will be a very short crop, and of Damsons we have very few indeed, the usually prolific Farleigh Damson being conspicuous by its absence. Cherries blossomed well, but during the last week much of their fruit has disappeared. The Apple crops promise to be very large, although, like other kinds, they have suffered from the late cold nights. Pears in orchards, with a few exceptions, will be scarce. Reports from many districts have been so good, that I should like to hear how fruits are looking now.—L. A. K., Maidstone.

Market fruits.—A very despondent forecast is made in West Middlesex as to the nature of the fruit crops in market orchards for the coming season. Apples seem to be so far the only top crop that has any considerable degree of promise, for they seem to be set abundantly, although not proportionate to the wondrous bloom seen on the trees recently. Still a fair crop of Apples really means a good crop, because the fruit is finer and pays better than when it is so very plentiful. However, very heavy crops of any kind of fruits are now so uncommon, that

growers will have no objection to one that seems to be great now and then. Pears bloomed so freely that a good crop might well have been anticipated. Really, however, there will be but a miserable crop, for the bloom has not set, and the fruit germs have fallen wholesale. Plums, too, are thin, and Cherries of the better kinds will not be plentiful. The greatest complaints are, however, made over the Gooseberries, which in many large gardens have proved to be almost a failure, in spite of the fact that they were thickly set with bloom, and the fruit germs seemed to be safe at first. Presently, however, they fell and all at once, so that in many places the bushes are quite stripped. Currants promise to be fairly plentiful; so also do Raspberries and Strawberries. So large is the extent of Gooseberries grown and so much are they relied upon to furnish work and profit, that a failure of these fruits proves most disastrous to the growers. Every succeeding year does but show how unreliable is hardy fruit culture, for seldom has there been a finer promise than that seen on all kinds of trees a few weeks hence.—A. D.

INDOOR GARDEN.

POINSETTIAS AND THEIR CULTURE.

AMONG plants which bloom from November to January we have nothing more showy or useful than Poinsettias. Their gorgeously coloured heads of the most intense scarlet are attractive above everything during the shortest days, and even a few of them are capable of brightening up stove, conservatory, or rooms in the most pleasing manner when lustrous flowers are scarce and most appreciated. Everyone who has a frame and greenhouse should try to grow some of these, as they are not very extravagant in their requirements and they may be cultivated to a most serviceable degree of perfection with ordinary treatment. Our plants are over by the end of January, and from that time until the beginning of May they remain dormant under the stage of a cool house. They are not watered at this time and have no attention. About the beginning of May they are brought out, watered thoroughly, and then placed in a frame or house where the temperature is about 65°. Here they immediately begin to grow and emit young shoots all up the stems. When these are about 3 inches long they are taken off as cuttings; each one is detached with a heel, i.e., a very little piece of the old wood attached, and they are inserted singly into the smallest sized 2½-inch pots, which are filled with a half-and-half mixture of leaf-soil and sand. They are then plunged up to the rim of the pot in sawdust in a hot-bed or Cucumber house, where the bottom heat is about 70°. Here they are not allowed to suffer for want of water, although they do not require much until the roots are formed, and they are also shaded from bright sunshine. With these attentions roots are soon made, and they are then withdrawn from the bottom heat and placed on a shelf in the pit. In a week or so after this they are shifted into larger sized pots. From 2½-inch pots they are generally put into 3-inch ones, and from the latter into 6-inch or 7-inch ones, and in this size they are allowed to bloom the first year.

IN POTTING them we use a rough mixture of turfy loam, sand, and leaf-soil. Proper drainage is of the utmost importance, and firm potting adds to success in culture, and in working with them in this way great care is taken not to injure the roots. They are plants which lose much sap when injured, and this having a weakening tendency must be avoided as much as possible. After potting they are kept close and shaded from the sun for a few days; afterwards they are grown in all the light obtainable. From the last potting on until the middle of September they do remarkably well in a cold frame, and they should never be grown in a strong heat at any time in summer, as this causes them to make long, straggling growths, which are neither ornamental nor useful. Dwarf sturdy shoots always produce the finest heads, and short plants are always more valuable than long

ones. Another way of securing serviceable plants is to cut the old stems down to about a foot from the bottom, and allow all the side shoots which sprout out to grow. In this way some of them may have six, eight, ten, or twelve shoots, and as each of these will produce a showy head, very attractive, or what might be termed specimen plants are the result. When they are treated in this way it is best to repot the old plants, as soon as the young shoots are a few inches long, and they may be potted again when growth is more advanced. As a rule, we bloom these branching plants in 8-inch and 10-inch pots, and apart from allowing the shoots to remain on in the place of taking them as cuttings and the putting them into larger pots, these plants are subject to exactly the same treatment as those raised from cuttings. In the autumn, or about one month before they are required to be in full beauty, they are taken into a warmer and drier atmosphere, and here they soon develop their wondrous heads. Throughout all the period of their growth the greatest attention should be given to watering them at the root, as allowing them to become dry in any way causes the leaves to fall off prematurely, and then the heads are poor and useless. CAMBRIAN.

NOTES FROM GRASMERE, BYFLEET.

BUDDLEIA GLOBOSA.—Those who may only have seen this flowering shrub in the weakly condition in which it is to be found in gardens generally would, I feel sure, be both surprised and pleased with a large specimen of it now in full bloom in Mr. Joseph Stevens's garden at Byfleet. Although this plant is accounted tender, the specimen in question shows no sign of ever having suffered from climatic vicissitudes, being as robust and healthy as could be desired, each shoot bearing a number of well-developed blooms. Now, as bearing upon this question of hardiness, it is interesting to note that this Buddleia has passed unscathed through two of the most severe winters experienced within the memory of man, whilst others in the neighbourhood have been fatally injured. It is, therefore, evident that under certain conditions it may be relied on to give satisfaction, and these conditions apparently consist of perfect shelter from cold, wintry, and rough winds, of exposure to the sun, and free soil. In the Grasmere garden this Buddleia occupies the south side of a small enclosure, where it is backed up on the north by a wall of Evergreens, and is screened on the east in a like manner. Here it seems quite at home, extending freely and flowering admirably. This flowering shrub is so beautiful and distinct that every effort should be made to induce it to thrive, and, given the conditions above mentioned, I see no reason why it should not be found in a vigorous state in every garden where the soil is of a fairly free description.

PÆONIES.—These are indeed amongst the most beautiful of hardy spring flowers, the bright hues which many of them exhibit rendering them very striking objects. Amongst the bright-coloured varieties the singles are, I think, most effective, but many of the pale-coloured doubles display much delicacy of colour and considerable beauty of form. Mr. Stevens has them growing amongst standard fruit trees, where they appear quite at home; indeed, these fine flowers are happy almost anywhere.

BULBOUS PLANTS especially worthy of notice are Scilla campanulata alba and Camassia esculenta. The first-named grows into vigorous tufts, and is as chaste in the individual flowers as it is effective in a mass; it is fine for cutting; the Camassia is a noble flower, throwing up its bloom stems from 18 inches to 2 feet high, the large soft purple flowers being loosely set thereon, so as to give it a very graceful appearance. A conspicuous feature in this plant is the long stamens, of the same colour as the flower; they project far beyond it, and are crowned with bright yellow anthers. The vigorous growth of this Camassia renders a mass of it very effective.

RHODODENDRON BRILLIANT.—If ever a flower was rightly named, it is this. No variety that I

have hitherto met with can in any way approach it, the flowers being of a most dazzling crimson-scarlet. The effect of a large specimen must be gorgeous; even a moderate sized plant has a most striking and brilliant appearance. Were I limited to one *Rhododendron*, I would certainly choose this one. Another very fine kind is *Leviathan*, not at all a good name by the way, as although the trusses are large, they are most remarkable for the chasteness and delicacy of colour of the individual flowers. Amongst bright flowered kinds, *Braynium* still stands in the foremost rank; it is vigorous and a free flowerer.

AZALEA MOLLIIS.—Very fine varieties of this useful flowering shrub are now in bloom at Grasmere, and amongst them I would single out *Isabelle Van Houtte*, the flowers of which are very large, of a deep cream colour, the upper petal being strongly marked with yellow, or, more properly speaking, bright maize. It is a singularly attractive and beautiful kind, and should be in every collection. Every garden should possess some plants of *Azalea mollis*, they are so effective when in bloom, and not all fastidious as to soil. Loam or rich peat is often considered indispensable, but Mr. Stevens grows them in his ordinary garden soil, which is very light, approaching sand indeed, and they seem to be doing very well in it. Another very fine kind is *Beali major*, flower salmon-pink, upper petals strongly marked with bright orange—a most telling kind.

ETHIONEMA GRANDIFLORUM.—This is flowering finely on the rockwork, and is one of the most attractive plants there at the present time. One scarcely appreciates this little hardy flower unless the flower-spikes can be counted by the score, and then it really presents a most attractive aspect. It is a charming little plant when in a thriving condition. It evidently prefers a rather light, free soil and good drainage; at any rate, these are the conditions under which it luxuriates with Mr. Stevens.

SOLOMON'S SEAL AND COMMON BRAKE FERN.—I never saw *Solomon's Seal* with a more at-home look than as now growing at Grasmere, in spreading colonies under the shelter of the common *Bracken*. The *Solomon's Seal* is in full flower; the *Bracken* has pushed up around, and amongst it the clear, bright green fronds only just developing and therefore whilst in a measure sheltering do not in any way hide from view the graceful growth and pretty flowers of the *Solomon's Seal*. This is one of the most pleasing combinations I ever saw, the union of these two plants being a most happy one and just what one might imagine would occur naturally. I have seen *Lily of the Valley* and *Bracken* growing together, and this is a pleasing combination, but the *Solomon's Seal* is better, as it is of bolder and more graceful growth. I advise your readers to try this combination in some quiet shady corner where the *Bracken* will not be likely to encroach on other things.

J. C. B.

A NEW FUEL.

DR. HOLLAND, who has for many years been experimenting with mineral oil with the view of obtaining a new fuel equal to coal both as regards the production of heat and light, at length conceived the idea, that if he could not get the heat he wished from oil alone he might utilise the latter in procuring from some other source by its help a heat equivalent, if not better and cheaper than that from coal. Bearing in mind the strong chemical affinity that carbon in a finely divided, or gaseous state, has for oxygen, he foresaw that if he could get steam (which is composed of oxygen and hydrogen) intimately mixed with hydro-carbon gas evolved from the oil, and subjecting the mixture to a high temperature, he would, by taking advantage of the chemical affinity referred to, produce carbonic oxide and hydrogen, two very inflammable gases, and which if burnt in a proper proportion of air would evolve a most intense heat, without any of the smoke, dirt, ashes, or other disagreeables inseparable from a coal fire. This he has succeeded in doing by an apparatus which will before long be shown in this

country. In the fire box of a locomotive or the inside of an ordinary cooking stove, Dr. Holland places, as occasion may require, one or more small iron retorts, each being divided into two compartments. Into one chamber he allows to enter, drop by drop, a steady stream of naphtha or refined petroleum, the flow of which is regulated by a small needle valve. From the top of this chamber a small pipe conveys the gas formed in it to a jet or nipple placed in the middle of the retort about 1 inch below the bottom. From the top of the other chamber, into which water is admitted in a similar way, another pipe takes the steam, when formed, under the retort and terminating in a kind of rose burner of about twenty small pin-holes, completely surrounds the jet used for the oil gas. To start the fire about a teaspoonful of the oil itself is burnt underneath the retort to heat it; as soon as this takes place (in about two minutes) oil is admitted into the retort in minute drops; these falling on the heated surface of the bottom of the retort are instantly converted into gas, which passing out of the jet spreads under the bottom of the retort in a sheet of flame. Water is then in the same manner passed into the other chamber and being converted into superheated steam and passing through the rose burner is intimately mixed with the hydro-carbon gas and atomised against the bottom of the retort, producing perfect combustion and a most intense heat. The actual change that occurs is simply this: The carbon of the gas takes the oxygen from the steam, forming carbonic oxide, and as it is ignited in the atmosphere appropriates another atom of oxygen from the latter, forming carbonic acid. The free hydrogen from both the oil gas and steam combines with a further amount of oxygen abstracted from the air forming watery vapour. The products of combustion being only this watery vapour and carbonic acid, pass away up the chimney without any perceptible dirt or odour. Apart from this the fire once started requires no attention; it can be lit in a few minutes and extinguished in as many seconds. It entirely obviates the danger arising from burning coals and hot ashes falling out into the room. For hot-houses and vineries, where again and again incalculable loss has been sustained by neglect to keep up the requisite temperature, especially during the night, the regularity of the fire (requiring absolutely no attention) coupled with the entire absence of smoke or deleterious gases, will commend the process to all lovers of horticulture. Therefore, now the better seams of coal are rapidly being worked out and the naphtha supply is practically inexhaustible, these facts at least deserve attention.

ENGLISH PLANT NAMES.

"F. W. B." passes summarily over the objections that I should have blocked the way to English names for plants from coming into general use with a remark that it would be better if one's opponents were worthy of good steel. It is evident that "F. W. B." assesses his metaphorical metal at a high standard; nevertheless he is careful not to launch it against an armour of unassailable facts. There is neither ambiguity nor uncertainty about what I advanced on the subject, the very foundation of which was laid by "F. W. B." himself when he (p. 362) says he is not for superseding Latin names, and by which at one swoop he demolishes the ground on which he takes his stand. Well may those who would like to see the Anglicising of plant names become general cry out, "Save us from our friends!" if the cause is to be championed on the lines which "F. W. B." admits. There never was a time so inopportune as the present for initiating such a doctrine of confusion when the trade in plants with the other countries is so much on the increase, a fact which at once points to the still greater necessity for each plant being recognised by a single name. If "F. W. B." and others who take an interest in such matters could devise some means by which the host of plants that are already burdened with a number of names could be relieved from the infliction, they would deserve and receive the unstinted thanks of everyone who is engaged in gardening pursuits, but in place of this they are, no doubt unintentionally, laying the groundwork for a perfect Babel of confusion. The divers opinions put forward by those who advocate the change as to the suitability of any name suggested for any plant that has been spoken of is a forecast of what would inevitably follow. T. B.

PLANTS IN FLOWER.

SINGLE QUILLED DAISIES, a bunch of which has been sent to us by Dr. Stuart, Chirnside, are very pretty, and we do not remember having seen them before. Their flowers are semi-double, and the florets tubular or quilled, varying from white to crimson. Dr. Stuart remarks that it is a very neat plant for rock gardens, and that the flowers make pretty button-hole bouquets.

VERONICA COLENSOI.—Miss Owen has sent us from her garden in Wexford a spray of this rare and beautiful white-flowered *Veronica*, which is now blooming there for the first time. It has proved quite hardy in that part of Ireland during this trying season, and promises to be a valuable addition to shrubby *Veronicas*. The flowers are set on little spikes produced from the axils of the leaves at the end of the branches.

THE SNOWDROP TREE (*Halesia tetraptera*).—Mr. Crook brings from Mr. Sherwin's garden at Farnborough Grange some shoots of this uncommon and pretty tree, each having numerous white bell-shaped flowers dangling in clusters of twos and threes along the whole length of the shoots. Such a pretty hardy tree as this should be oftener planted than it is, for it is not only pretty in bloom, but handsome and symmetrical in growth, provided it is allowed plenty of room to develop, such as on an open lawn. This tree is a native of Carolina, and has been in gardens for nearly 130 years.

ORIENTAL POPPIES.—Messrs. Barr & Son send us blooms of five different varieties of *Papaver orientale*. No. 1 is the typical bracteatum, a distinct variety of *P. orientale*, and remarkable for the large and conspicuous leafy bracts that subtend the flower, which is rich crimson, with a jet black blotch at the base of each petal. No. 2 is like the last in essential characters, but much larger, and is named *bracteatum maximum*. No. 3 has smaller flowers than those of either of the preceding and has no subtending bracts. The colour is a brilliant orange-scarlet and there are no spots at the base of the petals. This very distinct form is named *P. orientale concolor*. No. 4, which we take to be the typical *P. orientale*, is named *orientale maculatum* on account of the black spots on the petals. There is a large form of the last which appears to be a permanently distinct plant. Mr. Barr remarks, "Nos. 1 and 2 differ considerably from Nos. 3 and 4 in the colour of the foliage, which in the two latter is very hairy, more graceful, and altogether distinct from that of Nos. 1 and 2." There are without doubt a few distinct and permanent varieties of the Oriental Poppy besides *bracteatum*, but we think that there are many more names in gardens and nurseries than there are distinct plants to represent them.

RANUNCULUS SPECIOSUS.—Last week Mr. Wolley Dod sent us flowers of the double *R. repens*, and the same plant is in flower in the Hale Farm Nursery, Tottenham, under its other name, *R. speciosus*. This duplication of names is not a little confusing to beginners in hardy plant growing. As we before remarked, it is a showy border flower, having bright yellow blossoms as double and compact as those of a Persian *Ranunculus*, though not quite so large.

NARCISSUS GRACILIS, one of the latest flowering species, is now a conspicuous plant in the Hale Farm Nursery, Tottenham. It has slender leaves and bears flowers nearly as large as those of *N. poeticus*, but clear yellow, with an orange-yellow cup. The flowers are produced on stems three and four together, and are fragrant. It is a fit companion for the double white *N. poeticus* still in blossom in this nursery.

ZEPHYRANTHES TREATIÆ.—This new *Zephyr* flower is now finely in bloom in the Hale Farm Nursery, Tottenham. It is really a pretty plant, having large white flowers about the size and shape of those of its better known congener, the *Atamasco Lily* (*Z. Atamasco*), but more elegant, the petals recurving beautifully. It is a good addition to the list of hardy bulbous plants, and a

capital plant for a warm sunny border, in company with others of a similar character that require all the warmth one can give them to ripen their growth.

IRIS DICHOTOMA is the name of an extremely handsome *Iris* now in bloom in Mr. Ware's Nursery, Tottenham. It may be best described as being almost, if not exactly, identical, except in colour, with the commoner *I. pallida*, the species with large lavender-tinted blossoms. The colour of *I. dichotoma* is a beautiful rich purple, a tint seldom found even among the many hued *Irises*. It is a vigorous plant, a yard or so in height, and bears a plentiful supply of blooms in continuous succession at this season. It is a fine hardy plant for the mixed border or the fringe of a shrubbery.

THE *WEIGELAS* in Battersea Park are finer this season than we have ever seen them. There seems to be a great variety of tint among them, ranging from deep crimson to snow-white. The white is particularly beautiful; it is very floriferous, the long slender branches forming wreaths of blossoms. Some of the rosy pink varieties, too, are extremely pretty, especially one named *Abel Carrière*, apparently one of the best. In the new part of the park—that skirting the Victoria Road—there are some large vigorous bushes on the slopes where they show themselves off to good advantage.

CORYDALIS NOBILIS.—We have never seen this *Fumitory* so fine and vigorous as it is this year in the Hale Farm Nursery, Tottenham, where it evidently finds a congenial foothold in the rather stiff soil of that nursery. The stems are considerably over a foot in height, furnished with luxuriant foliage, and terminated by a large, dense cluster of bright yellow blossoms. When seen so rampant as the plants under notice this *Corydalis* is among the handsomest of early summer hardy flowers, and one that would not fail to give satisfaction in any garden. It seems to like a stiff, loamy soil and an open, but sheltered and warm, situation.

GERANIUM ARMENUM is not only one of the finest of the hardy *Geraniums*, but also one of the handsomest of hardy flowers, one that should have a place even in the choicest selections. Its flowers are as large as a crown-piece. In colour they are a bright magenta, with a conspicuous jet-black centre, and the petals are also traversed by a network of black veins. The plant is very floriferous, and bears a succession of flowers for several weeks at this season. It is, moreover, a vigorous grower, and small plants of it if planted in good deep loamy soil soon form large circular specimens a yard across and about as much in height. It is a plant not nearly so much known as it deserves to be, considering that it has been introduced for upwards of a dozen years. Some specimens of it come to us from the garden at Grasmere, Byfleet.

CAMPANULA SPECIOSA, a variety of the British *C. glomerata*, is just now one of the showiest of outdoor flowers. It is a plant that should always be included in a choice selection of hardy perennials, for not only is it attractive, but very different from the rest of the *Campanulas*. Its flowers are of the richest Tyrian purple, produced in large dense heads on stems a foot or so in height. Seen *en masse*, as in Mr. Ware's nursery at Tottenham, it produces a fine effect. It is neat and compact in growth, and does not look so untidy as the more straggly growing *Campanulas*. It is a tolerably quick grower, particularly in a good loamy soil and an open sunny position, which suits it best.

ROSEMARY-LEAVED SUN ROSE (*Helianthemum rosmarinifolium*).—This pretty little shrub is quite different from the rest of the cultivated Sun Roses. It is of dwarf, prostrate growth, and its foliage, as the specific name implies, bears a strong resemblance to that of the *Rosemary*. Every twig is crowded with narrow foliage, and this at this season is intermixed with numerous white blossoms as large as a sixpenny-piece. A good-sized plant of it covered with flowers has a pretty effect, particularly if in a prominent position on the rock

garden—its proper place. Mr. Stevens brings from his garden at Byfleet some pretty sprays of it thickly studded with blossom.

AQUILEGIA GLANDULOSA.—A large bunch of this *Columbine* sent to us by Mrs. Davidson, Ashmore Rectory, Salisbury, shows well what a beautiful hardy flower it is, the contrast of purple and white being very charming. Mrs. Davidson in her note remarks, "The flowers were cut from the same plants which I have had for so long, and I should regret to lose them, for the true *A. glandulosa* is evidently very scarce, at any rate in the south. I cannot depend upon raising young plants, as they seldom come true, I find, even from carefully saved seed."

AQUILEGIA STUARTI.—Under this name Dr. Charles Stuart, Hillside, Chirnside, N.B., sends us a very fine *Columbine*, which he says he raised from seed some few years ago. It may be best described as a magnified form of the true *A. glandulosa*, of which we presume it is a seedling. It has beautiful flowers of a rich pure blue and with more white on the lower part of the spurred petals than in typical *A. glandulosa*. The oval sepals are unusually large, being nearly 2 inches long by an inch in breadth, and the diameter of the flower is just over $\frac{3}{4}$ inches. The height of the stem is about 10 inches. It is certainly a fine variety, and if vigorous in constitution it will be valuable.

HOYA PAXTONI.—In order to see the full beauty of this charming stove plant, it requires to be seen in the form of a large specimen, such as that which adorns one of Mr. Peacock's stoves at Sudbury House, Hammersmith, where it is a great favourite and grown to perfection. One large specimen in a suspended basket has dozens of clusters of flowers on it hanging gracefully from all sides of the plant. The small white wax-like flowers, in form like a star, with a ruby in its centre, are lovely indeed and their perfume is very pleasant. *H. bella* and *carnosa* are both finely in bloom in the same garden, and both are pretty plants, but not so fine as *Paxton's*.

TWO GOOD CLEMATISES.—I send a few flowers of *Clematis* from my alpine house. They are *Lucie Lemoine* (double white) and *Miss Bateman*, both now in grand form, and appear to flourish in all their beauty in spite of a shaded north house. Both plants have increased since last year, although they are in the same pots, such as they were originally packed in. I intend to plant these out in a border in the house, as I am satisfied that one can do these justice even in houses with a minimum amount of sunshine.—W. H. BROWNE, *Aldborough, Hull*. [Two of the best varieties of *Clematises* for greenhouse cultivation. *Lucie Lemoine* has double white rosette-like flowers. Those of *Miss Bateman* are a delicate blush mauve.]

HARDY PLANTS AT EXHIBITIONS.

TO THE EDITOR OF THE GARDEN.

SIR,—As an occasional exhibitor of these at the metropolitan shows and elsewhere, I may, perhaps, be allowed to make a few remarks about them. Evidently "Delta" has not had much experience as an exhibitor. If he had had to get up a collection of thirty or more distinct varieties of hardy herbaceous plants, he would not have been so severe. According to him, all the London societies are going to the bad. Who would believe, after reading his remarks, that the best specimen *Roses*, flowering and foliage plants, *Ferns*, *Azaleas*, &c., that are to be found in the country, or, at least, that are exhibited at flower shows, were staged at South Kensington? The best *Pansies* from Scotland were there; the fruit and vegetables were magnificent; but "Delta" had no eye for these. He smelt fish, and went home to tell his dolorous tale. The collection of hardy herbaceous plants at the same show was not a good one; that I admit at once, but it is very difficult, even from a very large collection, to get thirty distinct plants all in bloom at one time, at least specimen plants, and nothing less than a good bouncing specimen in a 10-inch or 12-inch

pot will satisfy some judges. They go in for size, and size they will have, or they will send the exhibitor home with a second class award affixed to his productions. I exhibited on one occasion a good collection and gained a first prize with it, but even then I could not get off without some severe remarks about it. It was even stated in an editorial note in *THE GARDEN* that one at least of my plants ought to have been planted in a ditch, where it would have been usefully employed in smothering the *Nettles*. I took the editor's advice of course and tried it in such a position, but soon found that the plant in question was not adapted for smothering *Nettles*. I have to say further, if an exhibitor is not to be allowed to force some of his plants to get them in time, it would be better to take the class out of the schedule. Many hardy plants are well adapted for forcing, and can be forced into flower months before their usual time. Many of the *Spiræas* force well, such as *palmata*, and it could not be had in flower at all in the middle of May unless forced. As to *Dielytra spectabilis*, what an excellent plant for forcing it is. Of course, if plants were forced out of character, a good judge would know how to deal with them. Why exclude *Lilies* from a collection? I exhibited a handsome pot of *Lilium tenuifolium* in a collection on one occasion, and it was greatly admired. Then what a lovely plant the common white *Lily* (*L. longiflorum*) is, but; O, horror! it might want a little forcing. The fact is, if any class of plants are to be successfully exhibited, exhibitors must have as large scope as it is possible to give them. And to those critics who never seem to be happy unless they are fault-finding, I would say for a change try exhibiting, and let us have a practical example of what you can do. That man is a more useful member of society who shows his fellows by practical illustration how a thing ought to be done than one who finds fault with work which he cannot do himself. J. DOUGLAS.

EDINBURGH PUBLIC GARDENS.

WHEN in Edinburgh last autumn we had a few sketches made in the public gardens there, and two of these we now reproduce. These were taken in the Princes Street Gardens from two distinct points of view, and show well the extremes of right and wrong in design. One is from the high ground looking across the valley with noble classical buildings as a background. The effect from this point is admirable, as fine as could be seen in any public park or garden in Europe, and one that our sketch, we regret to say, fails to do justice to. The other view, on the contrary, shows the evil effect of crowding such a noble garden as this is with needless structures, such as shelters, fountains, and bandstands, which tend to mar the beauty and quiet repose that should always be a primary consideration in a garden like this. This sketch was taken from a point in the valley looking along the centre of the gardens. In designing public gardens the position of structures of all kinds, if really necessary, should above all things be well considered; no kind of structure harmonises less with trees and flowers than that of the bandstand and shelter character. For a full account of these and other public gardens of Edinburgh we refer our readers to p. 255 of our last volume.

Saxifraga granulata.—At this time of year very few white flowering plants are more attractive than this, especially if planted in clumps well to the front of mixed borders. It will thrive in any soil; in fact it will grow where other plants, certainly not more beautiful, but more generally cultivated, will hardly exist. Its flowers last a long time when cut, and where white blossoms are in demand they are indispensable, being equally well adapted for table or room decoration, and they may even be used in bouquets if wired. Although this variety of *Saxifraga* is somewhat old-fashioned, it is surprising how seldom one meets with it. It, however, richly deserves more general cultivation.—R. A.

BARTON HALL.

THIS, the seat of Sir C. Bunbury, Bart., lies some two miles north-east from the town of Bury St. Edmunds; it was anciently one of the many lordships of the abbots of St. Edmunds, and after the Dissolution it successively came into the possession of various families, such as those of Kitson, Cotton, &c., and lastly into that of its present owner about the middle of the last century. The park is small compared with others in the neighbourhood, but it contains many fine trees; the principal entrance to it is on the south, or Bury side.

THE MANSION is a large, old-fashioned building, with little architectural pretensions. It contains, however, a very choice collection of pictures of the best masters, many of them being from the pencil of Bunbury, the celebrated caricaturist, who

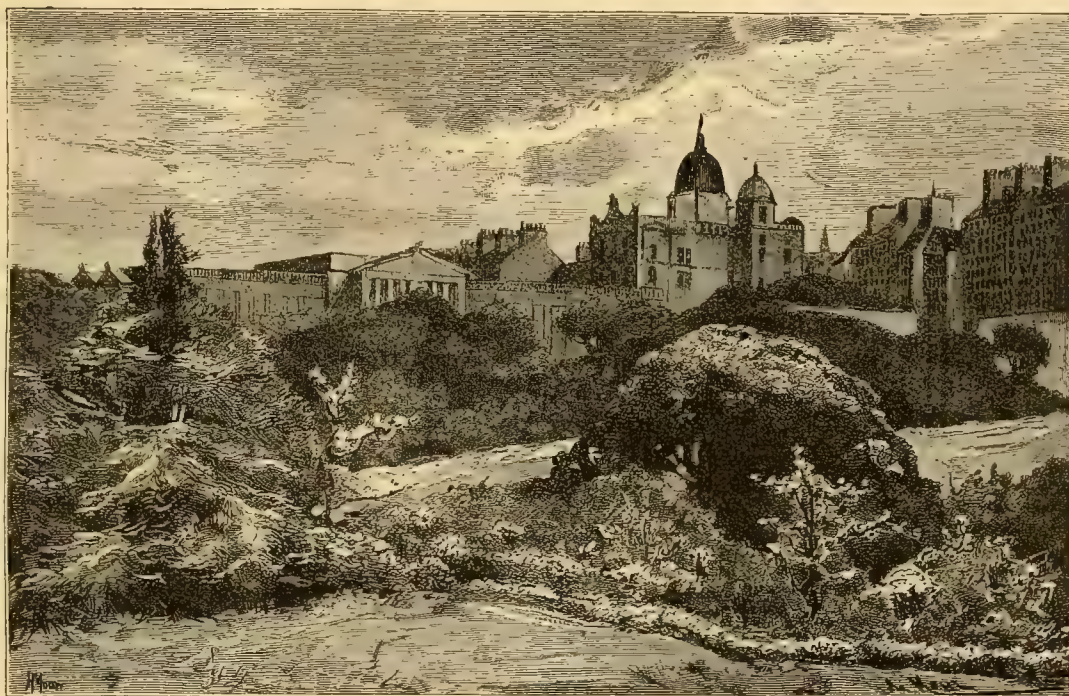
two sides of the mansion. In the park and contiguous to the east extremity of the flower garden, and distinctly seen from the mansion, are two remarkable Oak trees. They stand some 30 yards apart, and their trunks are nearly 30 feet in circumference; they are supposed to be not less than 1000 years old. They still produce Acorns, and, judging by the decayed Acorn cups upon the Grass under them, appear to be the sessile fruited variety of *Quercus Robur*. They are known as Gog and Magog, and it may well be said of them, they appear so very old,

You'd really find it hard to say

That they could ever have been young,
They look so old and gray.

On the south side of the mansion, and concealed from the flower garden by specimens and clumps

years ago was found to be fully 120 feet, while its smooth stem is as straight as a dart, and it is full 50 feet to the lower tier of branches. This tree is still in vigorous health, and promises in the course of time to considerably increase its present dimensions. Many of the specimens in this collection are memorial trees, or have, as it were, a history attached to them, such as a fine plant of *Æsculus rubicunda* from seed brought from India by the late Col. Bunbury, and planted by him in 1826; *Æsculus flava*, *Æ. pallida*, and *Æ. flore-pleno*, &c.; *Betula pendula*, or Weeping Birch; *Carya amara*, or the Bitter Hickory from North America; *Cercis Siliquastrum*, or Judas Tree; *Acer saccharinum*, or the Sugar Maple from North America, some 50 feet high; *Acer eriocarpum*, a very handsome tree; *Amygdalus communis*, or



General view in the Edinburgh Public Garden.

was a member of the family of the present proprietor of the estate. The principal entrance or front of the mansion faces the north-east, and a portion of this, as well as other portions of the building, is effectively draped with the choicest kinds of hardy climbing plants. A small conservatory abuts upon the south or south-east front, from which extends a very pretty geometrical flower garden, laid down on Grass, with numerous vases of flowering plants, as well as groups of the choicest ornamental shrubs. The roof of

THE CONSERVATORY is well clothed by a fine plant of *Tacsonia exoniensis* and other climbers, while the interior of the house is at all seasons kept gay by a succession of greenhouse plants in bloom, such as the various flowering Begonias, Pelargoniums, Fuchsias, and also by some remarkably fine examples of the old *Campanula pyramidalis*, a very ornamental plant, and possibly now less grown than it deserves to be. Under a temporary shelter may be seen a number of ornamental square pots or boxes, some 18 inches across, each containing a fine strong plant of the *Agapanthus umbellatus*, or blue African Lily; these, with other flowering plants in vases, are arranged with good effect upon the wide expanse of fine gravel which surrounds

of evergreen shrubs and ornamental trees, is a fine lawn tennis ground; and sheltering the flower garden on the north side are many fine and rare species of evergreen shrubs and

ORNAMENTAL TREES. Among others are fine examples of the Lucombe Oak, a very handsome tree, although the timber is considered to be of little value; *Quercus Phellos*, or the Willow-leaved Oak; *Platanus orientalis*, Weeping Birch, Weeping Beech, and Weeping Lime trees, *Catalpa syringæfolia*, *Celtis occidentalis*, *Colutea arborescens*, *Euonymus europæus* (or Spindle tree), Tulip trees, Magnolias, &c. Barton is justly celebrated, as I have said, for its wealth of fine trees and shrubs, and the arboretum, which is some four acres in extent, and lies north-west from the mansion and at a short distance from it, is deservedly considered as the great feature of this fine old place, containing, as it does, many remarkable trees; the soil, being of medium character, neither too heavy nor too light, appears to be well suited to the development of ornamental trees, not the least remarkable of which are some fine examples of the Silver Fir, one of which at 4 feet from the surface of the soil was found to be upwards of 10 feet in circumference, and its height when ascertained some

the Bitter Almond; *Betula fastigiata*; *Cerasus Chamæcerasus*, or the Weeping Cherry; *Fagus asplenifolia*, or the Fern-leaved Beech; *Fraxinus Ornus*; *Gleditsia triacanthos*, or the Three-thorned Acacia; several fine large specimens of *Juglans nigra*, or the Black Walnut Tree, from North America (these are said to fruit freely, but the nuts are of no value); a fine plant of *Liquidambar styraciflua*, and several large and handsome specimens of *Liriodendron Tulipifera*, or the Tulip tree; a fine tall plant of *Salisburia adiantifolia*, or Maiden-hair tree; a fine *Catalpa syringæfolia*, planted in 1826; *Ailantus glandulosus*, or Tree of Heaven; *Virgilia lutea*, &c.—these and many more are all here in the shape of fine specimens.

THE ARBORETUM contains also many fine examples of coniferous trees, such as *Abies Douglasi*, some 90 feet in height; *Abies Morinda* or *Smithiana*; *Abies canadensis*, or Hemlock Spruce; *Araucaria imbricata*, or Chilian Pine; fine Cedars of Lebanon, *Cedrus atlantica*, and *Cedrus Deodara*, *Cupressus Lawsoniana*, *Glyptostrobus heterophylla*, *Libocedrus*, or Incense Cedar; many fine specimens of the Silver Fir, such as *Picea magnifica*, *P. nobilis*, *P. Nordmanniana*, *P. Pinsapo*, &c.; also *Pinus insignis*, *P. monticola*, and various species of *Retinosporas*; *Taxodium*

distichum, 50 feet high; Thuopsis of sorts; and Wellingtonias of large dimensions; together with many fine evergreen as well as deciduous shrubs, such as Aucubas of large size, the female variety still bearing its scarlet berries; various species of Berberis, Coronilla Emerus, Cotoneasters, Deutzias, Punica, or the Pomegranate tree; Rhus Cotinus, or the Venetian Sumach; various early flowering and ornamental Ribes, Spiræas, Weigelas, &c. In this extensive and interesting collection of ornamental trees and shrubs, the very commendable practice is followed of attaching the names of the species to the plants, and in many instances naming the country from which they have been obtained, as well, as in some cases, the date of planting the specimens. This, it will readily be admitted, lends increased interest to the collection. A wall which separates a portion of the arboretum from the kitchen gardens on the east side is very effectively covered with many of the finest species of hardy climbing plants, such as the Ampelopsis, Clematis, Jasmine, Wistaria, Roses, Honeysuckles, and ornamental Ivies, &c., while groups or clumps of sub-tropical plants are effectively disposed at various points upon the greensward, where they harmonise well with the diversified foliage of the various trees and shrubs. The arboretum and grounds present altogether a very large expanse of turf or greensward, all of which is kept under the scythe, Lady Bunbury preferring the cheery sound of scythe whetting to the monotonous humming of even the Silens Messormowing machine.

THE KITCHEN GARDEN is large and in two divisions, and somewhat irregular in outline, and at a short distance from the mansion. The walls are mostly old, but the trees trained to them are healthy and bear well. A Jargonelle Pear tree, which is known to be at least 100 years old, annually produces excellent fruit. The soil being of good quality, culinary vegetables of all kinds are well and abundantly cultivated; while the finest varieties of Apples and Pears are successfully grown in the espalier and pyramidal form, as well as in the form of standards. The principal plant houses are between the mansion and the kitchen gardens in a small enclosure, which is in the form of a flower garden, and the structures, which are nearly new, are substantially built and efficiently heated by hot-water pipes. They are in three divisions; the central one, being a plant stove, contains many fine specimens of large growing tropical plants, and being somewhat lofty affords ample space for their development. Another division is fitted up as a greenhouse and contains a good collection of plants; while the remaining one, which is kept at a higher temperature, contains a collection of stove plants, some choice Orchids and Ferns. The gardens here have long been celebrated for their magnificent specimens of the latter, and they still continue to maintain their reputation in this respect. The stove or central structure contains a few fine Palms, a fine plant of the Pandanus, or Screw Pine, together with Dracænas, Strelitzia, Bougainvilleas, Allamandas, Crotons, and some fine Tree Ferns and fine specimens of Adiantum farleyense, Adiantum gracillimum, &c. In addition to the usual species generally grown in such structures, the plant houses here contain many old and interesting plants, such as are now less frequently to be met with than could be desired. In another part of the gardens is a structure devoted entirely to the culture of exotic Ferns and Selaginellas. It contains artificial rockwork, and the specimens are planted out in pockets formed in the same, or suspended from the roof or walls of the house. The fruit houses are mostly old, consisting of two large vineries, one of which is planted chiefly with the Black Hamburgh variety, and is forced early, and a similar one contains a collection of the later kinds, including Muscat of Alexandria, Alicante, Lady Downes, &c. In all cases the Vines are in excellent health, and give promise of heavy crops of fruit. There are also a small Peach house and houses for forcing Strawberries, Kidney Beans, Tomatoes, &c., as well as for forcing Roses and other plants for the purpose of furnishing at all seasons a supply of cut flowers.

Melons and Cucumbers are grown in abundance, and they are grown in the old-fashioned way, viz., in pits and frames heated by fermenting stable manure.

Mr. William Allan has been the much-respected head gardener here for more than twenty years, and all departments of this fine old place afford ample proof of his good taste, painstaking industry, and skill as a successful cultivator.

P. G.

LEAVES FROM THE SOUTHERN ALPS.

Bowing his head against the steepy mount.

Timon of Athens.

In discussing my botanical finds on Mount Wellington, I shall take the district in its very widest sense, and include certain slopes and low ridges which lie at its foot between the mountain proper and the town of Hobart. This will really include four days' work, two of which were devoted to two ascents of the mountain, and two to investigating the pasture and Gum slopes outside the town. Mount Wellington lies to the west of Hobart, the actual ascent of the mountain commencing about four miles from the town, though these four miles form a very gradual rise which dips somewhat rapidly as you come to the foot. The height of the mountain is 4166 feet—not a great height, but yet I believe the summit offers alpine conditions which would in Switzerland have to be looked for at a higher level. Speaking of New Zealand mountains, the Rev. W. S. Green, in the *Alpine Journal* for November, 1882, expresses the opinion "that the mean snow line in the Southern Alps is 3000 feet lower than in Switzerland, and conditions are met with at 7000 feet which are characteristic of the 10,000 feet line of our Northern Alps." If this is true of New Zealand mountains, we may conclude that Tasmanian mountains also will offer conditions which would be found higher up in the European Alps. Mount Wellington, as seen from Hobart, is a striking and picturesque hill. In glancing along its Gum-clad sides, the eye finds itself attracted to the very remarkable "organ pipes," a regular arrangement of vertical basaltic pillars, which in the distance look like the pipes of some colossal grand organ. Anyone who has heard the wind howl over the top of the mountains can conceive that sublime music is sometimes discoursed on these pipes when a gust,

By strange conveyance, fills each hollow nook,
As in an organ from one blast of wind,
To many a row of pipes the sound-board breathes.

I myself, when I reached the top, heard some of the "dulcet symphonies and voices sweet" that swept around its antediluvian boulders. Rarely during my stay was the crest to be seen without its turban of cloud. Indeed, this liability to be suddenly wrapt in cloud makes the ascent of the mountain without a guide just a little dangerous. Fatal accidents have occurred, I am told, but not of late; but every summer cases occur of individuals or parties being lost upon the mountain, for if a mist suddenly comes down, the tableland at the top becomes a trackless wilderness of stone, and the only safety for one so overtaken is to find the best shelter he can and wait till the cloud rises. When I proposed one morning to set out alone for the top, a friend of mine, a gentleman of the press, gave me the comforting assurance that if anything happened, I might make sure of an obituary notice. As night drew on and I did not make my appearance, the chances of an accident were earnestly canvassed in the hotel, and my friends were beginning seriously to think of a search party when my appearance at dusk put an end to all anxiety, though my press friend seemed to think me guilty of a fraud to come in this way between him and his opportunities. On the 15th of December, vasculum in hand, I took my place at 9 o'clock in the morning on the box of the Huon coach, which was to carry me four miles nearer the mountain, and so save me time and trouble. The coach is one that runs between Hobart and the Huon River, and I regret not having been able to drive the whole distance along this beautiful route, where magnificent specimens of forest trees are to be seen both of various Gum trees and of the very local Huon Pine (*Dacrydium Franklini*).

Indeed, the few miles between Hobart and the Fern Tree Hotel where I got out is a most delightful drive on a fresh morning; on each side the ground either rises into

EUCALYPTUS SLOPES or dips down into gloomy Eucalyptus hollows, and the banks on either side show patches of colour—yellow, Lilac, or white—which are very tantalising when seen from the box of a coach at full speed, but which fortunately I was able to examine closely on the way back. I recognised amongst the plants giving colour to the road-side hundreds of spikes of my old friend, the Trigger plant. The Lilac, which was of a very rich and rosy tint and very abundant, appeared to me to be a *Menziesia*, but when I came to close quarters it turned out to be the pretty *Tetratheca*, probably glandulosa, but as the varieties run so into one another, I shall not be positive; at any rate it is a very lovely flower, just the thing for a commanding niche on the higher part of rockwork. It varies in height from half a foot to 3 feet, and generally forms small, compact, many-branched bushes; both the stems and small serrated leaves are rough with glandular hairs. The long slender racemes are thickly set their whole length with rosy lilac blossoms, which hang face downwards and look like little bells, but which are really cleft into four petals. The herbarium specimen which I collected is just as fresh in colour as when it was gathered; unfortunately, the plants I sent home, of which I secured several with excellent balls, are looking far from thriving, though I shall probably be able to save one. White specimens of *Tetratheca* are sometimes to be found, and they must be very handsome, but I met with none. The *Tetratheca* seems to like sandy heath to grow in, but many of the plants along the Huon grow on hard clay, or on hardy gravelly banks into which it is no easy matter to insert the clasp-knife. I was fortunate enough afterwards to find it in another locality growing in sandy peat, where it was easy to cut out clean adhesive balls. The season, however, though the best for collecting flowering specimens of the various plants, was the very worst in the year for transplanting, especially

HARD-WOODED PLANTS. Along this road, as in many places elsewhere, may be seen numerous plants of a striking white Irid (*Diplarrhena Moræa*). It has narrow, rigid, grassy leaves, and the long stalks, surmounted by several blooms, rise high above them. The flowers are pure white, and when perfect in form resemble a small white Iris, the three inner lobes of the perianth being smaller than the three outer. The texture of the petals is a little flimsy; they seem to last only for a day, and then are very difficult to preserve as herbarium specimens, my specimen showing only the spathe, seed capsules, and an indiscriminate mass of petals. Growing in dry and hard stony places are large numbers of two Leguminose plants, *Dillwynia floribunda* and *Gompholobium latifolium*. The *Dillwynia* has a heathy appearance, the branches being rigid and woody. Sometimes the little orange butterflies of bloom are clustered along the twigs, but sometimes they are found in terminal corymbs. This would be an excellent little shrub to associate with Heaths. The *Gompholobium* is a twiggy decumbent plant, sending out its flexible branches along the ground, or hanging its pleasing yellow flowers over a ledge or down the face of a bank. Besides being pretty, it is a curious and uncommon-looking flower, the inside surface of the petals being of a bright canary yellow, while the outside is a dark olive-green. The dark green linear leaves are arranged in threes plentifully along the stems. This would make an excellent trailer for rockwork, but would probably be a greenhouse subject in England. The plants I sent home, though they had good balls and arrived in good condition, have failed to establish themselves. It probably, however, bears pods abundantly, and can more easily and surely be obtained from seed. In the pastures, where horses and cattle were grazing, the very prostrate branches of *Bossia prostrata* with abundance of seed pods crept through the Grass, and also, though not so plentifully, the neat little Coral creeper (*Kennedyia prostrata*), an exceedingly attractive trailing sub-

ject even in the flowerless state in which it was when I found it. The leaflets are arranged in threes Trefoil fashion, and the slender branches send rootlets into the ground as they advance through the Grass. When it is covered with its little scarlet Pea blooms, it must be a charming little flower. At the time of my visit the seed-pods were full and plump and nearly ripe. A slight pubescence which covers the leaves and stipules gives a softness to the plant which adds to its beauty. By far the finest of the flowers which I found growing on the slopes at the foot of Mount Wellington was the *Lomatia tinctoria*. This plant also grows in grassy meadows depastured by cattle. I was first attracted to it by the beauty of the leaf, and had secured tidy little specimens about half a foot high before I came upon any in flower. The leaf is exceedingly handsome, being much divided into linear segments like a Fern. The racemes of flower are sometimes a foot long, and often fork into two. The colour is soft creamy white, and the whole truss of flower has a full, rich, curled appearance. When the *Lomatia* finds a secure nook, perhaps on the lee side of a boulder in good rich loam, it makes rampant growth

Heaths in my garden, but, like many another Tasmanian gem, it has refused to take to New Zealand soil. Amongst other plants collected at this part of Mount Wellington I may mention the pretty creamy white *Stackhousia monogyna*, of which I found only a single flowering specimen, though it is common enough throughout the island. The two Tasmanian Violets, *Viola hederacea*, a very widely spread little herb, covering the knolls and banks with its simple flowers of a quiet inconspicuous kind of beauty, the colour a greyish white flushed with lilac, and *Viola betonicaefolia*, which was not then in flower, but which Hooker says resembles its English congeners, *Leucopogon virgatus* with little Chickweed florets, and the curious but graceful *Drosera peltata*, growing in little colonies through the Grass. On a shady bank amongst the herbage, in a loose gravelly soil, grew the little ground Orchid, *Chiloglottis Gunni*, a quaint little species with a trowel-shaped labellum.

PAKEHA.

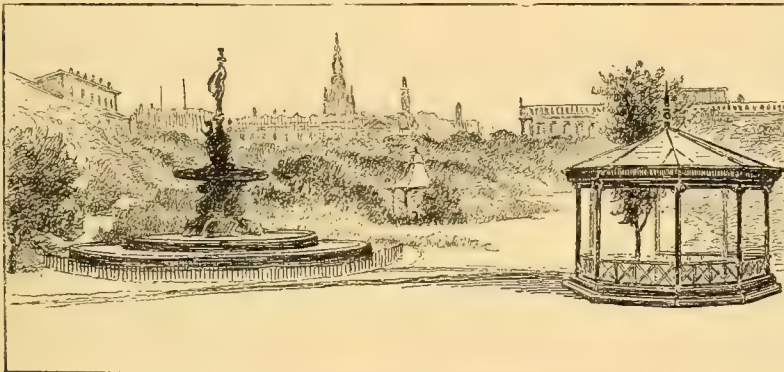
POPULAR WEATHER PROGNOSTICS.

IN the quarterly journal of the Meteorological Society for last January, which, however, is only

right (in the northern hemisphere)." The wind always blows in a direction nearly parallel with the isobars or lines of equal barometric pressure. Two diagrams are given, showing a cyclone with its well-marked features and the weather in various parts of its area. In the front of this cyclone or depression, or area in which the barometer is low, "there is a blue sky; then, as the barometer begins to fall, and sometimes even before that takes place, a bank of cirro-stratus, preceded by a halo-bearing sky, makes its appearance, which gradually becomes lower and denser, and forms an overcast, dirty sky. In the whole front of the depression the temperature rises, and the atmosphere feels muggy and close. In the right hand front the clouds assume the cumulo-stratus type, with driving rain later on; in the left hand front the air is cooler, but still oppressive, with an easterly wind and overcast sky, succeeded by drizzling rain or ill-defined showers. When the trough of the depression has passed, the barometer begins to rise; the wind changes and becomes squally, with showers of rain; the air grows cooler and the clouds break and ultimately clear away." Now, how do the popular theories about the weather agree with these views?

HALOS AND MOCK SUNS are signs of rain. "When round the moon there is a brugh (halo), The weather will be cold and rough." Out of 155 solar halos only twenty-six were not followed by rain within three days, or 83 per cent. were followed by rain within two days, and out of sixty-one lunar halos, 49 or 80 per cent. were followed by rain in three days. A watery sun is also considered a sign of rain. "If the sun goes pale to bed, To-morrow will be wet," 'tis said." This pale or watery appearance is caused by the thin clouds which are the precursors of the heavier ones. At this period the amount of moisture in the air, even though the sky may be tolerably clear, causes clouds to form round the tops of hills, the man to come out of the old-fashioned weather houses, a piece of dried seaweed to become flabby, the flames of oil lamps and candles to snap and burn unsteadily. As the depression approaches and the atmosphere becomes gloomy, close, and muggy, some people are troubled with rheumatic pains and neuralgia; old wounds and corns are painful. "A coming storm your shooting corns pre-sage, And aches will throb your hollow tooth with rage." Drains and ditches give out an offensive smell; animals and birds are restless, and seem to feel the impending change. "Hark! I hear the asses bray; We shall have some rain to-day." Again, "When the peacock loudly bawls, Soon we'll have both rain and squalls." Birds flying low, and rooks falling about like tumbler pigeons are sure signs of rain. Gnats and flies bite sharply before rain. As the centre of the depression approaches still nearer rain sets in, and continues till the barometer turns to rise. As the centre of the depression passes, there is often a heavy shower or squall, usually spoken of as "a clearing shower; immediately the air becomes cooler, small patches of blue sky appear, the steady rain changes into showers, and the sky again becomes clear. How often after heavy rain do persons look for the first break in the clouds, and wonder if the first blue sky that they see is large enough to make a pair of Dutchman's breeches. The truth of the old rhythm, "When the wind veers against the sun, Trust it not, for back 'twill run," is shown by the fact that the wind on the right hand side of the depression at its approach backs to south, falling very light, and then gradually veers to S.W. and W. with increasing strength. We have now seen how many of our popular signs of the approach of bad weather may be depended on. Before passing to those indicating

FINE WEATHER there are some that should be considered which foretell bad weather, and yet are not amongst those influenced by a cyclone. There are often periods when neither the centre of a depression nor of an anti-cyclone has passed immediately over us during which the lines of equal barometric pressure do not form an oval or circle, but are wedge-shaped or angular, and fit in, as it were, between the oval lines forming a past and approaching depression. During these periods the



Sketch in Princes Street Gardens, Edinburgh, showing the bad effect of needless structures in the central part (see p. 510).

several feet in height, and the flower trusses are correspondingly rich. In more exposed places it is dwarfer and less floriferous. It seems to send out subterranean runners, which will account for its gregarious habits, for it is patchy in its habits. This *Lomatia* would have been a really valuable addition to our border plants of the shrubby kind, but my specimens, well balled though they were, have refused to survive their transportation. The last plant on the lower slopes of Mount Wellington that I shall notice at length is the woody little shrub *Hibbertia stricta*. A remarkable fact about the genus *Hibbertia* is that, whereas nearly one hundred species are known from Australia and Tasmania, the genus is strictly confined to these two islands. It is a wonderful fact in the distribution of plants that New Zealand, for instance, should have no representative of this family so abundantly represented in the neighbouring continent. Hooker remarks that, "though there are nine species in the colony (Tasmania), none are alpine and few ascend to the sub-alpine zone." Of the nine species, I collected four, but only *stricta* on Mount Wellington. Of the other species I may have something to say if I touch on the botany of Brown's River, to which I devoted a day. *Hibbertia stricta* has the shrubby, almost heathy appearance of a *Diosma*, and is thickly studded with five-petalled bright yellow flowers, which, as Hooker says, "recall the *Cisti* and *Potentillæ* of Europe." I found it growing plentifully on a steep hill-side near Hobart, facing the north—a very sunny exposure, the soil a sandy peat. I was so taken with the brightness of the blossom and the neatness of the little shrub (if so small a thing can be called a shrub), that I carefully dug and packed a number of plants, thinking it would be an excellent subject to associate with hardy

just published, there is a very interesting paper by the Hon. R. Abercromby and Mr. William Marriot on popular weather prognostics, in which they show how true many common sayings about the weather are. The very prevalent ideas about the influences the moon has on the weather are, curiously enough, not even alluded to; they, however, hardly come within the scope of this paper, as they cannot be proved by any scientific observations. It is frequently said that as the moon so largely influences the tides, it must therefore have some influence on the air and clouds, and so cause a change in the weather; but the propounders of this theory forget that the moon influences the tides daily, indeed continually, and not four times a month only, and that to make the cases parallel the weather should change four times a day, which, however fickle this climate may be, is very seldom the case. It is very satisfactory to learn that so many of our popular prognostics have been proved to be correct by the most scientific deductions. The paper commences with a lucid description of the manner in which a

CYCLONE or anti-cyclone influences our weather, and shows that there is nearly always present either an area of low barometric pressure called a cyclone, usually having a nearly circular form, and as a rule moving in an easterly or north-easterly direction, or an area of high pressure called an anti-cyclone, also nearly circular in form, but almost stationary in position. In cyclones this wind circulates in the opposite way to which the hands of a watch move, while in anti-cyclones the wind circulates the same way as the hands of a watch, and the law is quoted which was first propounded by Dr. Buys Ballot, that if you "stand with your back to the wind the barometer will be lower on your left hand than on your

weather is usually beautifully fine, though it does not last long; on these days we say, "it is too fine to last," and at night there are white frosts, which seldom occur more than three nights in succession, while during the day the sun is particularly burning; distant objects and the landscape generally are unusually distinct. "The further the sight, the nearer the rain." The reason of visibility is uncertain; the old and common notion that it was due to excess of vapour is certainly erroneous; the dry and wet bulb hygrometer always indicates a considerable amount of dryness, when it is remarked, and Mr. Cruickshank has shown by long observation at Aberdeen, that visibility is greatest at the driest season of the year. Great audibility was, and is often now, attributed to dampness with just as little truth. As regards anti-cyclones, the lines of equal barometric pressure surround large areas, and are some distance apart. "The pressure is highest in the centre, and gradually diminishes outwards. The air is calm and cold in the central area, but on the outskirts the wind blows in the direction of the hands of a watch. These are the special features of an anti-cyclone." The weather is just the opposite of that in a depression, being usually settled and fine. Anti-cyclones are nearly stationary instead of moving rapidly, as depressions do. As under these circumstances the sky is "generally clear and the air calm, the temperature is high during the day and low at night. In summer brilliant sunshine prevails during the day, and at night there is a heavy dew, and in low-lying places mist. In winter frost is generally prevalent in the central area of an anti-cyclone, accompanied frequently by fog." Most of the signs popularly supposed to indicate fine weather may, therefore, be relied on, such as a heavy dew after a hot day; a mist rising on low ground, gradually ascending and vanishing in the morning. "When the mist creeps up the hill, Fisher out and try your skill." Birds flying high (except swifts); sea birds flying out far and early to seaward.

WHITE MIST in the evening indicates frost; also vapour rising from a river; fires burning rapidly with a blue flame (this is caused by the reduced temperature of the outer air making a better draught in the chimney). "Clear moon, Frost soon." As the anti-cyclone is nearly stationary, the wind blows from the same quarter for several days together. "If the wind is north-east three days without rain, Eight days will pass before south wind again." Sometimes in winter on the southern side of the anti-cyclone bitter east winds with a black-looking sky will prevail, when it may truly be said, "When the wind is in the east, 'Tis neither good for man nor beast." In conclusion, the authors say they are unable now to enter "into the complicated question of the non-cyclonic rain-falls in this country. It will be enough to state that the prognostics which precede them are rather those associated with broken weather, such as bright sunrises or heavy clouds banking up without the barometer falling, than the muggy, dirty weather of a cyclone front. The warning they give is also much shorter—rarely more than three or four hours, if so long. It is much to be wished that persons would study more carefully than they generally do at present the various signs that indicate a change in the weather, as the knowledge they would thus acquire would be very useful, particularly to those engaged in horticulture. Unfortunately at present, the weather knowledge of most persons is well described in the following old Bedfordshire lines:—

Well, Duncombe, how will be the weather?
Sir, it looks cloudy altogether.
And coming across our Houghton Green,
I stopped and talked with old Frank Beane.
While we stood there, sir, old Jan Swain
Went by, and said he knewed 't would rain.
The next that comes was Master Hunt,
And he declared he knewed it wouldn't.
And then I met with Farmer Blow;
He plainly said he didn't know.
So, sir, when doctors disagree,
Who's to decide it, you or me?

G. S. S.

BOOKS.

BOOKS ON ALPINE FLOWERS.*

THE works on alpine flowers are numerous, but the subject has not yet been exhausted, nor even adequately treated, though the German authors are far in advance of the English. We do not speak of the learned botanical works that are only to be found in scientific libraries, but of books intended for the lover of flowers more or less ignorant of botany. The little work in four pocket volumes by J. C. Weber is still, perhaps, the most popular of the illustrated books, but it gives very little information besides the pictures and the names of the 400 selected species, which are, however, well chosen.

The illustrations are more carefully drawn and coloured in the work called "Die Alpenpflanzen," of Seböth, in four volumes, published by Tempsky at Prague. Two volumes have been re-edited, and the text translated by A. W. Bennett. The four volumes are, however, too bulky for the traveller, and very inconvenient as a book of reference. Having been published in numbers, the different species of each tribe are scattered, and one is forced to hunt through four volumes on the chance of finding the particular Anemone, Gentian, or other flower that may be wanted.

There is another work in course of publication at Vienna entitled "Atlas der Alpenpflanzen," with text by Dr. K. Dalla Torre. The illustrations are so far most carefully drawn and coloured, but as no text has yet appeared it is impossible to judge of the plan of the book as a whole. No colour printing can, however, do justice to the delicate beauty and brilliancy of alpine flowers.

There is a large folio volume recently published by Sampson, Low & Co., entitled "Wild Flowers in Switzerland, or a Year amongst the Flowers of the Alps," by "H. C. W." It is a very ambitious work, professing to be written for the traveller unlearned in botany, but no book is of any use that is not available on the spot, and the size alone of this book renders it an impossible encumbrance for the bag or the knapsack of the mountaineer. Nor can the book have any attraction for a true lover of art, on account of the coarse drawing and the bad colouring of the flowers. The universal smoke-coloured backgrounds are a great mistake. All delicate flowers come out best on white paper, and even white ones need only a pale tint of fawn or grey to show them up. The grouping and selection of the plants are even more in fault.

The book contains sixteen plates, each plate showing on an average twelve plants. The plants are so crowded and confused as to be quite unintelligible to the ordinary observer, while to anyone well acquainted with them, the crowd of the various flowers, leaves, and stalks into one plate is even more perplexing and irritating than the plates in that otherwise charming work by Anne Pratt in five octavo volumes, called "Flowering Plants of Great Britain," where a similar plan of grouping several flowers on one page has also been unfortunately adopted. "H. C. W." professes to have grouped the flowers as to time of blooming and place of growth, but every plate has many errors in both these respects. Flowers of the high Alps and rocks are mixed with those of the sub-alpine meadows, and roadside weedy plants are also introduced. In some plates flowers and their seeds or berries are represented together; in some cases flowers are found in one plate, seeds in another, and in some instances seeds or berries only and no flower; altogether there is a want of

* *Die Alpenpflanzen* von J. C. Weber. Munich: Christian Kaiser. 1880.

Die Alpenpflanzen von Jos. Seböth. Prague: F. Tempsky. 1879.

Alpine Plants Painted from Nature. Edited by A. W. Bennett. London: W. S. Sonnenschein & Allen.

Atlas der Alpenpflanzen, von A. Hartinger, mit text von Dr. K. W. Dalla Torre. Vienna. 1882.

Wild Flowers in Switzerland, or a Year amongst the Flowers of the Alps. By "H. C. W." London: Sampson, Low & Co. 1883.

system throughout, as well as an absence of taste in the selection.

Each of the coloured plates is accompanied by an outline index plate; the reference numbers are occasionally incorrect, but the outline drawings are often more characteristic of the plants than the coloured plates! Many of these remind one of the too common fault in making bouquets and arranging flower vases where the object seems to be to crowd in as many different kinds and colours of flowers as possible, instead of showing each kind separately in its beautiful natural growth, with its own garnish of leaves, or if these do not accompany it in Nature, adding only a few simple Grasses, or Ferns, or Evergreens, such as might be found growing near in its wild state.

There may be some difficulty in deciding precisely what is an alpine flower, but the abundant variety of Ranunculus, Anemone, Dianthus, Vetch, Potentilla, Saxifrage, Campanula, Gentian, Primula, Androsace, Orchids, and bulbs, without mentioning the rarer Grasses, Ferns, shrubs, and climbing plants, would suffice for many books before we need descend to the common Houseleek, the blue Sow Thistle, the yellow Goat's-beard, the Marsh Red-rattle, the common Bistort, the carline Thistle, the common Elder, and the common Dodder. The author has taken great pains with the names of the plants; the Greek or Latin derivations of the scientific names are explained, and their synonyms are added in English, French, and German.

It is with regret that we are forced to protest against the bad art of a laudable attempt to popularise the beauties of the alpine flora, but "art is long," far longer than any amateur who rashly enters upon its path can believe. H.

OBSERVATIONS ON INJURIOUS INSECTS IN 1882.*

THIS report, which is annually compiled by Miss E. A. Ormerod, has just been published. It contains the observations made by various persons interested in horticulture and agriculture on the insects which have affected their crops during the past year. This report quite comes up to those of former years in general usefulness and in the value of the practical suggestions which it contains. Last year's report specially dealt with the attacks of the Turnip flea beetle, which had been particularly injurious in many parts of the United Kingdom in 1881. This year prominence is given to a no less destructive insect, the wireworm, but the year 1882 does not appear to be noted for any unusual demonstrations by this insect; nor, indeed, does it appear to have been remarkable for the abundance of insect pests, nor for the virulence of any special attack, with the exception of the Hop aphid, which in many places destroyed the entire crop. Yet in looking over the figures supplied by many observers of the amount of loss they estimated insects had caused to their crops, one cannot but feel that, if we could in any way secure immunity to our crops from these pests, market gardeners and farmers would be in a very different position from what they are now. Crops that at present hardly pay, or are perhaps a loss, would then yield a handsome profit; many times when it is said that it would not pay to do such and such things to destroy insects, if those means were used and the insects destroyed, the extra yield from the crops in consequence would amply repay the trouble and expenditure. Miss Ormerod, though fully recognising

THE UTILITY OF BIRDS, and the great assistance we receive from them in destroying insects, says: "It is a matter for serious consideration whether the great encouragement of bird life beyond the natural balance, such as is now often recommended, may not lead to very contrary results to what is intended. Besides the damage that over numbers of birds may cause to young crops or ripe Corn, it ought also to be borne in mind that many insects (such as carnivorous beetles and

* "Report of Observations on Injurious Insects during the year 1882, and Special Report on Wireworms." By Eleanor A. Ormerod. Simpkin, Marshall, & Co. 1883.

their grubs, and the grubs of ichneumon flies) live wholly or in part by feeding on their fellow insects; and it is desirable to consider how an unnatural surplus of birds bears on the matter of diminishing these helpers. Without in any way doubting the necessity of the presence of a proper amount of birds, I think it would be well worth while, by examination of the contents of the stomachs of some of the smaller birds, to gain clearer views of what is the chief part of their insect diet." This is all very well, but how are we to ascertain the natural balance? Were the entire country uncultivated and the wood unpreserved, no doubt the natural enemies of the birds would be far more numerous than they are now, and the birds in consequence less; also the birds which feed on insects would have no such opportunities as they now have for obtaining their food, for under these conditions there would be no enormous swarms of insects as there are at times now, such as the Gamma moth, Turnip sawfly, and many others, as there would not have been sufficient quantities of their food plants to support so great a number. But the balance of Nature has been so tampered with, and it now oscillates so continuously, that it seems impossible to restore its equilibrium. By cultivating our land and causing a great preponderance of certain kinds of plants, the insects which feed on these plants naturally increase; at the same time the natural enemies of our birds are much diminished in numbers. Still, it seems clear that the insects increase with greater rapidity than the birds, and that if we wish to save our crops from the former, we must not destroy the latter; it is far easier to keep birds from a crop when it is certain it will be injured by them than to attract or encourage birds when their numbers are few and their presence desirable. What is "the proper amount of birds?" is a very open question, but it perhaps may best be answered at present (as far as most kinds are concerned) by saying as many as possible. Any carefully made investigations, however, on this subject will be very valuable.

INSECTS REPORTED ON.—This year ten insects are reported on which have not hitherto been mentioned in any of the reports, namely, the winter moth (*Cheimatobia brumata*), so called from its appearance in November and December, whose caterpillars are very destructive to the leaves of various fruit and other trees. They appear to have done serious mischief in many places. The females have very small wings, and are unable to fly, so that as the chrysalides are formed in the ground, anything of a sticky nature, such as a band of newly tarred canvas placed round the stems of the trees will prevent the moths ascending them to lay their eggs. The Ash-bark beetle (*Hylesinus fraxini*) which forms galleries under the bark of Ash trees. The Asparagus beetle (*Crioceris asparagi*), which may often be found on the Asparagus; its grubs feed on the foliage and consequently weaken the plants. After syringing the plants with water, a shake will cause the grubs to fall, then a sprinkling of quicklime or soot will kill them. The Cherry aphid (*Myzus cerasi*), a black blight which sometimes covers the leaves and young shoots of Cherry trees. The great difficulty in destroying this and many other kinds of aphid is that the insects make the leaves curl so that it is very difficult to cause any insecticide to reach them. The Clover root weevil, the grubs of which gnaw the roots, and the weevils destroy the foliage. The Wheat bulb fly (*Hylemia coarctata*), whose maggots feed inside the stems of the young plants. The Hop aphid (*Phorodon humilis*), whose destructive capabilities are only too well known to Hop growers. The Hop flea beetle (*Psylliodes attenuatus*), an insect much resembling the Turnip flea beetle only of a brassy green colour. The Mustard beetle, which devastates fields of Mustard and Rape, and the Spruce cone gall midge (*Cecidomyia albilabris*), which infests the cones of the Spruce Fir, without, however, doing much injury. Among the insects which were particularly injurious in gardens last year was the Apple-blossom weevil (*Anthonomus pomorum*). The weevils fall when alarmed, and the females seldom fly, so that by placing a tarred

band round the stems of the trees and then smartly jarring the branches, they will fall, and be unable to return. The Carrot fly (*Psila rosæ*) was very injurious in some places. In reference to the damage often caused to Turnips, Cabbages, Carrots, and Parsnips by the wireworm, it is said that sowing the seed with a liberal dressing of farmyard manure, and dressing with 2 cwt. best bone meal, 1 cwt. nitrate of soda, and 3 cwt. of common salt, soon forces the plants beyond the reach of injury by them. As regards the Onion fly, our contributor says that two years' trial of the effect of earthing up Onions has made me think the plan would save much loss wherever the Onions are sown in drills, so as to admit of earthing by the hoe. The Pea weevil (*Sitona lineata*) does much damage to the leaves of young Pea plants, and is well known, but hitherto the habits of the grubs were a mystery; it is, however, mentioned in this report that the grubs have been found feeding on the roots of the Peas and on the little wart-like excrescences so often found on the roots. In previous reports a very good figure has been given of this insect, but in the present one a very inferior figure has been substituted, which is a pity.

THIS REPORT is printed, like its predecessors, very clearly, and a good index renders reference to it very easy. Miss Ormerod and the various contributors who have enabled her thus to record the result of their experiments deserve the best thanks of all interested in horticulture. S.

AMERICAN NOTES.

The true *Deutzia scabra*.—Some plants of the true *Deutzia scabra*, grown in pots in a cool greenhouse at the Arnold Arboretum, are now in blossom. The flowers are white, pretty and copiously produced, and the habit of the shrub is good. It is a hardy shrub and one of the rarest in cultivation. True, we often find its name quoted in catalogues, but *crenata* is the kind that is usually sold for it. I am not aware that it is in commerce.

Potato crops.—Last year we raised at the rate of over 700 bushels of Potatoes with one variety; over 600 with several; over 500 with many. Some of our good friends doubted it, though our estimates were thoroughly fair and accurate. This year we hope to do better, and at harvesting time we think we shall secure the services of several surveyors to measure the land and yield and several justices of the peace to take our affidavits thereto.

The Russian Mulberry.—I do not know where seed of the Russian Mulberry can be secured in quantity, except by importing it direct from Russia. From seed it runs into many variations in form of tree, character of leaf, and size, quality, and colour of the fruit. For silk-worms or fruit it will be best to grow it from cuttings. From our experimental grounds we have sent out several hundred plants this spring grown from cuttings. Nearly every cutting made a bushy plant from 2 feet to 3 feet in height. I cannot believe it will prove valuable as a timber tree east or west. Last summer I attended a forestry convention held on the grounds of the Agricultural College near Moscow, Russia. Several hundred forestry managers were present from all parts of the great empire. Every person to whom the subject was broached laughed at the idea of the *Morus tatarica* being valuable for timber in competition with their Oak, Birch, Elm, Basswood, White Poplar, or Riga Pine. As I saw it in Southern Russia, it is a low bushy tree, noted specially for persisting in throwing out limbs from the crown upward like the *Morus multicaulis*. Yet it will prove valuable on the great prairies of the west as an ornamental tree, and for use in shelter belts where its fruit will have value as food for the birds and to some extent for household use.—PROF. J. L. BUDD, Iowa, in *Rural New Yorker*.

A large Vine.—Captain W. G. Phelps has a Grape Vine that is now believed to be the largest

in the United States. In 1867 the large Vine that was famous in Southern California was cut down and exhibited at the Centennial Exposition. It measured 14 inches in diameter. This Vine of Captain Phelps is twenty-five years old and is 13 inches in diameter. It is of the Mission variety, and it has never received the benefits of irrigation. It stands near the house, south of Stockton about two miles, and it covers about 4000 square feet of ground. If it had been permitted to run where it wished it would have covered a much larger area, but it was found necessary to cut it back in order to save the roof of the house. The largest crop that grew was two or three years ago, when, after selling a ton and a half by actual weight, the remainder was estimated at two tons and a half.—*Pacific Rural Press*.

Early Potatoes.—A correspondent of the *Country Gentleman* says: "The earliest Potato is the Early Electric. Last season, in order to test the comparative earliness and yield of the new varieties alongside the well-known kinds, I planted at measured distances a definite number of hills of each of the kinds given in the following table. They were all planted in the midst of a field of Potatoes, and given the same cultivation as the whole field. Single eyes were planted, one in a hill, on the 15th day of May:—

Name.	Time of ripening.	Product per acre.
Early Electric ..	Aug. 7 ..	934
Early Ohio ..	Aug. 15 ..	1164
Early Mayflower ..	Aug. 15 ..	1772
Brownell's Best ..	Sept. 7 ..	2374
Clark's No. 1 ..	Sept. 1 ..	1624
Early Telephone ..	Aug. 15 ..	175
Beauty of Hebron ..	Sept. 1 ..	1794
Early Rose ..	Sept. 1 ..	189
Magnum Bonum ..	Sept. 10 ..	1574
Late Rose ..	Sept. 15 ..	194
Snowflake ..	Sept. 7 ..	189
White Star ..	Sept. 25 ..	206
White Elephant ..	Sept. 25 ..	232
Burbank ..	Sept. 25 ..	220
Matchless ..	Sept. 15 ..	135
Pride of America ..	Sept. 25 ..	1914
Late Snowflake ..	Sept. 25 ..	2264
Belle ..	Sept. 15 ..	225
Defiance ..	Oct. 1 ..	3824
St. Patrick ..	Oct. 1 ..	250
Rose's Seedling ..	Oct. 1 ..	228
Roger's No. 4 ..	Oct. 1 ..	2994
Watt's Orange ..	Oct. 1 ..	2374
Queen of the Valley ..	Oct. 1 ..	199
Champion of America ..	Sept. 25 ..	258
Roger's No. 7 ..	Sept. 25 ..	258
Cook's Superb ..	Sept. 25 ..	2544
Silverskin ..	Sept. 25 ..	234
Mammoth Pearl ..	Sept. 25 ..	257

The dying of the tops was taken as the period of ripening. It will be seen that the Early Electric is three weeks earlier than Early Rose. Had it been planted very early, I presume the yield would have been satisfactory. The Defiance was by far the best producer and good in quality. The handsomest Potato was Rose's Seedling, all of which were large."

Asparagus beds.—The old and costly way of making Asparagus beds by deep trenching is properly objected to in most cases. Mr. Harris says the first bed he ever planted must have cost in labour and manure at the rate of £200 an acre, with no better results than are now obtained with one-tenth of the expense. He now makes the rows 4 feet apart, with the plants 2½ feet apart in the row, for horse cultivation both ways. Plants thus treated throw up large shoots earlier in the season than plants in a thick bed, and give heavier returns.—*Country Gentleman*.

Inland parcels post.—A Post Office circular addressed to merchants, traders, farmers, seedsmen, florists, and the public generally states that, the inland parcels post being appointed to commence on the 1st of August next, the Postmaster-General desires to call attention to the circumstance that the arrangements for bringing it into operation will be greatly facilitated, and the risk of delay in the transmission of parcels largely obviated, if senders of parcels in large quantities (whether it be the intention to post the parcels daily or at regular or irregular intervals) will so far as possible notify their intentions to the nearest postmaster or sub-postmaster as early as convenient in the present month. It is not essen-

tial that the number and weight of the parcels and the frequency of posting should be specified with absolute decision; it will be sufficient if a general idea can be given, so that some provision over and above the ordinary means available may be arranged for in advance of the date fixed for the commencement of the post. Parcels not exceeding 1 lb. will be charged 3d.; exceeding 1 lb. and not exceeding 3 lbs. 6d.; exceeding 3 lbs. and not exceeding 5 lbs. 9d.; exceeding 5 lbs. and not exceeding 7 lbs., 1s.

UTILISING COUCH GRASS.

I HAVE clipped from the *Clonmel Chronicle* the following extract relating to this matter—one of great importance to farmers and gardeners:—

"At the Horse Show in Dublin last year I mentioned to an enterprising Scotch farmer, now in Kildare, who complained of being plagued with Couch Grass, the method I adopted of not only completely killing it, but of utilising the residue as manure. He laughed at the idea of turning to use what had hitherto been to him a curse as well as a source of serious expense. He never heard of any method of extirpating it that fully succeeded but burning, and except that is thoroughly done—a partial smouldering will not do—the joints escape and grow luxuriantly wherever the ashes are scattered. I prevailed on him to try my plan of killing it by smothering or suffocation, and recommended lime or sifted coal-ash for the purpose. Within the last few days I had a letter from him to say, 'the lime plan had completely succeeded,' and that he was then using for top dressing some paddock land that had been used for sheep and young stock in the winter 1000 loads of as fine a compost as he ever saw. Last year I found that when the green crops were sown, we had at least 400 loads of Squitch or Couch Grass, Crowfoot, and other bad weeds that die hard, and that give the cultivator immense trouble. If these were burned our heap of 400 loads would diminish to a twentieth part, and all the vegetable or organic part would be gone, and though the ashes would be useful in many ways, the most valuable constituents would be lost. I adopted the suffocating or smothering process already referred to. The weeds and all noxious rubbish were ranged in an oblong heap, and this was covered with ten loads of lime, fresh from the kiln. It soon slaked, and the slaking produced heat; but it is not on the heat thus evolved, as many suppose, that I relied to suffocate or kill the Squitch. It was on the air-tight mass, 6 inches thick, on the top of the heap I had confidence, and I was not disappointed. This mass of lime on the surface became thoroughly impermeable to air, and, as a matter of fact, all vegetable life underneath was effectively killed. Before six months had elapsed I was using the compost thus produced for mixing with straw and other material, and for absorbing the liquid around the manure heap. Except where the lime did not reach on the sides, not a particle of life is now in 1 inch of the afore-mentioned mass of Squitch. Some hundred loads or more still remain, and this is every alternate load mixed with farmyard manure, and makes an excellent dressing for any green crop, and for this purpose it is now utilised. Clay being permeable to air, is valueless for this purpose, and this is why so many fail to kill Squitch Grass in heaps.—W. J. MURPHY."

I may add that I have long since given up the practice of burning the weeds of the garden with the various prunings, &c., which are burned by themselves. The weeds of all kinds, including Docks, are put into a heap as they are taken up, and when the manure comes from the stables plentifully in winter I mix the heap of weeds layer about with it, keeping the weeds at least 6 inches from the outer edge of the heap all round. This prevents violent heating, but is quite sufficient to destroy all life in the roots; in fact, they become a mass of pulp, strongly impregnated with the ammonia of the manure; besides the latter is not merely so much wasted as if put to rot by itself. Thus I have a great mass of the richest manure, very much enhanced in quantity compared with

what I used to have before utilising the weeds—three loads at least in place of one. I have a very large garden to find manure for—10½ acres—from a limited source, and by using up all the weeds of the season in this way, I am almost independent of artificial manure, for which I must say I never cared very much. I had once a quantity of Couch Grass collected by the harrows from a very dirty field, thrown into a deep gripe impervious to air everywhere but at top; some green rubbish was thrown over it, and it was forgotten till the summer of the second year. When I chanced to examine the heap I was so astonished at what I met with, that I used it largely in the culture of Pines, and with the best results.

Kylemore Castle, Galway.

JAS. GARNIER.

GARDEN FLORA.

PLATE CCCXCI.

MARIE BAUMANN ROSE.

It is just twenty years since M. Baumann was so fortunate as to raise this truly magnificent Rose. The year 1863, though less rich in novelties of sterling merit than some of the years that preceded and succeeded it, yet gave us, among others, such fine permanent varieties as *Pierre Notting*, *Lord Macaulay*, *La Duchesse de Morny*, *Centifolia rosea*, and *Madame Victor Verdier*. Beautiful and indispensable as are these Roses to the rosarian, few will place either of them on the same plane of merit as *Marie Baumann*. The annexed plate paints its vivid colour, and delineates its all but matchless form far more accurately as well as eloquently than any pen and ink sketch can hope to do. And yet in the presence of this and other lovely Roses, as in that of perfect pictures, we become spellbound with a semi-mania for description. To keep silent seems almost an insult to the art and genius that brings us so much pleasure; and hence the pen rushes to the aid of the pencil and the brush to render art or Nature more intelligible or attractive to a larger circle of readers or observers. But to attempt to describe a Rose so faithfully put on the pages of *THE GARDEN* may seem to many a work of as useless supererogation as to re-sculpture the alabaster cup of the fair Water Lily that crowns the depth of silvern pool "with fearless grace—a stately river queen." The fine form, substance, and colour of *Marie Baumann* are all that can be desired. A change for the better has come over rosarians in regard to size, which has no longer the place and power in their estimation that it once held. Mere grossness is now more likely to lose than win prizes. Still, other conditions, such as form, quality, colour, fragrance, being equal, the more of them, that is the larger the Rose in reason, the better, and *Marie Baumann* is only reasonably, not monstrously large, and the illustration shows it to be of full size. Being, however, as far as possible removed from coarseness, we can therefore but say the more of it the better, and the size in a way may be described as perfect alike for the garden, the exhibition stand, or a lady's hair; all show it is one of those Roses that arrest, fix, fill the eyes of judges to the winning of first honours. Its form is also as near perfection as may be. True, perfect form, deep, finely recurved, reflexed, are a few of the phrases used indicative rather than exhaustive of its many merits. The petals also have a remarkably smooth finished character, having neither raggedness of edge, nor unevenness of surface. The petals, of which there are just sufficient without that suspicion of redundancy that tends to mar the symmetrical arrange-

ments of not a few Roses, are admirably disposed and delicately reflexed. In a word, the form of this fine Rose is most aptly described by the one word—exquisite. The substance of the petals is also good and substantial, and this quality adds an additional merit to the form of this fine Rose. It is the substance of the petals, in a word, that imparts that indescribable charm of massiveness that characterises many of our best Roses, which is most aptly described as sculptured. The difference between such Roses and those of the flimsier sort is as marked as that between rich velvet and tissue paper; the number, arrangement, colour, form of the petals may be alike or nearly so in two Roses, and yet the mere substance of the petals create the widest difference between the flowers. The colour of *Marie Baumann* is as brilliant as it is pleasing, and may be arranged under deep carmine, crimson, crimson-red, bright red, brilliant vivid red, so rich is it in pronounced tints and hues of colouring. Writing broadly, it may be said to be of the *Beauty of Waltham* type in general character of colouring. But the plate is so faithful in its colouring as to supersede the need of laboured description. From the leaves, however, being a trifle too light and the under surface of the upper two shown, the Rose looks a trifle darker than it is in Nature. The reflexed edge of the petals has also a silvern shade, which is well shown near the centre of the bloom. Altogether *Marie Baumann* is one of the most welcome coloured Roses either on the show stand, the garden, or for decorative purposes. As to the constitution of *Marie Baumann*, the authorities generally pronounce it vigorous. At the risk, however, of being called a croaker, it must be stated that this description must be received with considerable allowance. Vigorous it may be seen at times on the *Manetti* and also on the *Brier*, seldom or never on its own roots. It is also one of the most difficult Roses to strike root, and when this feat has been achieved it seems in no haste to multiply them. It is also one of those fine Roses that seems on the decline in regard to vigour. It appears less strong, and is assuredly less generally shown than it used to be. Brother rosarians whose experience is different will please inform all readers of *THE GARDEN* how to make this fine Rose grow so very vigorous as has been described rather than find fault with my record of truthful experience. Here with us it is neither a strong grower nor a long-lived Rose, which we exceedingly regret, as its qualities are of the highest, and it is held in great admiration. Can it be that beautiful Roses, like fair belles, have their season, short often, though brilliant, and then decline and fall like meteors, leaving but sorry or sad memories behind? Not that *Marie Baumann* has reached that stage, but is she as fresh and vigorous as she was? Roses also seem to have their localities. Roses that shrink from the arid air of the east may prove fresh as Daisies and fair as Lilies in the humid atmosphere of the dripping north. Could not the National Rose Society furnish rosarians with a geographical Rose chart crowded with blue stars indicating the localities where the blue ribbons of the Rose garden did their best? It possesses in the rich experience of its members material for such a valuable guide, and should see to its preparation and presentation with its next season's year book.

D. T. FISH.

A Rose odour.—I think I have seen in *THE GARDEN* at various times warm encomiums on the



scent of the Rose, the writers being evidently at a loss to find terms to do justice to its qualities in that respect, and throwing different varieties into groups marked by their scent. On approaching a very handsome double Austrian Brier this morning I found it had a strong smell of the common bed bug, and as I know of no section of Roses so distinguished among those described by your contributors, I thought I would name the matter to you. It was a very warm morning, and all the flowers had the same sickly smell.—NEZ.

ROSE GARDEN.

NOTES ON ROSES.

APHIDES, maggots, weakness, and suckers; these are but a few of the after blasts of the past March, for doubtless all these pests and other evils are either induced or aggravated by extreme cold. The correlation between aphides and frost-bites may be assumed to be well-nigh proved. Hence, as a rule, the more severely Roses are injured by frost in winter or spring, the more they are infested with these pests. Nor does this arise wholly from weakness, though the latter is a predisposing cause of insect attacks. But sap once frozen seems also sweetened. One of the simplest illustrations of this is seen in the honeydew and aphides that overspread tender Beech and other leaves after a chill. These two often come with such force, suddenness, and simultaneity, that it becomes a difficult problem to determine whether the aphides or honeydew are cause or effect. But our point here and now is that the sweetened sap intensifies the plague of aphides, and that the frost sweetens the sap. The same principle is illustrated in the freezing of Potatoes; and the writer knew one lady of a scientific turn of mind who has obtained the extra sugar she desiderated in this vegetable gratis by placing her daily supply out to freeze an hour or so before cooking. Her taste was peculiar—vitiated, it may be—but her practice merely gave prominence to the well-known fact that frozen Potatoes are sweet. And from this and other effects of frost on vegetable tissues it may be assumed that the fluids of Roses become sweeter through successive freezings, and hence, in part at least, the prevalence and power of aphides after such springs as the present. Be this, however, as it may, there can be no question that the only safe way with the aphides is prompt and immediate destruction. The rosarian who parleys with such an enemy is already as good as defeated. The weak insect of to-day grows into the thousand or ten thousand of to-morrow. The best weapon against aphides is the finger and thumb of the rosarian. While many are running to and fro for remedies, these promptly used will have vanquished all in sight. True, fresh battalions may arise from their ashes. But what then? Only this: up again and at them with the same primitive exterminators. The longer I grow Roses I have the less faith in nauseous dressings. Over large areas, and after the aphides are in full possession, Tobacco water, Quassia chips, hot sewage, smelling salts, snuff, &c., may be the only practical exterminators. But, taken in time, there is nothing to be compared with the simple mechanical grippers already named, which are also best as regards maggots. Sharp eyes and fingers, silent searches in the early morn or dewy eve, will result in heavy finds of these dismembering gourmands that so often bring consternation and create blank dismay among the ranks of rosarians.

APHIDES are bad enough, but they are mere light surface skirmishers, while maggots are the sappers and miners in the great army of destruction. Their destructive work is also so often done unseen, the finest buds and fattest shoots being, as a rule, chosen as the field of their nefarious operations; and yet practice begets wonderful perfection in maggot hunting. The experienced rosarian learns to track out and follow these disfiguring monsters with almost as much certainty as a hound a hare. But this knowledge only comes by patient practice and indefatigable perseverance. Nothing must be taken for granted in this war with the maggots, nor must any trace

be made. The Roses may be clean to-day and thickly infested to-morrow. The maggots seem as if they must have risen up out of the earth or fallen down bodily in showers from heaven. At all events there they are mining through the hearts of our finest buds, and not a moment should be lost in discussing the question of whence they come or whether they may be going, the one question of any moment being their immediate destruction. Fortunately, the severe spring comes to our assistance in this matter. The twenty or more degrees of frost several times repeated in March doubtless destroyed not a few maggots in embryo. By also reducing the area of our Roses it has rendered the task of maggot hunting easier and success in finding them more certain. And then, as to

THE WEAKNESS OF ROSES, so general in most places this year, the first step towards strengthening them consists in keeping them clean; the weaker, the greater need of the instant destruction of every insect. But there are other and more direct means of strengthening weak Roses. Yet another and very potent negative means of making weakly Roses stronger consists in lightening their load of blooms. If this is done in good time, it may almost be said that while the flowers lose the plant gains. It should, however, be done early, and in the case of very weak Roses it may even be prudent to remove the whole of the flowers for the sake of thoroughly re-establishing the future strength of the plants, but it will seldom be needful to proceed so far. No one need fear thinning their Rose buds freely. Apart from its re-invigorating effects on the Rose trees its beneficial influence on the blooms left suffices to commend the practice to rosarians. Unfortunately, few private growers can command sufficient time to carry out bud thinning with the skill or to the extent that it merits. So important is bud thinning on the quality of bloom, that it may almost be laid down as an axiom that those who thin best and most cut the best Roses either for exhibition or home use. When time can be found for thinning, no abnormally small, misplaced, or misformed buds should be left, nor yet any excess of even perfect buds, for one perfect Rose, like a perfect fruit, is worth three, six, almost any number of imperfect ones. But there are also more positive and direct modes of strengthening weak Roses. These consist in dressings of solid and liquid manure and mulchings of various sorts. A caution may well be given in regard to all such. Not a few rosarians seem to act on the principle that the weaker the Rose the stronger should be the stimulant. It need hardly be stated that this principle is wrong. It is about as easy to kill a weak Rose by an excessively strong stimulant as to blind one by an excess of light, and powerful stimulants need giving with a light hand to weakly Roses. Nay, more; and in apparent contradiction to some of the highest authorities on Rose growing, I would venture to affirm that, as a rule, not a few stimulants are so overdone as to do far more harm than good. Weakly Roses should have mild stimulants in small doses at first, and only after growth is re-established and in full vigour can strong stimulants be given to any good purpose. Hence in many cases mere mulchings, that is ground coverings, with non-manurial or very slight manurial dressings, are more useful than heavy dressings of rich or solid manure. These mulchings conserve the goodness already in the soil, preserves it in a suitable state for the use of the plants, and surrounds the latter with such physical conditions as enables them to utilise it to the highest advantage. And this is a good deal more than can be affirmed of not a few of the favourite manures given to Roses. No doubt Roses are gross feeders, but possibly they are less gross in their root tastes and powers of assimilation than many assume. While it is certain that not a few liquid and solid manures may prove too fresh and strong to be absorbed or positively injurious,

ROSES IN FULL GROWTH can assuredly appropriate large quantities of manure, but those in a weakly state cannot thus be forced into strength

at the point of the manure fork. Suckers have seldom been more troublesome than this year. These are also one of the fruitful legacies of the frost bite in the spring. Top-growth being crippled or destroyed, the roots have sought erratic out-growths of pent-up vitality, and found it ready to hand in crop after crop of suckers. Where these cannot be utilised to advantage, by forcing into fresh plants or conversion into rooted cuttings for budding on, &c., they should be persistently destroyed so soon as they appear, for few more sure recipes could be given for the sudden destruction of crippled Roses than to allow a rival crop of suckers to divert the root supplies away from their already impoverished root-stocks or branches. On the other hand, by keeping the suckers vigorously suppressed, the vital force left in the Rose plants will be more likely to find its way to where it will prove of most service to the growing buds and the future strength and longevity of the Roses.

D. T. F.

NIPHETOS ROSE BEST ON OPEN WALLS.

IN houses and on warm walls this has been very truthfully described by one authority as a Magnolia-like Rose. The comparison is as apt as it is happy, and we have but to fancy a Magnolia grandiflora reduced in size and grown into a double flower to realise the stately wax-like character of the Niphetos Rose. The white has often that dash of lemon in it that is also a characteristic of the Magnolia. The Niphetos is, however, the more perfect and useful when it is white as the driven snow, as its name imports. And yet though few, if any, have noticed it, something like a distinct charm is added to this most perfect Rose when a few of the outer or enveloping petals are suffused with pink, and occasionally with a deeper tint approaching crimson. This is generally confined to the upper ends of the surface petals, and is all the more telling in contrast with the mountains of snow underneath. And truly the petals on petals *ad infinitum*, piled one upon another in such grand masses, almost deserve the name of snow mountains. The form may be best described as classical, there being such a chaste touch and perfect finish about the exquisite shape of this fine Rose either in bud or when more fully expanded. Perhaps it is the purity of its whiteness and the perfection of its exquisite form that gives the finishing touches of grace and beauty to this most distinct and beautiful Rose. One thing, however, it nearly lacketh—that is, fragrance. Its scent is mild at the strongest, though pleasant and also distinct, having that suspicion of sweet air and fresh milk that reveal themselves in greater fulness in some other Roses, notably Boule de Neige. Niphetos is generally described as of vigorous growth; I do not find it so. To have described each shoot as terminating in flowers, and these flower-shoots as refusing to push growing shoots, would have been nearer to our experience. Exceptional cases may be met with, but, as a rule, Niphetos is by no means the Rose to cover a roof, rafter, or wall rapidly. The pronounced character of its floriferousness militates against it and is in inverse ratio to its growing power. Even cutting back hard does not always obtain the vigorous growing shoots desiderated; but with the hope of thus obtaining fresh material for filling spaces and clothing wall or roof areas, as well as for cultural reasons, Niphetos should be grown on its own roots. A lighter compost than that given to other Roses seems to suit Niphetos; and, while it will grow fairly well in ordinary compost, it grows more freely in one containing a liberal percentage of leaf mould or peat. With healthy well-established plants in a house heated so as to command a temperature of from 55° to 65° all the year round, Niphetos alone will well-nigh solve the problem of a fresh Rose bud in flower every day throughout the year. To ensure this, however, every bud or bloom should be cut as soon as perfect, and the cutting back of the shoot or otherwise be attended to at the time of cutting. Nothing assists continuous blooming like this perpetual pruning. On the open wall Niphetos should be protected in winter, and seldom flowers freely more than once in the

season. The outer petals are also much more suffused with colour out of doors than in. So marked is the difference, that indoors nearly all the flowers will be spotlessly white; out of doors the majority may be stained with pink. The most magnificent flowers of the Niphetos are, however, mostly gathered from the open air. Hence, wherever space can be found on a warm south or west wall, part of it should be devoted to the Niphetos Rose, for no Rose is more enjoyable in the garden, few or none more valuable for bouquets, wreaths, the furnishing of vases, &c. Nor in the latter connection must the very superior foliage of Niphetos be forgotten. The leaves are large and smooth, and go admirably with the blooms. The flowers match admirably with Gardenias, Tuberoses, white Lapagerias, Orchids, Stephanotis in wreaths and bouquets; in fact, Niphetos Rose is strong enough to hold its own with any flowers however choice, and can afford to give a little support when and where needful to the best of them. Medium-sized, half-opened flowers are also the most perfect of button holes.

D. T. F.

SEASONABLE WORK.

FLOWER GARDEN.

RHODODENDRONS.—All seed vessels should be picked off the earlier varieties, straggling shoots pruned in, and grafted kinds examined with the view of removing stock shoots and root suckers. Any plants moved in the autumn and winter should still be kept mulched, a condition that will obviate the necessity of watering. This remark also applies to all other kinds of shrubs that have been lately transplanted, though no doubt some would be the better for having a good soaking of water as well as the mulching; any that look critical, and must be saved at any cost, should at sunset be syringed overhead. Lilacs, Spiræas, Weigelas, Broom, Gorse, and others done flowering should, if needed, either through restricted space or to ensure the keeping of the plants equable as regards growth, be pruned into the required form. Keep the clumps free from weeds by means of surface hoeings as often as an opportunity offers.

ROSES still need a large amount of attention as to cleansing them from aphids and maggots; copious waterings in dry weather and surface mulchings, which keep the plants in vigorous health, will do much to prevent the attacks of parasites. Climbing Roses should be kept well secured to their supports, and the old flowers should be regularly cut off, an operation which will assist in the production of a second bloom.

CLIMBERS.—Keep Clematises and other climbers closely trained in; these also need plenty of water at both root and top, more particularly those plants that are growing close to buildings and under over-hanging protections where the rainfall cannot reach them. Supports should be placed to Sweet Peas, Scarlet Runners, Canary Creepers, Convolvuluses, and every other kind of annual climber before there is any risk of the growth getting matted. Such plants are alike useful for festooning or drooping over ledges of rock or root-work, but even in these positions it is necessary to occasionally go over them to single out and if needs be to cut away portions of their growth.

GENERAL WORK.—This will consist in finishing bedding out and in the removal of every trace of untidiness that for a time is unavoidable whilst such work is in progress. Trim or peg into form every kind of plant that will look the better for such manipulation. Pinch the flowers of Calceolarias, Violas, Verbenas, Petunias, and Pelargoniums to ensure their early and more vigorous establishment in the soil. The flowers of Lobelias and carpeting plants we prefer to remove with a pair of sheep shears, which at the same time take off any uneven portions of the plant, the growth afterwards being more dense and tufty. In the early stages of growth, Alternantheras and Coleus quickly resent artificial watering by refusing to

grow at all; preference should therefore be given to mulching the beds with Cocoa fibre refuse; this renders all waterings, except the first to settle the plants in the soil, wholly unnecessary. Mowing of lawns and weeding of walks are now at the maximum point, and with the stinted labour, now common to most gardens, it is difficult to keep abreast with such work; where this cannot be done without neglecting other and more important departments, it would be well to consider whether or not it would not be wise to reduce the amount of ground that ought to be highly kept to such limits as the labour allowed would be able to maintain in perfect order.

FLORAL DECORATIONS.

HAVING occasion recently to arrange a centre-piece for a dinner table of considerable size, we selected a glass vase with a single cornucopia rising from its base. Its height was about 24 inches, and the bottom measured about 12 inches in diameter. About the latter we placed a fringe of Fern fronds of such sorts as *Adiantum formosum*, *Nephrodium molle*, and a few only of the golden and silver *Gymnogrammas* with the fronds inverted, Moss being used to cover the sand. Around the stem were placed three or four growths each of *Cyperus alternifolius* and *laxus* of various heights; interspersed with these were ten or more fine spikes of the Turk's-head Grass (*Lagurus ovatus*), all standing as if growing. Several fronds of Maiden-hair Fern were arranged as an undergrowth. After this the flowers were added. These consisted of three blooms on their spikes of the German Iris, with about a dozen flowers of *Gloxinias* with all the length of stem we could secure; dotted amongst these were five or six blooms of the yellow Paris Daisy (*Etoile d'Or*) and a few trusses of a pale *Bouvardia*. This completed the arrangement of the base, which rested on the table-cloth. In the cornucopia was placed a slender spike of a small form of *Delphinium* (blue) and three spikes of *Astilbe* (*Spiræa*) *japonica*; dotted here and there were pink and white *Rhodanthes*, and overhanging the margin of the trumpet, spikes of *Begonia odorata* resting on a fringe of *Pteris serrulata*. This completed the arrangement. It will be observed that single flowers only were used, and a very pleasing effect was obtained by means of them; in fact, the addition of any double flowers of any sort would have marred the effect of the whole. Two small plants of *Cocos Weddelliana* were placed in two soup plates without being turned out of their pots; sand was placed around each and covered with Fern foliage and variegated *Begonia* leaves. A few blooms of *Roses* were then interspersed among these, no other flowers being used. These arrangements were placed on either side of the centre, and on each side of these was a well-bloomed plant of *Gloxinia* in a vase. The *Gloxinias* were, if anything, too heavy; a smaller plant would have been better. The same day an experiment was tried with some blossoms of *Passiflora kermesina*, having several open. We cut them early in the morning and allowed them to float in a basin of water till the evening, when they were placed in a small glass for the drawing-room. In this manner they kept perfectly fresh and open; had I left them on the plant, they would have closed before I wanted to use them.

INDOOR PLANTS.

KALOSANTHES.—Young stock of these should be propagated yearly. They strike readily; in fact, cuttings will root if merely laid on the surface of the soil in a greenhouse or pit. The best way is to put single cuttings into small pots filled with ordinary loam and sand, selecting from established plants moderately strong shoots that have not set any flowers. These will root in a fortnight if kept a little, but not too moist, as succulent plants of this kind if too wet in the cutting state are liable to rot. In preparing the cuttings all that is necessary is to make a clean cut at the base, and to strip off the leaves of the lower portion that is inserted in the soil. When

well established in small pots move them into others about 4 inches in diameter, which will be large enough for this season. They will make good flowering plants in two years. During summer they will succeed in an ordinary greenhouse or pit, giving them enough water to keep the soil in a healthy condition. *Kalosantes* are amongst the easiest of all plants to manage, but it frequently happens that they do not flower freely; where this occurs it is the fault of the treatment. All that is requisite is to get the shoots properly ripened the summer previous to that in which they are intended to bloom. This can only be done with certainty by setting them out of doors exposed to full sunshine for a considerable length of time, say from the beginning of July to the middle of September. To have the flowers highly coloured the plants require to be placed in the open air just before they begin to open. The north side of a wall where they will get plenty of light, but not exposed to the mid-day sun, answers well.

INDOOR ROSES.—Where these are planted out they will not require nearly so much watering as when in pots, but care must be taken that the beds they occupy are not allowed to become too dry, or the foliage will be sure to be attacked by mildew, and the crop of flowers will be much reduced both in size and quantity. It is the more necessary to see to this, as the daily use of the syringe keeps the surface soil moist, whilst that underneath may be dry. When the plants are strong and making vigorous growth they require to be well supplied with manure water. Tea varieties, which are much the most suitable for indoor cultivation, are all but continuously in a growing state the whole year round, and to maintain their vigour they must have the soil regularly assisted in this way, or else have the surface dressed with some light manure that will be washed down in the operation of watering. The same applies to pot *Roses* that have been started in succession to follow the winter bloomers. Where a house is devoted to *Roses* it is desirable to keep the plants on in a flowering condition, even after a supply can be had out-of-doors, for in many localities the Tea varieties seldom produce flowers in the open air that will bear comparison with those grown under glass. Plants that have given two or three crops of flowers during the winter and spring will now show signs of requiring a rest, however strong they may have been, but on no account turn them out in the open air until they have been somewhat hardened off by discouraging growth through cooler treatment. Even in the case of such plants as are being thus subjected to a resting process, whenever mildew appears it should at once be checked by the application of sulphur.

HERBACEOUS CALCEOLARIAS.—Where a good strain of these exists and they are well grown they will have been very effective. Any that show marks of superiority in habit of plant or form and marking of the flowers should be placed by themselves and kept for purposes of propagation, as well as for seed saving. By selecting individual plants in this way the strain may be continually improved, but in all cases remember that a vigorous, healthy constitution is of the first importance, so that the plants are able to make plenty of stout foliage, for without this the flowers, however perfect, are of no value for general decorative use.

CELOSTIA PYRAMIDALIS AND BALSAMS.—Another sowing should at once be made of these, the produce of which will bloom later on after the earliest are over. Where there is a good strain of this elegant feathery *Celosia*, comprising the brightest shades in yellow and pink to deep crimson, and the plants are well managed, there is nothing more beautiful. The small side branches of the flower-spikes are most effective when mixed with any combination of cut flowers. The length of time during which they will last either in a cut state or on the plant is not the least valuable property which they possess, but to prevent their getting tall and leggy, they should from the time when the seedlings first vegetate be subjected to plenty of light

and receive as much air as can be admitted without the atmosphere of the house or pit being too much dried up. The same applies to Balsams. Where these are allowed sufficient head room with timely shifts into pots big enough to admit of due extension of the roots they have a very different appearance from the starvelings too often met with. Both the above plants enjoy a liberal application of manure water after they have begun to go away.

ORANGES.—Where these exist in either small or large examples, and the greatest quantity of flowers, which they can be made to produce are wanted, they should not be allowed to bear fruit, as when the plants are in good condition and kept a little warmer than in an ordinary greenhouse, they flower oftener than when their energies are overtaxed by fruiting. Whilst in full growth the plants should have frequent applications of manure water, in which soot ought to be an ingredient, as it is distasteful to worms usually so troublesome in the soil. Where Oranges are grown in more or less warmth one of the principal things requiring attention is keeping down scale and mealy bug. Where these pests are allowed to get numerous before means are taken for their destruction the foliage always suffers in a way that makes them unsightly, and the free production of flowers is also impaired.

FRUIT.

PEACHES.—Early houses from which the gathering of ripe fruit was commenced in May require very careful management to keep the trees in a vigorous state of health for a number of years, and as the replanting of a house is attended with considerable expense, too much care cannot be bestowed on large, healthy trees from the time the last Peach is plucked until the leaves fall early in autumn. As lean-to houses are best adapted for early forcing, movable lights are preferable to fixed roofs, particularly where gardens stand high and airy, and the borders, as all early Peach borders should be, are confined to the interior of the house. When all the fruit is gathered from the earliest trees, cut away all superfluous wood which has been retained for the benefit of the crop of the current year; remove breast-wood, and tie in the shoots left, allowing plenty of room for the full development of the foliage and the free admission of light and air. Syringe well to clear away insects which may have gained a foothold, and water with tepid water until every part of the border is properly moistened. Tie down the shoots in succession houses, and shorten back to increase the size of the fruit where the wood will be no longer wanted after it is gathered. Gross shoots from behind, as well as in advance of the fruit, which will be expected to produce the next crop, may also be pinched and the final thinning of the fruit completed, as healthy trees are often injured by being overloaded through the trying ordeal of stoning. Give plenty of water of a stimulating nature to inside borders. Syringe early and well with clear, soft water. Ventilate freely through the first part of the day, and assist the fruit through the last swelling by closing in good time with plenty of sun heat. Trees in late houses require more decided disbudding than is sometimes bestowed upon them, as it often happens that the fruit in these structures is kept back until many of the wall Peaches are over, and the wood of such kinds as Barrington and Walburton Late Admirable does not get properly ripened. Growers of late Peaches who have not planted Sea Eagle will do well to give it a trial. With me it yields very fine fruit, which keeps a long time after it is gathered, and, unlike the Barrington, it always completes its last swelling and finishes properly.

WALL FRUITS.—The wall culture of fruits of any kind for market is by no means well done, the expense of walls and the uncertainty of tenure rendering it impossible for the tenant to properly carry it out. Walls, however, would well repay the expenditure bestowed on them; not only could choicer kinds of Pears, Cherries, Peaches, Plums, &c., be produced on them, but they would

also shelter other crops; in addition to the greater certainty of crops that shelter walls would give, there is a still greater one of getting the produce from their immediate vicinity into market a few days before that in from open quarters, and every one in the market trade knows that a few days even frequently make all the difference between profit and loss in the case of any crop. Walls of the massive character one finds in private gardens would not be needed; wooden framework covered with stout felt, as one finds at Barham Court and in other experimental fruit gardens, would answer, and would not cost much—a great point in fruit culture for market.

ORCHARD HOUSE.—Remove the early kinds of Peaches to a cool part of the house or a separate house altogether as they are cleared of ripe fruit. Thin out the wood from which the fruit has just been gathered, stop exuberant growths, and syringe well to free the foliage from spider. Vigorous young trees which require a shift into larger pots may either be potted as they are cleared of fruit, or they may be kept well supplied with water of a stimulating nature until the whole of the first batch is ready for overhauling. Keep them under glass and maintain a moist, growing atmosphere until the roots have taken to the new compost; then plunge in ashes in the open air, mulch to economise watering, and syringe overhead on fine evenings. Pay particular attention to the watering and syringing of all kinds of fruit trees in mid-season and late houses, and make sure of the water reaching the roots of those planted in the borders by mulching or forcing a basin round the stems. The best time to ascertain whether a tree wants water is just before the afternoon syringing, when a glance at the pot or the foliage will tell whether the roots are dry. Make the final thinning and shorten back the shoots where a sufficient number of promising fruits are swelling near home, and the shape of the trees can be improved thereby. Let the trees be well syringed soon after six on fine mornings, and not later than four in the afternoon. Open the ventilators when the temperature begins to rise, and let the time when the fruit is wanted be the guide in closing for the day. Late or unheated houses, which now in many places give a more certain supply of fruit than can be obtained from open walls, may from this time forward have the ventilators left constantly open until the fruit is ripe. An erroneous opinion prevails with some that house Peaches ripen earlier than they do on walls, but if judiciously selected kinds are potted, or, better still, planted out, and a constant circulation of air is maintained, with due attention to atmospheric moisture, fruit equally late and of finer quality may be secured.

KITCHEN GARDEN.

EARLY Potatoes should now be earthed up, and if this operation can be done after a night's rain, they will be made almost independent of the weather, the soil added to the rows and the foliage together making a capital mulch. Early Broccoli raised under glass should now be pricked out. We use 2 inches of Mushroom manure and a thin layer of soil, placing them in the alleys left for fruit trees by the side of the wall—generally a west one. The bottom under such circumstances is hard, and the Broccoli does no harm for the short time it requires the ground; in fact, in dry seasons the mulch actually benefits the wall trees. The Mushroom houses should now be thoroughly cleaned out, removing all the old beds; sweep down the walls, and give them a good syringing, and when wet sprinkle them and the path and roof with fresh lime, opening all ventilators, doors, and windows, so that a sweet house may be the result. Mushrooms more than anything enjoy a pure atmosphere. Outside beds are bearing here very well. Keep them damp by watering the covering of the bed, letting the water soak through the straw slowly, but surely. Tomatoes should now be planted out; bear in mind they want a good sound loam, but not much manure. It is a ques-

tion whether we do not, as a rule, use too much manure. If Tomatoes require any assistance after the fruit is set, they will tell you by their looks; and if so, give them a couple of good waterings, either with manure water or guano; 1 lb. of the latter to 36 gallons of water is sufficient. Keep a good supply of Lettuces tied up and plenty of small salads sown.

MARKET GARDEN NOTES.

CARROTS.—A recurrence of such seasons as the past would have the effect of seriously diminishing the area devoted to Carrots in this neighbourhood. I think the oldest grower of them would be ready to acknowledge that never in his memory have prices ruled so low as during the last winter and spring. In former years there was much grumbling if they came down for a time to 3s., or perhaps occasionally to 2s. 6d. per dozen bunches; now many would have been glad to have secured even such moderate prices as these. Two shillings per dozen has been a common price this season, and I have known many loads of good "ware" sold at 1s. 9d. per dozen, and from this has had to be deducted salesman's commission. No one can grow Carrots at this price; it does not return expenses. A large grower once told me that 2s. 6d. per dozen only just barely paid him, allowing for wear and tear of "tackle." The Surrey Carrot growers have probably had their best time, and I should in no way be surprised if a few years saw the extinction of the trade in "bunched" Carrots. It has often been said that Londoners only please the eye in the way of fruit and vegetables, and care but little for flavour. To a great extent this is true; but within the last few years they appear to have learnt a wholesome lesson in the matter of Carrots, and now buy, and even prefer, the unbunched Intermediate or bushel Carrots which the Essex men have been pouring into the London market in an annually increasing quantity. This is as it should be, as hitherto consumers of this vegetable have been paying for the bunching and general get-up of the "long Surreys," and have, in the bargain, eaten an inferior article. Their eyes are now opened to the truth, but a heavy blow is thereby dealt to the Surrey men, who can never again hope to make the money they have done.

TURNIPS.—Winter Turnips are mostly sown in this locality early in July on ground which has remained fallow from the preceding autumn, but they are one of the most uncertain crops as regards paying with which I am acquainted, sometimes selling well, at others being almost or quite valueless. Very much depends upon the weather generally at sowing time, as if not moist the young plants get the "fly" and come to little good. Then, again, a good year for Potatoes and a mild winter in which green material is abundant is all against Turnips, and at such times many loads are sold for a trifle to London cowkeepers. Sometimes a good hit is made, and I know men who have made a lot of money with Turnips in one season. Some years ago a friend of mine made up his mind to grow Turnips largely and allowed a considerable extent of land to lie fallow for the purpose. It happened to be a very dry summer, one of the driest on record, no rain falling from April till July, and, curiously enough, the only moist weather that occurred before September came just as the seed was got in. The consequence was that it germinated well and produced good crops. Now as this individual had sown earlier than is the custom to do, and dry weather came again in the course of ten days or so, he had a good plant whereas those who sowed at the ordinary time failed; in fact the Turnip crop that year was a general failure. Turnips were, therefore, scarce, especially early in autumn, and my friend told me that he made enough from three fields of them to pay the whole year's rent of his farm. Such good fortune as this does not fall to the lot of many; still, such cases do occur from time to time, though growers here assert that they will soon be recollections of the past, and that the "good

old times" of the Turnip trade are over. This may be the case, but I am inclined to think that the uniformly moist summers we have experienced during the last few years have mainly influenced the prevailing low prices, as they have been favourable to the germination of the seed and after-growth of the plants. Hot, dry seasons would undoubtedly send up prices again, and there would be more scope for forethought, skill, and individual enterprise. The following instance will illustrate my meaning: During a time of exceptional drought, and when the ground had become very hard and dry, so hard, indeed, as apparently to preclude the practicability of working it, a grower here determined that by some means or other he would break up some of his fallow land in readiness. He did so, and, strange to say, there came a heavy thunderstorm, which loosened the clods, so that the harrows were put on and the seeds got in directly. No more rain fell, but the seeds being put in the moist earth came up well. The Turnips thus obtained were the first in the market, and were sold, many of them at fancy prices, owing to the lengthened scarcity caused by the very hot and dry season, and the major portion was disposed of at six shillings per dozen bunches, an excellent price for Turnips, which do not cost near the money to grow than Carrots do. The latter require experienced hoers and to be gone over three or four times, whilst Turnips may be taken in hand by any ordinary labourer, requiring only to be "flat hoed" once and cut out a week or so later.

LATE PEAS.—One would naturally suppose that no market grower would be likely to commit the error of sowing late crops of Peas on light porous soils, and yet I saw this done last year, and, as may be conjectured, the results were by no means satisfactory; hot weather setting in just as the pods were forming, but a small percentage of them filled, and it is doubtful if the crop paid the working expenses. The piece of land where these Peas were grown would have been admirably adapted for an early crop of some kind, say Potatoes or Peas, but for a late crop of Peas which can only be brought off under very good culture it was quite unsuitable. Late Peas should never be grown by those who may not have good deep loamy or holding soil wherein the roots can find plenty of good moisture when the pods are filling out. Better far grow things for which the soil is naturally adapted than attempt the culture of such as can only come to anything like perfection when the season happens to be exceptionally favourable. J. C. B.

RECENT PLANT PORTRAITS.

BOMAREA PATACOCENSIS (*Botanical Magazine*, plate 6692).—Already figured and described in *THE GARDEN* under the synonym of *B. conferta*; now re-named from the place where it was first found—Patacocha, in Ecuador, at a height of 6000 feet above sea level. A truly noble and conspicuous flowered cool house trailer.

ANGRECEM MODESTUM (*Botanical Magazine*, plate 6693).—A small pure white-flowered Orchid from Madagascar.

GERARDANTHUS TOMENTOSUS (*Botanical Magazine*, plate 6694).—An insignificant small yellow-flowered Cucurbitaceous trailer from Natal, forming enormous tubers, one of which was found to measure 6 feet in circumference and to be nearly 2 feet thick, with but one fibrous root about half-an-inch in thickness. From the centre of each of these huge tubers springs a single stem of not more than three-quarters of an inch in diameter, thickly covered with small round tubercles, which ascended without a leaf to the top of trees 50 feet in height.

CLERODENDRON MACROSIPHON (*Botanical Magazine*, plate 6695).—A very elegant stork shrub sent from Zanzibar in 1881 by Sir John Kirk, with bunches of pure white flowers borne on long tubular stems, and from which protrude long and conspicuous purple threads of the filaments. It was found on the coast opposite Zanzibar Island in very rocky places, where it formed a small, slender shrub.

CEPHÆLIS TOMENTOSA (*Botanical Magazine*, plate 6696).—A very singular plant from Guiana, congeneric with that yielding the medicinal ipecacuanha, but of very different appearance. Also known under the names of *Callicocca* and *Tapogomea tomentosa*. Flowers small, white, with red involucre.

ACER INSIGNE (*Botanical Magazine*, plate 6697).—A handsome Maple from Persia, said to be the hardiest of the eighty species and varieties of this family cultivated by Mr. Van Volxem, from whom it was received. It is conspicuous in late spring for the size and beautiful scarlet colour of the bud scales and for the tender green of its pale foliage. Also known as *A. velutinum*.

The first number of the *Paris Revue Horticole* for June contains a portrait of two tuberous Begonias named Edouard André and M. A. Hardy, raised by Messrs. Couturier & Robert, of Chatou, near Paris. Both these varieties are large and somewhat coarse flowers, especially the second named, and though bright in colour, cannot, I think, be deemed an improvement on some of the fine varieties already in cultivation. W. E. G.

FLOWER GARDEN.

POPPIES AND OTHER HARDY PLANTS.

I EARNESTLY hope that Mr. Wolley Dod has strong shoulders, as he has had to bear my sins (horticultural, I mean) in the matter of *Papaver umbrosum*. I suppose Messrs. Carter overlooked his letter in your issue of May 26, in which he repudiates the mistake I fell into in supposing he told me that Poppy was yellow. I fully recant, and cannot think how I can have imagined (as I certainly did) that he had been guilty of heresy. I am at issue with Messrs. Carter about the colour of *P. orientale*. They call it crimson; I say it is orange, or a very, very orange shade of scarlet. I call *P. bracteatum* crimson, or a lively cherry colour; that is, if the Poppy I have is *P. bracteatum*. I send you a bloom, and I am sure you will agree with me that a more magnificent flower does not exist. It measures 13 inches from tip to tip if you spread out the petals. I saw a similar Poppy exhibited last year at the Royal Horticultural by Messrs. Barr & Sugden, but it was not so large as mine, which, however, has certainly had very high culture. There are seven flowers on my plant. The stems, about 4½ feet high, are raised far above the foliage, which is much more feathery and less dense than orientale. I remember this Poppy for more than thirty years. It was usually, but I suppose incorrectly, called *Crimson Oriental*. It is extremely difficult to transplant; its roots go down interminable depths in the ground, and it was years before I succeeded in procuring a bit that would live. I shall be glad to hear whether you consider it to be the true *bracteatum* or a variety. [It is the true *P. bracteatum*.]

I have tried this year *Empress Anemone* and *Cockade Ranunculus*. The first is a fine, large, sturdy variety with very large flowers. I have, however, been unfortunate in my colours, which have been nearly all white and a washy lilac. The *Ranunculus* is, I think, simply the old *Meladore*, a pretty border variety, but far too single, or rather semi-double, to be worth much as a *Ranunculus*. I like and value it because I do not own a *Ranunculus* soil. I cannot make either the *Turban* or the *Persian* to do at all with me, but asiaticus, which I procured along with the above from Messrs. Carter, does fairly well.

About thirty years ago my mother procured from the Grand Duke of Tuscany's garden at La Petraja, Florence, a magnificent collection of *Meladore Ranunculuses*, every shade of colour as double as a *Persian* and four times the size. I never saw anything like them anywhere before or since. They were most hardy and vigorous in growth, but little by little they degenerated, and at last after about sixteen years they became as semi-double as those I know have from Messrs. Carter, and, curiously enough, they almost all turned to a pale faded lilac colour.

If any of your correspondents can and will tell me where I can purchase *Meladores* like what these were at first, I will call them virtuous Christians, and feel a deep debt of gratitude to them. They are not, I fear, to be procured now at La Petraja, as I have frequently asked friends staying at Florence to procure roots for me, but they have invariably brought me *Persians*.

Virginia Rectory.

DENIS KNOX.

ERIGERON AURANTIACUM.

THIS new golden-flowered composite may be regarded as one of the best border flowers introduced for a long time, as it supplies a new colour among plants of a similar character. It is dwarf, seldom being more than a foot in height, compact in growth, and all its parts are more or less hairy. It appears to be extremely floriferous, even small plants of it bearing numerous flowers. It is a



Erigeron aurantiacum, showing habit of growth. Flower about one-half natural size.

native of the high mountain ranges of Turkestan, whence it was first introduced by Dr. Regel, of St. Petersburg. It is quite hardy, of as easy culture as the rest of the species of *Erigeron*, and is propagated readily by division or seeds. It forms at present one of the most interesting plants in flower in the Hale Farm Nurseries, Tottenham. Seeds of it are obtainable from MM. Vilmorin-Andrieux & Co., Paris. A year or so ago Messrs. Veitch obtained a first-class certificate for it when shown at the Royal Horticultural Society's meeting at South Kensington.

NEW OR RARE PLANTS AT BADEN-BADEN

ARCTOTIS SPECIOSA is a fine consort to *A. aspera* and *aureola*; its flowers are deep yellow, finely contrasting with the blackish disk. *Papaver speciosum* is also remarkable; its appearance is much like *Meconopsis nepalensis*; the flowers are 4 inches across and of an apricot colour; it stands the sun well. Rockets of the dark purple and of the rose-flowered kinds are very fine; the latter, however, are always rare. *Primula sikkimensis* of the fine large-flowered strain introduced by Mr. Elwes is very showy; the gracefully pendent bells vary in colour from straw to canary-yellow. A tiny little gem is *Primula sapphirina*, only 2 inches high, with small shining sapphire-blue flowers. A striking plant is *Codonopsis ovata*, a rare perennial of the Campanula type; the numerous flowers are of a greyish blue, with some orange blotches inside the bells; they expand in quick succession for some length of time. *Psoralea subacaulis* is a nice plant from the United States, belonging to the Leguminosae; it bears a strong resemblance to an *Astragalus*, and the flowers are of a pleasing deep violet colour. *Delphinium triste*, with its nearly black flowers,

though an old plant, is now-a-days scarcely to be had. *Centaurea pulcherrima* is showy with its deep rose flowers. *Silene tatarica* is a fine and desirable plant; the spikes are well beset with pure white flowers, and though only 6 inches to 8 inches high, look very massive and pleasing. *Eriogonum compositum* is a showy, though dull white-flowered sort. *Phlomis armeniaca*, though not a prominent beauty, nevertheless deserves room in a good collection; the small rose-coloured flowers stand in superposed whorls; six whorls flower at the same time, and its habit attracts attention; it is rather tall, about 3 feet in height. *Salvia hians*, the good variety figured lately in the *Botanical Magazine*, is as showy as *S. interrupta*; the flowers of both are of a shining blue with white lips. *S. interrupta*, however, is not hardy, whereas *S. hians* is. Some years ago an English officer picked up seeds of an Afghanistan *Eremurus*, which were sent to the Royal Gardens, Kew, and I was favoured by the authorities there with some seeds, from which I obtained a batch of seedlings. These have been carefully grown on, and are in flower now. Considering every quality, I may fairly state that this is the most beautiful species I have ever seen. The spikes are about 1 foot in length, on graceful stalks 3 feet in height; the flowers are of a bright deep canary-yellow, with anthers of a soft cinnabar red colour blending harmoniously with the shining yellow. It will soon, no doubt, receive a name. **MAX LEICHTLIN.**

Baden-Baden.

AURICULAS.

THE discussion about florists and their flowers may give the impression to the majority of your readers that show Auriculas are greenhouse plants, and are forced artificially by heat for the exhibition table. "Peregrine" endeavours to give this impression to the uninitiated in last GARDEN (p. 483), while as a professional gardener he must know that a forced Auricula could not possibly win, and that florists do not force their plants at all. A few general remarks, therefore, may be useful at this time.

ALPINE AURICULAS, which are perfectly hardy, can be readily raised from seed, and if care be taken to obtain really good seed, it will be found to produce a large proportion of really good flowers, and occasionally there will be found a few worthy to take their position as show varieties. The market gardeners about Sale buy the very best German seed, and from this are raised many beautiful laced and shaded Auriculas of great beauty and value for the open garden. When the seedlings are sufficiently large they should be planted out in light soil, either on rockeries or in the open borders. In sandy soils such as you find in the gardens at Southport the Auricula grows into large mats a yard across, and appears to live for years. I believe it is only on heavy damp soils that it apt to die off, more from damp than from cold. The show varieties of alpine Auriculas are similar to these, and are generally grown in open frames, the lights being only used in wet weather. They are quite hardy, and if the surplus plants are planted out in light soil and airy situations they will live for years.

SHOW AURICULAS.—These, of course, are valuable plants, and require care commensurate with their value and importance, but they are still hardy and require alpine treatment. How can this be best accomplished? For many years they have been grown in frames, but these are imperfect, especially in continued rains and frosts, because it is impossible to examine plants properly at such seasons if you cannot have proper access to them, and it is just now that they are apt to damp off if the atmosphere is close and saturated with moisture, and losses are certain to follow. It is, therefore, best to grow show Auriculas in glass houses specially constructed so as to give the greatest possible amount of fresh air to preclude damp, and to keep out frost at blooming time. The glass should be as near the plants as possible, and the pots plunged in dry cinders, so

as to require watering as seldom as possible. In my own Auricula house I can introduce hot water by a 2-inch pipe, which will keep the temperature at 40° in frosts. This is all the forcing the plants get. From June to October the whole of them stand out upon a bed of ashes in the open garden on the north side of a Beech fence, where they get the morning and evening sun, and rest during the summer and autumn. During this time they get repotted, and if heavy rains prevail over a long period, we cover the plants with lights, so as to ward off the evil effects of damp. Towards the end of October they are moved into the Auricula house, where they are finally top-dressed just before the awakening in February for the blooming in April. Here they can have daily attention and careful watering, neither too much nor too little, as the season and the wants of the plants require. If after February hard frosts occur we use very little heat, keeping the frost out and no more. We carefully exclude east winds, but at all other times the utmost amount of air is given during the daytime, unless the air is fog or damp laden. It will be seen, therefore, that an Auricula house fulfils as nearly as practicable in our damp, cold climate the conditions which are imperatively required for alpine plants. There is no forcing whatever, unless perhaps as the exhibition day draws near you put a plant for a night or two in a greenhouse to help the flowering. But even here forcing is prevented by the rules of our Auricula Society, as *your plants must be shown without artificial supports*; and if you were to force an Auricula truss, the stem would suffer in sturdiness, and you would fail in your object. There is no plant which can be forced less successfully than the Auricula, and I think if a florist can succeed with it he can grow anything.

WILLIAM BROCKBANK.

Brockhurst, Didsbury.

FANCY PANSIES.

IT may be remarked with truth that everyone who cares for Pansies makes much of the large striking fancy varieties. They may be said to have originated some twenty-five years ago, or, at least, to have then first awakened the interest of English cultivators. To the French florists belong the merit of effecting a marked improvement in this class. In 1858 they sent us *Eva*, *Pobo*, *Floribunda*, *Cerberus*, *Cœrulea alba*, *Eckhard*, and others; in 1859 they sent us *Prince Imperial*, *Ali Bey*, *Parpaillot*, *Miracle*, *Agnes Sorel*, *Napoleon III.*, and *Masaniello*, all of which I have seen in good condition in Yorkshire. In 1860 there came across the Channel a batch showing plainly that considerable headway was being made, and I remember well how much we were delighted with *Belle Esquemoise*, *Louis Miellez*, *Distinction*, *Leviathan*, *Princesse Mathilde*, *Michael Ange*, *Dandie Dinmont*, *Belle Lilloise*, &c. Strange to say, the efforts of the Continental florists appeared to fall away with the production of this batch, for, with the exception of *Octavie Demay* and *Nœmi Demay*, none others were introduced from France or Belgium in 1861. In the meantime the home florists had taken the fancy Pansy in hand, and from that time until this new fancy Pansies have appeared annually in great quantities.

I remember that when these fancy Pansies (Belgian Pansies they were then termed) were first introduced, the question arose, "Will the florists recognise them?" They did then, and do now, completely set at defiance all the recognised rules, written and unwritten, with regard to colouring; one could not determine grounds, blotches, margins, &c., as they could in the case of the show Pansies; their diversity of pleasing colours, their eccentricity of marking, their richness and warmth of hue could not be regulated by laws; but they became very popular, and remain so until this day. They possess qualities that commend them to public notice; they are generally vigorous growers, and produce a profusion of fine flowers. They will survive under conditions that seem to destroy the less robust show Pansies, and therefore they can be grown where the latter cannot be cultivated. I find that the

FANCY PANSIES that were planted out in October stood better through the winter than did the show varieties. I attributed this to their more robust habit of growth. But all the perils of the winter were as nothing to the perils of the biting frosty March winds. The second week in March, 1883, will be remembered as a kind of black time in the annals of floriculture, when searching, keen, east winds, made sharp by the hard frosts which accompanied them, killed many a favourite plant, and among them Pansies. They created not a few vacancies in my Pansy beds, which were in due course filled up from the necessary reserve of plants, and now I can gather beautiful flowers. I have watered, manured, top-dressed, and finally covered with Cocoa fibre, and I hope the plants will continue to flower all the summer. As to a

SELECTION OF THE BEST VARIETIES, I find the following to be very fine. New of 1883: *Bella Black*, finely shaded rosy crimson and yellow, extra fine; *Hon. G. R. Vernon*, dark bronzy crimson, edged with yellow and shaded with purple, very fine; *Mrs. J. E. Ward*, light lemon-yellow, with dark maroon blotch; and *Ruby*, upper petals rosy red, edged yellow, lower petals blotched with dark crimson, perfect form and very distinct. New of 1882: *B. K. Bliss*, dark maroon, shaded with light crimson; *Miss Bliss*, sub-bronzy red and yellow, edged with rose and white; *Miss Tofts*, dark mulberry, edged with yellow and rosy purple, distinct and fine; *Mrs. Paterson*, deep maroon, edged with yellow and purple, extra fine form; and *Mr. Kirkham*, pure white, with very large purple blotch, very fine. A general list furnishes the following as well deserving attention: *Archie Bowie*, lemon-yellow, fine deep blotch, very fine; *Catherine Agnes*, rosy purple and white; *Countess of Home*, yellow and bronze; *Darius*, large maroon blotch, upper petals margined with purple, large and fine; *Edward Caird*, rich dark ruby mulberry, shaded, extra fine; *F. W. Leland*, violet, veined with crimson on the under petals, upper petals dense violet margined with pale primrose, very distinct; *George Wood*, very rich light crimson, with dark blotches; *Hon. Mr. Bateson*, light sulphur, veined with rosy red and edged with white, large purple blotch; *John B. Downie*, rich light ruby crimson; *John Currie*, rich bronzy crimson, edged with yellow; *Lady Clerk*, white, large bluish purple blotch; *Lady Falmouth*, lemon-yellow and bronze, said to be the finest fancy Pansy yet sent out; *Miss Mackmicking*, creamy white, very fine; *Miss Minnie Methven*, rosy crimson, light purple blotch; *Mrs. Crawley*, dark rosy purple, with margin of pure white; *Mrs. E. H. Wood*, deep orange, edged with rosy purple, very fine; *Mrs. L. T. Fleming*, lilac, the upper petals laced with white; *Mrs. Wolfe Murray*, yellow and crimson, beautifully shaded; *Perfection*, dark mulberry, edged with white; *P. W. Tangrieve*, rose, edged with white; *R. K. Mitchell*, dark rosy crimson, extra fine form; *Robert Laird*, yellow and bright bronze-purple, extra fine; *Thomas Grainger*, very rich crimson, with black blotches, extra fine; *William Dalgetty*, maroon and purple, edged with yellow; and *William Melville*, back petals rosy purple, fine dark blotch, edged all round with yellow.

It is not too late to get a few plants for this season, but if they can be had in pots so much the better. If anyone has a hard, harsh piece of ground, a dressing of road grit and Cocoa fibre will greatly improve it and make it fit for Pansies. In planting, let some fine soil from the potting bench be put about the roots and a little Cocoa fibre. The roots work into this readily; they appear to derive nourishment from it, and it keeps them cool. Some care will be required to get a newly planted bed established, and mulchings and water will be necessary. A good position for a bed is one that allows of the plants having the benefit of the morning sun, and shade from neighbouring trees or buildings after the sun is at the meridian. Nor is it too late to sow a little seed, but it should be done without further loss of time. It will soon germinate, and if the young plants be carefully pricked out and grown on into size, they will make strong plants by August, and be very

gay during September and the autumn months. The Pansy is a true old-fashioned English flower, and it should find a place and be carefully looked after in every English garden.—R. D., in *Field*.

NEW GAILLARDIA.

LAST year M. Lorenz, of Erfurt, sent us specimens of his new double Gaillardia *Lorenziana*, and now we have another much in the same way, introduced by MM. Vilmorin-Andrieux & Co., Paris. This is named *Aurora Borealis*, and, like *Lorenziana*, is a variety of the very variable *G. picta*, a half hardy annual. As may be seen by the accompanying



Flowers of Gaillardia picta Lorenziana.

woodcut, the new *Aurora Borealis* has its flower heads semi-double, whereas M. Lorenz's variety has blooms quite double. Both have bright yellow and red in the flowers, colours that make them so attractive as border plants. They are, moreover, very useful in a cut state, as the blooms last long in water. It is rather too late to sow seeds now, but if sown in September and the seedlings are kept over the winter in frames and planted out about the latter end of next April in the shape of vigorous young plants they would make a fine display the following summer. They are also amenable to pot culture, and if care is taken to induce them to form dwarf sturdy plants they would be valuable for conservatory decoration in spring and summer. For this purpose the seedlings raised in autumn should be grown on and repeatedly shifted into larger pots till spring.

GARDEN DAISIES AND THEIR TREATMENT.

ANYONE interested in Daisies and having a little spare time and space may easily raise a few seedlings. Half the number raised may possibly produce single flowers, but the other half will in most cases consist of double kinds of good form. The colours may vary from pure white to deep crimson, intermediate hues being for the most part delicate shades of pink. As the seed is small it is best to sow it either in pans or boxes. Early spring is the proper time to sow it, as then the plants will flower early in the summer; but it is not too late even now to sow the seed, and flower the plants in the early autumn months. An amateur with whom I am acquainted derives a good deal of pleasure from raising seedling Daisies. He sows his seed in pans in March, and places them in his greenhouse; when the young plants are large enough to handle, he transplants a portion of them singly into 4-inch pots, and flowers them in a cold frame; the remainder he plants in the open air after they have been well hardened. In my own practice I have dealt with them in much the same way. I, however, like the seed to be sown early in spring, as then the plants get strong enough early in summer to produce plenty of flowers. If sown early in March, and

the plants are grown in a greenhouse or cold pit, they will be large enough to plant out in the end of May. We select a shady border for them, make the soil fine and fairly rich, and plant 6 inches apart each way. They incur no further trouble, except to keep them free from weeds, until they commence to flower. Those which produce single flowers are thrown away, those only with double flowers being saved. On more than one occasion we have had charming beds of Daisies the following spring, and where mixed colours are not objected to it is the easiest way known to me of securing a healthy and thriving stock of plants simply because seedling plants are more vigorous than those raised from offsets.

In the management of Daisies for spring bedding where distinct colours are required, we are more tried than with any other plant we use for that purpose, and the reds give more trouble than the whites, but both seem to object to being removed more than once a year. When used in the flower garden for spring bedding they have to be taken up at the end of May to make room for the summer bedders, and it is to this second removal to which they seem to have a decided objection. Although we lift them carefully and plant them in a shady border, and supply them liberally with water in dry weather they dwindle away and die, or rather I should say a good portion of them refuses to grow. This is not the case when the plants are moved only once. If planted in February or March and allowed to remain undisturbed all the summer they do not die away in hot dry weather nearly so much as those which have been recently removed. We do not, however, care much if we can only keep alive half our stock until the middle of August, as by that time the summer heat begins to decline, the nights get cooler, and there are frequently heavy dews, which just suit Daisies, and they commence to make new growth; then is the time to set about getting up a stock. If the old stools are taken up and divided, every piece that has roots will make a plant. A position in the open should be selected for them, and the soil should be rather rich, as they do not object to a bit of manure. If the pieces in question are planted firmly, they will make sturdy plants by the time they are wanted for the positions in which they are to flower. The number and quality of the blooms will be more satisfactory if the planting is done by the middle of October than if planted later. J. C. C.

SELF-COLOURED DAFFODILS.

I AGREE with Mr. Brockbank as to the interesting Daffodil campaign, but I deny that he or anyone else has yet sent me a Daffodil in which the perianth segments and crown were of exactly the same shade of yellow. *N. obvallaris*, *N. maximus*, and *N. spurius* all contain at least two or three shades of yellow apart altogether from the light and shade effects upon the flower. The suggestion contained in the following paragraph, quoted from Mr. Brockbank's "final words" (p. 443) is neither just nor generous. Mr. Brockbank writes: "I think that if a stakeholder had had the custody of Mr. Burbidge's kettle, it would have now figured in my museum," but he forgets that there is a bare possibility of the "stakeholder" having had an eye sensitive to colour effects. I still maintain that there is no such thing as a real self-yellow Daffodil, and in quoting authorities in support of his views, Mr. Brockbank is simply begging the question. Even Mr. Wolley Dod does not believe in *N. obvallaris* being a true self, for in *THE GARDEN* (p. 443) his evidence is against Mr. Brockbank's opinion. He there says, "I think *maximus* is the most self," and yet even there he is too cautious to assert that *N. maximus* is really of one shade of yellow throughout. When Mr. Brockbank suggested *N. obvallaris* as a true self Daffodil, Mr. Barr wrote to me that the kettle was quite safe in my own keeping, and I shall yet prove that *N. obvallaris* naturally grown has two or three shades of yellow in the flower, to say nothing of the greenish shade of the tube. Even Mr. Brockbank himself had his doubts, or he would not have tried to limit my view of the

bloom he sent me to the hinder part of the flower only. I know of nothing so ingenious as this trying to see the colour of a flower from behind, and I shall reserve to myself the mode of examination, for if a flower be really self-coloured, *i.e.*, all of one colour, no way of looking at it or of testing its hue will make anything else of it than what it really is. No amount of argument can alter the real facts of the case, and Mr. Brockbank has neither shown nor proved that *N. obvallaris* is really self-coloured. Once for all, I deny that it is so.—F. W. B.

—A self-coloured Daffodil has not yet been introduced; the copper kettle may therefore remain for the present on Mr. Burbidge's hob. I have a better claim to the kettle than Mr. Brockbank, as one of Mr. Nelson's seedlings of *nanus* is as near as possible unicolor, but it will not stand the searching test which Mr. Burbidge applies to it. I fear the desire to have the best of the argument has a mischievous effect on Mr. Brockbank's mind, as I distinctly told him that the Tenby Daffodil was not self-coloured, though his specimen, which I looked upon as in the sere and yellow leaf, was nearer a self than a flower in good condition would have been.—P. BARR.

Lewisia rediviva.—It is somewhat remarkable how little notice this extremely lovely alpine seems to receive in the gardening papers. A plant for which I gave a shilling is now producing four large flowers on my rockery, and appears to flourish without especial care. There seems to be some discrepancy in the cultural directions for this plant, one recommending dry rubbish and grit, while the other advises peat and moisture. I am inclined to think the latter the more likely to lead to success.—J. C. L.

Ranunculus repens fl. pl.—The plant sent you by Mr. Wolley Dod (p. 502) came, I think, from my garden originally, and you will probably like a note upon its history. The original plant was found growing wild in the meadows about half a mile hence, as the crow flies, some five years ago. After we had grown it a year it suddenly disappeared, and on making inquiry I found it had gone to the rubbish heap as a weed. Luckily, it



Gaillardia picta var. *Aurora Borealis*, showing habit of growth. Detached flower about one-third natural size.

was recovered, and it now abounds with us and with the gardeners hereabout. It is a most remarkable plant, throwing out its runners in straight lines, sometimes 4 feet or 5 feet long, as straight as a ruler, and at every 6 inches it strikes root and sends up a lovely tuft of leaves and flowers.—W. BROCKBANK, *Brockhurst*.

TWO TRUE BLUES.

(LITHOSPERMUM PROSTRATUM AND MYOSOTIS RUPICOLA.)

THESE are just now in bloom in Miss Jekyll's garden at Munstead, and afford as fine an illustration as it is well possible to conceive of what the alpine flora can show in the way of colour. *L. prostratum*, forming circular masses over two knolls, is of the richest ultramarine or gentian blue, while a clump of *Myosotis rupicola* growing on the flat, and not far short of 2 feet in diameter, gives a blaze of rich turquoise, more exquisite in colour, I think, than any flower that looks the summer sun in the face. Can the coy *Erythronium* really surpass this? A good plant of *L. prostratum* is probably within reach of most people who will give it room, though it prefers, I fancy, light soil and a little peat; but a display of *M. rupicola* such as is to be seen at Munstead is not, perhaps, to be achieved by gardeners who have to contend with heavy soils and the usual accompaniment of slugs. Let me take this opportunity of expressing my dissent from an opinion given in THE GARDEN (May 26, p. 463) as to

MEERTENSIA PANICULATA. Miss Jekyll has a good specimen of this plant, but it is not, I think, superior to *M. sibirica*, while it is far inferior to *M. virginica*. The colour is not so good, nor is the truss so large nor the foliage so rich as in the latter, and the plant is more spindly in habit than either of the two. Except in cases where there is room for a collection, the plant is not worth growing side by side with *M. sibirica*, which flowers about the same time. *Apropos* of Borages, a strong plant of

BORAGO LAXIFLORA is now in full flower on my rockery. If this had been given me by an old woman out of a cottage garden, instead of my paying a shilling for it at York, I think I should admit at once that it bears a strong affinity to a "Tush" plant. I am beginning to hope that "Johnson's Botanical Dictionary" may be right as to its longevity, and that it may prove to be a biennial; if so, *requiescat in pace*. J. C. L.

Miniature Ivies.—Growing on the rockwork in Mr. Stevens' garden are two small and curious kinds of Ivy named *Hedera conglomerata* and *subcordata*. The first-named has leaves not much larger than a shilling, and they are so densely packed on the stems as to overlap each other. *Subcordata* has larger leaves, the lobes of which are rounded off, the lowermost being the largest, which gives it a very distinct appearance. Both these Ivies are of slow growth, conglomerata especially so, and are only fitted for tree stumps, low walls, or for plants on rockwork. In the latter position they have a quite-at-home appearance, especially if so placed that they can ramble over boulder or large pieces of stone.—J. C., *Byfleet*.

Violas at Chiswick.—Presently there will be on a specially prepared border at Chiswick a capital display of Violas and bedding Pansies that will prove very interesting; as these are all young plants, they are not blooming so early as the old ones do in another part of the garden, a fact which serves to show that if a good and early display of these flowers is to be looked for, old plants, and not young ones, should be relied upon. Certainly of all the white kinds yet in bloom, Grievei is the finest and apparently the freest. The flowers are large, of good substance, bold, and abundantly produced; the colour is pure white, but marked by bluish lines round the eye. Cannell's White is another robust, free-blooming kind that is well worthy of cultivation; the flowers are large and almost free from stripes. There is an excellent yellow *Viola* called Countess, a bold flower of a good rich colour. This blooms freely, and for size and colour is one of the best now in bloom. At present there are no new or striking blue shades open, but some may presently appear worthy of notice. So far all the kinds are of a purplish or violet-blue, but of true blues there are few, if any. A seedling black kind from Aberdeen is very striking, but none of these very dark sorts have ever made good bedders. A very charming kind

in the Magpie style is *Viola Treatiae maxima* Lord Beaconsfield. The bottom petals are of deep violet-blue, and the upper petals shade off to white. This is a very effective kind. Those who seek for good foliage effects in the spring should make a note of the golden *Lamium*, which is at Chiswick here and there in clumps very bright and showy.—A. D.

Gentiana verna.—I found this lovely little alpine growing somewhat plentifully in two places in Teesdale last week. The two spots where it was growing were about three miles apart, one on the banks of a small beck, the other on a wind-swept fell. In each case the plants would receive abundant moisture, the district being a rainy one. Amongst the numerous other wild flowers in bloom in the dale, *Primula farinosa*, *Trollius europæus*, *Caltha palustris*, and (in drier places) *Orchis mascula* and *Saxifraga granulata* were very abundant.—T. M.

Hairbell and Bluebell.—The Hairbell (so called because of its bell-shaped flowers being suspended on hair-like stems) is far removed from the Bluebell, belonging, in fact, to a different Natural Order. The Hairbell (*Campanula rotundifolia*) is generally blue, though last summer I found the white variety growing near to the common one on a sandbank. It flowers from July to September, grows mostly on dry banks or heaths, and is one of the most graceful of our wild flowers, the bells, hung on a loose raceme, swinging to and fro with every breath of wind. The Bluebell (*Agrophis nutans*), or wild Hyacinth, is the Bluebell of Scotland, and belongs to the Natural Order Liliaceæ. Its growth mostly in woods or shady places, blooms from April to June, and bears its flowers rather stiffly on a thick succulent stem—in short, like a Hyacinth, excepting that the raceme is one-sided. The English Bluebell (*Hyacinthus non-scriptus*) is also a Hyacinth, and is found mostly in woods or thickets. I understand there is a white variety occasionally met with, but I have never seen it.—A. H.

Bedding Pansies.—I was much struck the other day by seeing in bloom, both at Maiden Erleigh and The Wilderness, Reading, masses of that fine white Pansy, Mrs. Cannell. I do not know who sent it out, but it is a fine free-blooming kind, flowers large, pure white, and having a large dense bluish-black blotch. I have been seeking for a striking white market Pansy, and in Mrs. Cannell I think I have found it, for if offered at a cheap rate tens of thousands might be sold with ease. Great Eastern is an old kind, and where it does well is a telling variety. It certainly is so at The Wilderness, but still not so effective as Mrs. Cannell. A truly fine orange-yellow kind is New Guinea. This is, I think, one of Mr. Hooper's kinds. At all events, it is a grand sort at The Wilderness, the flowers being large and stout, with a deeply coloured blotch; New Guinea promises to make a splendid market variety also. In both the above-named gardens *Viola Mulberry* blooms abundantly, and is most effective; and *Magnifica*, one of the violet-purple section, is a charming kind.—A. D.

SHORT NOTES.—FLOWER.

Solomon's Seal in London.—It is pleasant to see the way in which this plant does in the parks, where it spreads itself here and there so gracefully, suggesting how easily all the bare borders might be covered with good plants—plants well chosen and well placed!

Gold-laced Polyanthus (A. G.).—Very good blooms indeed, and show admirably what fine sorts may be obtained from a seed bed. As you observe, they are valuable border flowers at this season, and not half grown enough.

Houseleeks.—Why does Mr. Ruskin call the *Sedum* a Houseleek (!) when he proposes to alter the generic name to *Stella*? "*Proserpina*" is very clever, as all his books are, but I am afraid the system which it attacks is beyond cure, owing to the unmanageable dimensions which it has attained at the hands of its fosterers, who must be very thick-skinned indeed if they do not feel that the cumbersome mass of synonyms, multiplied genera, &c., which they have so lovingly and industriously piled up is now, Frankenstein-like, recoiling upon their own heads.—W. M.

ORCHIDS.

ORCHIDS AT UPPER HOLLOWAY.

AT any season a visit to Mr. B. S. Williams' Nursery, Upper Holloway, is well repaid, and particularly now when, like the other great London nurseries, it is gay with Orchid blooms. Every one of the numerous houses in this establishment now contains a marvellous amount of bloom. The first house we enter is a span-roofed one, occupied chiefly by Cattleyas, *Lælias*, and others, requiring an intermediate temperature. There is here a very fine display of bloom effected chiefly by the favourite old *Cattleya Mossiae*, still the finest species of this genus in cultivation, particularly having regard to the wealth of varieties belonging to it, a large number of which may be seen in bloom in this collection, not represented by small specimens, but by huge masses, carrying in some cases as many as a score of blossoms. Large specimen plants are a prominent feature in Mr. Williams' collection, and well may he pride himself in his superb specimen *Cattleyas*, *Lælias*, *Vandas*, and the like; but it is only when seen arranged as they now are with gorgeous bloom that a correct estimate can be formed of the size and superiority of the plants. Among the numerous forms of Mrs. Moss' *Cattleya* here we singled out a few that struck us as being uncommonly fine. The first we noted was named *Rothschildiana*, a truly superb form, possessing delicate shades and tints which mark it as distinct from any other variety. It has large finely formed flowers, which are, moreover, very richly coloured. The same remarks apply to other named varieties, such as *grandiflora*, *splendens*, *superba*, *speciosissima*, *majestica*, and *grandis*. One named *aurantiaca*, however, may be recognised at a glance on account of the excessive amount of golden yellow which adorns its ample labellum. It is aptly named, for all the forms have more or less a suffusion of yellow in the lip, but none so marked as this one. C. Mendeli, as may be imagined, is in the height of its beauty, and here again there are several indescribable varieties, some very much superior to others, but all beautiful. One named *Alexandra* possesses about the most delicate touch of colouring we have seen. There is a decided tinge of rosy pink about it, but this in such a subtle gradation that in some lights the flower seems almost white. Its labellum is adorned with a dainty touch of deep amaranth, which shows off more strongly the delicacy of the other tones of colouring.

LÆLIA PURPURATA is likewise in full beauty, and is represented by such superb varieties as the white variety (*alba*), with snow-white petals, and Williams', a kind remarkable for its very large and richly coloured labellum and mauve-tinted sepals and petals. These *Lælias* are a sight in themselves, being for the most part huge exhibition plants carrying several spikes of flowers. There is a multitude of other species in bloom in this house which, taken altogether, make a charming display. We cannot leave it, however, without commenting upon the uncommonly fine specimens of *Cypripedium* superbiens, one of the handsomest of all the Lady's Slippers. Here are plants carrying a dozen or more flowers in various stages of expansion, which is a much more interesting phase than seeing a lithe flowers fully open and staring at one. We made note of an extraordinary fine form of this *Cypripedium*, known here as the Prince Demidoff variety. It has larger flowers than the typical with broader petals more densely spotted, and the colour altogether of the flower is richer.

THE VANDA HOUSE comes next, and, like the other, is gay with bloom. The specimen *Vanda tricolor* and *suavis*, of gigantic proportions, are throwing out their large racemes and giving off a delicious aromatic perfume in the house. Intermingled with these, and producing an extremely pretty effect, are the three evergreen *Calanthes*, viz., *veratrifolia*, *Masuca*, and *Domini*, the two first the parents of the latter, which is exactly intermediate between the two. These all have tall graceful flower-spikes terminated by a dense cluster of flowers, and these spikes springing

from the broad handsome foliage associate charmingly with the Vandas, creating an unusual and pretty effect. Some choice varieties of *V. tricolor* may now be seen in bloom, but the bloom of the bulk of the collections is on the wane, and the bright sunshine accelerates the fading considerably. Among other East Indian Orchids in the house may be seen the rare and beautiful *Aerides Veitchi* and *A. Lobbi*, both with long wreath-like spikes of rosy purple flowers. Then again there is the larger growing *A. crispum* and its more highly coloured variety, *Lindleyanum*; and among *Saccolabiums* are the Indian red-coloured *S. curvifolium*, represented by good specimens, *S. guttatum* and several others; in short, the collection teems with choice and beautiful species and varieties in bloom.

THE COOL HOUSE contains a wealth of bloom chiefly effected by the *Odontoglossums*, among which the lovely *O. Alexandræ* reigns supreme, and rarely can it be seen represented in such choice varieties as here at the present time. All the plants bear such large, finely-shaped flowers, that we wondered were Mr. Williams could have put all the stately flowered varieties which usually predominate in importations. His collector has evidently hit upon the right locality for securing the best varieties, for these have been more numerous here than inferior ones for a long time past. There is ample colour to brighten up the *Odontoglossums* by the *Masdevallias*, which are developing thickets of spikes, *Harryana*, *Veitchi*, and *Lindeni* being the most prominent in the display. Those who like to see rare Orchids in bloom can have the pleasure of *Odontoglossum brevifolium*, which is an extremely handsome plant in the way of *O. coronarium*; it has prostrate growth, and bears from the new growth a huge spike of blossoms, each about an inch across, of a rich, brownish yellow, with markings of a golden hue. It is grown in the cool house in a long, shallow box to accommodate its running stems.

CATTLEYA SKINNERI.

THE vigorous constitution and free flowering nature of this *Cattleya* recommend it to all Orchid lovers. When grown into large specimens it is one of the most effective flowering plants with which I am acquainted. The individual blooms may not impress one with their beauty so much as is the case with some of its congeners, but when they are counted by the score or hundred they form a very striking mass of colour. Some of the largest plants I ever saw were grown in baskets in pure Sphagnum and charcoal. The roots were never disturbed in shifting, as when the necessity for such arrived, the old basket was dropped into the new one, and fresh Moss packed in between them, so that not the slightest check was experienced. I forget the exact dimensions of the plants, but there were two of them, and on one I counted 370 expanded blooms. I should like to know if there is any record of such large specimens as these having been grown in this country. It may easily be imagined that such huge specimens were very effective; it was, indeed, quite common to hear inexperienced visitors exclaim, "What beautiful *Rhododendrons*!" and Mr. Harry Veitch, who saw them, was much impressed by their uncommon excellence, declaring them to be far beyond the finest examples of Orchid culture he had ever met with. Now that Orchid culture has been brought to such a high degree of excellence, it should not be difficult to form such large specimens; and as this *Cattleya* is cheap and its requirements easily met, it should be grown wherever a high standard of excellence in floral decorations is aimed at. Orchids are not commonly classed amongst so-called decorative plants, the beauty of the individual blooms rather than their effectiveness as a whole being hitherto the chief inducement to their culture, but the time will probably come when some of the most easily grown and showy species will be valued chiefly for their utility for conservatory or room decoration. Seeing that they are as easily managed and not more expensive to keep than so many things

now employed for that purpose, there can be no reason why they should not be largely grown for general decorative purposes. Expense of purchase is no great bar, as such fine showy kinds as *Cattleya Skinneri*, *Mendeli*, *Trianae*, *Lælia harpophylla*, and others can be bought at from 2s. 6d. each, a no greater price than that demanded for a good *Erica* or choice hard-wooded plant. When Orchid growing enters upon this phase, as I think it will ere long, these charming and curious plants will become, in the true sense of the word, popular.

J. CORNHILL.

VARIETIES OF MASDEVALLIA HARRYANA.

A SPLENDID assortment of this Orchid has been sent to us by Mr. Newsham, gardener to Mr. Yates, Higher Feniscowles, Blackburn. We have never before had such a collection of such superb flowers before us, which represent, we imagine, the cream of the numerous forms of *M. Harryana* now in gardens. The most remarkable of those sent are the following: The Bull's Blood variety has blossoms $2\frac{1}{2}$ inches across, and of a resplendent magenta, with conspicuous streaks of a deeper colour. Yatesi is remarkable for the unusual length of the flower, being $2\frac{1}{2}$ inches from the centre of the tube to the tip of the attenuated sepals, while the breadth is but $1\frac{1}{2}$ inches. The colouring of this variety surpasses that of any other that has come under our notice, being glowing crimson-scarlet with a satiny surface. Chelsoni has flowers $2\frac{1}{2}$ inches broad, and is similar to the Bull's variety, but there is a decided flushing of purple in the flowers. An unnamed imported variety is somewhat similar to that known about London as *lilacina*, but the flowers are larger, being $2\frac{1}{2}$ inches across and the same in length. The colour is a brilliant rosy purple, pencilled with a deeper tint, the eye being pure white, and thus producing a beautiful contrast. What is sent as *Harryana* is one of the finest; the flower is as large as that of the last variety and of a carmine-magenta overlaid with a satiny lustre. In addition to those sent, Mr. Newsham says he has the following beautifully in bloom, viz.: *M. Harryana magnifica*, *atro-purpurea*, *discolor*, the *Drumlanrig* variety (almost as fine as Yatesi), Walker's variety, *sanguinea*, Backhouse's *fulgens*, *M. Lindeni superba*, *M. ignea rubescens*, and a small plant of *M. rosea* with over a dozen flowers on it. Judging by the flowers sent us and from what we hear, Higher Feniscowles must contain a wonderfully rich collection of Orchids.

HARDY ORCHIDS.

I SEND you flowers of the true Man Orchis (*Aceras anthropophora*) which, as you will see, are not entirely devoid of interest; they are, indeed, showy and attractive when grown in clumps consisting of three or four plants. Intermixed with these are two or three of a more attractive form, having the outer portions of the man distinctly tipped with pink, but in these the flowers are not arranged in such a dense spike as in those sent. This Orchid has flowered well with us on sunny slopes in a mixture of loam and lime rubbish. Another attractive species in flower at present is *O. undulatifolia*, which is, in formation, almost a counterpart of the Man Orchis, but the flowers are light pink in colour, streaked and spotted with white. This is one of the most ornamental of hardy Orchids, and easily grown in rather damp peaty ground. The stemless Lady's Slipper (*Cypripedium acaule*) is now in full flower, as is also the rare and curious *C. parviflorum*, the fragrant flowers of which are bright yellow, with sepals and petals of brownish purple. The flower on *C. acaule* is a rich rose in colour streaked with white, and issues from a pair of large ovate hirsute leaves. Other hardy Orchids in bloom at present are two *Serapias*, *S. cordigera* and *S. neglecta*, with large, attractive, blood-red flowers and an exceedingly long lip; the Butterfly Orchis (*O. papilionacea*), with bright crimson blossoms; and *O. Stabiana*, one of the most beautiful of the Italian Orchids, with large leaves and

large, flat, attractive flowers. *Habenaria montana*, received from the Continent, though outwardly resembling our *H. bifolia*, has a much smaller and more showy flower. What a sweet little plant is our native *H. albida*! It is now in full flower, but rather a difficult subject to deal with, involving a good deal of trouble to get it thoroughly established. The Musk Orchis (*Herminium Monorchis*) is just the reverse, and increases rapidly here in fine calcareous loam.

A. D. WEBSTER.

Llandegai, Bangor.

THE BRENTHAM PARK ORCHIDS

THIS celebrated collection, on account of the ill-health of its owner, Mr. R. Smith, was disposed of at Stevens's Rooms, Covent Garden, on May 30 and 31 and June 1. Some 790 lots were included in the sale, the whole amount realised being £2100. As usual, the choicest species and varieties fetched high prices, and there was a brisk bidding for them. Among these we noted the following: *Cattleya exoniensis*, a grand specimen and very fine variety, with fifteen strong bulbs and leaves, said to be the finest plant in the country of this rare hybrid *Cattleya*, 110 guineas; *C. Trianae alba*, a perfect specimen of this grand variety, with thirty strong bulbs with leaves and eleven breaks, one of the finest plants in the collection, 75 guineas; *Lælia anceps Dawsoni*, a fine specimen with ten strong bulbs and six breaks, 45 guineas; *L. anceps alba*, true, the finest plant of this rare variety in the country, twenty-four bulbs and six breaks, 41 guineas; *Oclogyne Massangeana*, a perfect specimen with sixteen bulbs and eight breaks, flowers twice each year, the plant referred to in Williams' Orchid Album, 40 guineas; *Cattleya Skinneri alba*, true, from Mr. Turner's collection, eight strong bulbs and two leads, very rare, 38 guineas; *Lælia grandis*, very rare, a grand plant with eighteen bulbs and two breaks, 31 guineas; *Cattleya labiata*, true, autumn-flowering variety, splendid plant, twelve bulbs and three strong leads, 30 guineas; another plant with eight bulbs and leaves and three breaks, 29 guineas; *Oncidium ornithorhynchum album*, a specimen with thirteen very large bulbs and two strong breaks, 28 guineas; *Lælia elegans alba*, a strong plant of nine bulbs of this rare variety, 24 guineas; *Aerides Schröderi*, a fine plant with twenty-three leaves and flower-spike, very rare, 21 guineas; *Cattleya Trianae alba*, a fine plant with thirty-three bulbs and eight breaks, 20 guineas; *Odontoglossum blandum*, finest variety, had eight spikes last year with fourteen bulbs, 20 guineas; *Cattleya labiata Warneri*, very fine variety, and a handsome specimen with two flower sheaths, 18 guineas; *Cattleya labiata*, $15\frac{1}{2}$ guineas; *Odontoglossum coronarium*, exceedingly fine specimen with thirteen bulbs and five strong growths, 14 guineas; *Cattleya Skinneri*, fine specimen, thirty-six strong bulbs, six leads, the darkest variety, from the Burton Constable collection, had fifty flowers on this year, 13 guineas; *Lælia Wolstenholmie*, ten bulbs and two leads, very rare, $10\frac{1}{2}$ guineas; *Vanda tricolor formosa*, fine specimen, 3 feet high, and four good plants, 10 guineas; *Aerides Dayanum superbum*, specimen, $2\frac{1}{2}$ feet high, with five good plants, about 18 inches high, $10\frac{1}{2}$ guineas; *Odontoglossum nevadense*, a rare and distinct species, 10 guineas.

Odontoglossum citrosimum marginatum would be an appropriate name for a variety sent to us by Mr. Voss from his garden at De Montfort House, Streatham. We are inclined to pronounce it the loveliest variety of *O. citrosimum* we have yet met with, not only as regards the colour of the flowers, which is exquisite, but the large size and beautiful form of the flowers. The sepals and petals are rounded and so broad as to overlap, and have prettily crisped edges. They are of waxy whiteness, delicately flushed with rosy pink, and still more delicately spotted with a tint of a lighter shade. The lip is its chief feature of beauty; it is $1\frac{1}{2}$ inches across, semi-circular, and crisped at the margin. The colour is a pleasing rose-purple bordered with a distinct edging of plum-purple, which gives the flower such a different

appearance from any other form; hence we suggest the name *marginatum*. The perfume, too, is delightful, reminding one of a mixture of honey and Primroses. This is certainly a rare and lovely variety.

Phalænopsis Sanderiana superba.—A spike of an extraordinarily fine variety of this species was exhibited at Stevens's Rooms, Covent Garden, on Thursday last, by Mr. F. Sander, cut from a plant grown by Mr. Hill, gardener to Sir Nathaniel Rothschild, Tring Park. It is by far the deepest tinted variety we have seen, being several shades darker than those shown at South Kensington a short time since by Sir Trevor Lawrence and Mr. Lee. The long slender spike bore seven flowers, each about 4 inches across; they were of fine form, that is, the sepals and petals were so broad as to almost overlap. The flowers much resemble in structural characters those of *P. amabilis*; indeed, it may be best described as a pink *amabilis*, but the foliage is intermediate between that species and *P. Schilleriana*. The colour of this fine variety is a deep rose, reminding one of a deeply tinted *Odontoglossum vexillarium*. The darker coloured pencillings, which form a network on the sepals and petals, add much to their beauty. This is undoubtedly the queen of the genus to which it belongs, at least so far as we have any knowledge of cultivated kinds. A fine healthy importation of it was sold on Thursday last by the importer, Mr. F. Sander.

Lælia purpurata.—A glorious spike of this grand Orchid has been sent to us by Dr. Paterson. It carries five very large flowers, the lips of which measure nearly 2 inches across. The colour of the petals and sepals is faint mauve-purple; that of the lip a rich port wine shade, with numerous veins of a lighter hue traversing the whole. This spike was cut from a large specimen, which must indeed have been a sight worth going a long distance to see.

Orchid monstrosities seem unusually plentiful this year, judging by the numbers that are brought under our notice. Mr. Moss sends us from his collection at Weston Grove, near Southampton, a twin-flowered *Dendrobium suavisimum*. The fusion extends to the stalk, and there is not much malformation in either of the flowers. It is quite an unusual occurrence. Mr. Moss also sends a malformed flower of *Cattleya amethystoglossa*, the deformity being the absence of the labellum, a loss which by no means improves the look of the bloom.

Oncidium phymatochilum.—A fine spike of this Orchid has been sent to us by Mr. Pollett, Fernside, Bickley, where it is flowered successfully every season, notwithstanding its reputation for being difficult to bloom. Perhaps Mr. Wilson, the gardener there, could give us the benefit of his experience with regard to the culture of this *Oncid.* It is not what would be called a showy species, but the flowers, it may be remarked, are very curious in structure, and so plentifully produced on tall branching spikes as to give one the idea of a swarm of insects.

Saccolabium curvifolium.—Another example of Mr. Denny's skilful culture is a remarkably fine spike of this East Indian Orchid which measures about 9 inches long. For two-thirds of its length it is thickly covered with flowers, in all numbering thirty-four on the spike. Such a fine wreath of this Orchid is really beautiful, the colour, a bright orange-red, being so uncommon even among the Orchids. From the Down House collection Sir William Marriott also sends a spike of *Lælia majalis*, one of the loveliest of Mexican flowers, but among the most difficult to flower freely in this country.

Dendrobium taysiriflorum.—I saw in THE GARDEN (p. 458) mention made of a *Dendrobium thysiflorum* bearing six large flower-spikes. I have two good plants of this *Dendrob.* in 8-inch pots, one with ten, the other with eleven large drooping spikes, averaging forty flowers to a spike. On some spikes there are fifty flowers.—J. TURK, *Sewardstone Lodge, Chingford.*

Odontoglossum citrosimum roseum.—An unusually deeply tinted form of this Orchid comes to us from Sir W. Marriott's garden. The labellum is of a deep rose-pink; the sepals are also flushed with pink, and the petals are white and copiously spotted with the same colour. In strong contrast to these delicate tints is the bright orange crest of the lip, which is densely spotted with brown. The long, pendulous spike sent is a beautiful object.

Odontoglossum vexillarium at Birdhill, Clonmel.—An enthusiastic gardening friend once told me he once seemed strongly inclined to lift his hat to a well-grown specimen of *Cattleya Mossiæ*, seeing it for the first time. There are several really fine specimens of this, probably the most beautiful of all the *Odontoglossa*, at present gorgeously in bloom in the vestibule of the stove with Mr. Gough, at Birdhill, that would excite a similar feeling. They were procured through Mr. J. C. Stevens as small plants only two years since. On one plant there were five spikes, on which I counted thirty blooms, with probably a few yet to come. They were grown in a cool house, frost merely excluded, and put here for the blooming period. A number of other Orchids here were also fine.—W. J. M., *Clonmel.*

Chysis bractescens.—We had no idea that this was such a beautiful Orchid until Mr. Denny sent us an enormous spike the other day from Sir William Marriott's garden. There are seven flowers on the spike, each of which measures fully 4 inches across. The pure white petals are very thick and wax-like, and so beautiful in form as if chiselled out of some such solid substance as marble. The only colour are the stainings of citron-yellow on the edges and crests of the lips. There is not a trace of odour. Seen thus it is a lovely and noble Orchid. Another white flowered Orchid from the Down House collection is *Vanda Denisoniana*, which, though so rare, cannot compare for purity of colour or beauty of form with the *Chysis bractescens*; in fact, this white *Vanda* is, we consider, an overrated plant, being, as a rule, an indifferent grower, and rarely seen represented as a presentable specimen.

Cattleya Mossiæ.—Of this Orchid Dr. Paterson, of Fernfield, Bridge of Allan, sends us a magnificent spike representing one of the finest varieties we have seen. Its blossoms are not so remarkable for large size as for their peculiar and distinct colour. The sepals and petals are a delicate blush-pink, and the broad labellum is half citron-yellow and half bright amaranth of various shades. An exquisite frilling of white adorns the edge of the lip, and sets off the other colours to advantage. Dr. Paterson says "it was cut from a plant bearing five spikes with fifteen flowers; this plant I got from the late Provost Russel, of Falkirk, fifteen years ago." Another exceptionally fine variety of *Cattleya Mossiæ* has been sent to us by Mr. Brinsley Marlay, Belvedere House, Mullingar. In this case the remarkable feature is the very large size of the bloom, which is moreover one of the deepest tinted, the labellum especially being richly coloured. These two varieties admirably show the wealth of colour and form existing in this species.

Rhododendron show.—The annual display of *Rhododendrons* from Mr. John Waterer's nursery at Bagshot was opened during the past week at the Cadogan Place Gardens, Sloane Street, and will remain on view for some weeks. The present show is quite equal to any of its predecessors, and represents, as usual, all that is fine in the way of hardy *Rhododendrons*, for which the Bagshot Nurseries are so celebrated. Besides many new unnamed seedlings, there are fine bushes of such favourite varieties as *Kate Waterer*, *John Waterer*, *Duchess of Connaught*, *Princess Louise*, *Princess Christian*, *Earl of Harrington*, *Alarm*, *Robert Marlock*, and *Duchess of Bedford*. For the next three weeks or so there will be different varieties unfolding their blooms. As usual, the show is a brilliant one and the arrangements admirable.

QUESTIONS.

5001.—**Heuchera Richardsoni.**—Will some reader of THE GARDEN kindly tell me where this can be purchased?—S. W. C.

5002.—**Litter for Strawberries.**—Will some one say whether bad hay will do as a litter for Strawberries, as well as straw to keep the fruit clean?—E. C.

5003.—**Flageolet Beans.**—What kind of Beans are those called Flageolets? and can they be cultivated in England? They are preserved in France, and sold here in bottles.—C. R.

5004.—**Air roots on Vines.**—Will some correspondent kindly tell me the cause of what gardeners call air roots growing on Vines? and whether they are in any way injurious?—J. M. W.

5005.—**Woodlice.**—What will prevent sow bugs (woodlice) from eating the Peach blossom and fruit just setting? They come in large numbers at night out of holes in the wall. Will some one kindly give me a remedy?—STRATHSPEY.

5006.—**Slag sand.**—Can any of your readers do me the favour to say where one could obtain this sand? It has, I see, been strongly recommended in THE GARDEN for keeping away slugs. No one about here seems to know anything about it.—C. F., *Mertwood.*

5007.—**Rose bug.**—Can any of your readers kindly inform me of an effective preventive against the ravages of the Rose bug? Though the blooms are examined night and morning daily, we have scarcely a decent Rose remaining, solely on account of this pest.—C. W.

5008.—**Violets in September.**—I shall feel obliged if any of your readers can inform me how Violets are obtained in September and October. Is the plant that produces them a distinct variety? or is this blooming effected by lifting and transplanting at some special season of the year? What soil do they grow best in?—E. M. S. B.

5009.—**Thrips on Cucumbers.**—What is the best thing to extirpate thrips in a Cucumber house heated with hot water? I am afraid it will be suggested that my gardener has fruited his plants a little too heavily, and I think he has; but, thrips having gained a lodgment, what I want to know is, how best to get rid of them.—SUBSCRIBER *Maldon.*

5010.—**Brunsvigia Josephineæ.**—I have a plant of this in a warm greenhouse. It did not flower last year. This winter the foliage has been much better than last year, but has died down again now. As I suppose it flowers without foliage in August, how had I better treat it now—water it fairly, or leave it dry, or how? Does it need to be very warm or cool?—J. P.

5011.—**Roses and Grapes.**—I am anxious to know the names of twelve of the best pot Roses for early forcing. Will some of your correspondents also kindly advise me to the best method of preserving Grapes in a vinery from wasps? Notwithstanding precautions on the part of our gardener, one crop of our Grapes was entirely destroyed by wasps last autumn.—E. W. G.

5012.—**Roses under glass.**—I have a span-roofed house in which Roses are planted in raised beds. They were forced, but with poor results, the growth being very weak. My idea is to gradually harden them off and ultimately remove the lights entirely, and try to encourage a strong summer's growth to force next year. Might I thin out the first weak growth to further this aim? Any hints on the subject would greatly oblige me.—AMATEUR.

5013.—**Potatoes on the same ground year after year.**—I shall be much obliged if some of your readers will kindly answer the following questions: 1. My gardener has planted in the same ground our own seed Potatoes from last year—*Magnum Bonums*, *Champions*, and one other sort. Last year our *Magnum Bonums* were pretty free from disease, but the *Champions* were diseased. I tell my gardener, unless all the authorities are wrong, that planting on the same ground year after year is a mistake; and his reply is, he knows a man who has planted the same seed in the same ground for twenty years and had no disease. I should mention that our seed was from a fresh place (in England) last year. Is this wise or the reverse?—F. B.

* * * Our readers will greatly oblige by replying so far as their knowledge and observation permit to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

KITCHEN GARDEN.

CABBAGES OF DIFFERENT COUNTRIES.

FEW vegetables are more economical than Cabbages, seeing that they can be eaten almost from the time when they leave the seed bed until they grow into a hard, close head, and they form a crop that can at any time be put upon any otherwise idle ground, and yield a good supply of green food. The modern cultivator expects to be able to cut good-hearted Cabbages from early spring until late in autumn in proper order and succession. Cabbages may be divided into four classes, the first, and most useful, being the cone-shaped garden varieties; second, the Savoy type; third, the rosette type used for bunching; and fourth, the Drumheads, so useful for cattle food. Drumheads have perhaps never been so fully appreciated as at the present time; they grow to an enormous size, solid, and flat on the top. Not only are they grown abundantly in the humid climate of England, but also extensively throughout the Continent of Europe and the States of America. In Germany the consumption of this variety is considerable. The large white Cabbage, called by them Felderkraut, is also a variety grown extensively there. It is cone-shaped, with a very sharp point, similar in form to the Winningstadt, but longer and broader at the base; the head is very solid, and without many leaves at the side. It is grown for sauerkraut. For this the head is cut into slices, as we do in pickling, putting it into layers with a little oil and salt, and subjecting it to great pressure, when it is left for fermentation. This is said to be antiscorbutic, and valuable in the case of long voyages.

The Schweinfurth is also a large-headed sort and very tender; so much so, that it cannot be transported far for market purposes, but for summer and autumn use it is very valuable. The large flat Brunswick, Winningstadt, and Magdeburg Cabbages are popular there, as are also Yorks and other English varieties.

To France we are indebted for some useful Cabbages. The variety called Quintal originated there; it is a large sort, the heads of which are quite flat on the top; it is one of the oldest in cultivation. The Etampes variety is considered to be the earliest grown of an Ox-heart shape. The Bacalan, Cœur de Bœuf, and Saint Denis are favourite Cabbages with the French, but some of their leafy and stalky varieties would not be allowed growing room in our English gardens.

Jersey has almost the exclusive growth of a Cow Cabbage peculiar to itself. It is a perennial, having a stem sometimes reaching a height of 12 feet, its leaves being plucked from the bottom, and used for cattle food. The stalks are sometimes made into walking sticks. It does not succeed in this country.

The Americans have made, as respects the cultivation of Cabbages, as indeed in everything else, some tremendous strides. Their Mammoth Cabbages often weigh 50 or 60 pounds each, and their solidity is something unknown to us. Cabbage growing with them is, however, attended with difficulties, of which we in England know little. Their winters are so severe that Cabbages for winter or spring use have to be stored away underground, or in cellars. When grown for seed they are allowed to head in the autumn, and then pulled and stored away in a dry place, to be replanted in spring. In the Southern States, a popular variety is that known as Green Glazed, a kind peculiarly valuable in excessively warm districts, from the fact that it withstands the attacks of caterpillars better than any other sort. It is rather coarse, loose-headed, and of a dark shining sea-green colour. Their Marble Head Mammoth is perhaps the largest variety of Cabbage in existence, the result of extremely high culture. Henderson's Early Summer is a good second early Drumhead, larger than Jersey Wakefield, and valuable from the unusually long time during which the head remains intact before bursting. Early Winningstadt, a large-sized Cabbage, broad at the base, and twisted up to the top, has been found to head well on land and

under circumstances most unfavourable to other Cabbages. Fottler's Improved Brunswick is a great favourite; it is a very large, flat-headed Cabbage with a short stem. The true type can always be identified by the revolute curl seen in the edge of the outside leaf of the head. Early Wymen, Jersey Wakefield, and Flat Dutch are also favourite American Cabbages. Collards or Rosette Coleworts, already referred to as a valuable type for bunching purposes, are also used by the Americans. As the name indicates, they do not heart, but the leaves close up towards the centre in the form of a rosette. Their robust and vigorous character ensures their appearance when other green food is perhaps not available.

Such hot climates as the Cape and East Indies are dependent chiefly upon Drumheads for their supplies, and they possess a favourite variety termed Cape Drumhead, a kind possessing considerable size. In England the quantity of Cabbage seed harvested annually is very considerable, supplying not only the demand at home, but much of the requirements of many other countries where this vegetable is grown. English Cabbages are generally regarded as very desirable. But seed-growing in England is not unattended with difficulties and risks. From the middle of July until the middle of August, according to sorts, is the proper time to transplant from the seed bed to the open field for the following year's harvest—too late to form a very solid head, and yet early enough to make strong and vigorous growth. The utmost difficulty is experienced at this dry time to catch the desired showers of rain necessary for the removed plants. If, too eager to take advantage of rain, the grower removes his plants early, they will head and probably rot in consequence during the winter. If continued drought should prevent their removal until late, a great quantity will probably not run to seed, and a short crop the following harvest is inevitable. The grower must also take care that when in bloom bees have no opportunity to cross the different sorts. Varieties with close heads, expanded leaves, or coloured veins must be kept long distances apart.

In growing Cabbages for table even, no little care must be exercised in order to produce a regular supply. Many are fastidious as to the sorts grown, and, knowing the distinctive peculiarities of such, are careful to sow and transplant at the proper period—perhaps even the precise day—in order that they may be able to "cut" at the proper time. Early York stands conspicuous among the earliest and best standard varieties, followed by Large York, a somewhat later and larger sort. These, when compared with the very solid varieties in demand, are not unlike in appearance the Cos Lettuce, but their hardiness and ability to withstand severe weather make them very reliable. For a main crop the Enfield Market is an excellent type. It has a cone-shaped head, is very solid, and certain to head. Several of this class are in commerce, but no Cabbage has been more grown by market gardeners during these last thirty years than the Enfield. The Winningstadt is also distinct, and must eventually become as great a favourite with us as with the Americans.

The Savoy type is one of the most invaluable of the Cabbage tribe. The crumpled texture of the leaf gives it a distinctive character, and it is at once among the tenderest and sweetest flavoured of all Cabbages; for family use it is even superior to the cone-shaped or Drumhead varieties. Little Pixie, Green Curled, and Globe are equally useful sorts. The Golden Globe has a golden tint, which makes it attractive.

The Rosette Collard, or Colewort, from its hardiness has become invaluable for bunching purposes during winter, and fills an important gap which the cone-shaped, solid-headed Cabbages cannot do. A peculiar anomaly has recently been introduced to our gardens called Chou de Burghley. It is neither a Cabbage nor a Broccoli, but partakes of the character of both. It forms a Cabbage head, and the interior column also bears very small Broccoli heads. It is said to have an exquisitely sweet and mild flavour. Thousand-

headed Cabbage, a kind belonging to the bunching class, is exceedingly useful. It is extremely hardy, and, as its name implies, produces thousands of shoots, rendering it a very valuable food producer for stock.

Portugal Cabbage, or Couve Tronchuda, supplies not only an edible Cabbage, but the midribs of its largest leaves rival Seakale in flavour and sweetness. Even the interior of the stems of Cabbages are not unfrequently served up with melted butter and relished as delicacies. The Red Cabbage must not be omitted, being valuable for pickling. In culture perhaps no vegetable requires more depth and richness of soil than the Cabbage. The ground should be well manured and most thoroughly worked, and the practice of alternating crops cannot be more necessary than in this case. All Cabbages are subject to a peculiar disease when planted repeatedly upon the same ground called "club." The stem gets gouty and scaly—the work of an insect which deposits its eggs on the substance of the stem where it joins the root. Dry weather and the character of the manure often aid this disease.

F. A. GARDINER.

PIPE HEAT FOR MUSHROOM BEDS.

I CONTEMPLATE making some alterations in our Mushroom house here where crops are grown between October and June, and would be glad to learn if any readers have ever succeeded well in growing Mushrooms without fermenting materials, which all Mushroom growers know are required, as the bed heat must be 80° or higher when the spawn is inserted. I can find no information on the subject anywhere, as in all cases, although pipe heat is considered necessary to keep up the temperature of the Mushroom house to 55° or 60°, fermentation is relied on for the heat of the beds. My opinion is that if we could use hot-water pipes for bottom heat, culture in winter would be both simplified and cheapened. It does not pay in private places to buy horse manure for Mushroom beds, and the home supply, except where hunters are kept, depends a good deal on the movement of the establishment, which also means the movement of the horses. Besides, the labour and cost of collecting the manure for any length of Mushroom beds and preparing it is considerable, not to speak of the chances to be run after the beds are spawned. For a bed of sufficient extent it requires many loads of manure, and in many, I may say mostly all, private gardens the stable manure is all that is allowed for the garden for all purposes. I find I could fill our Mushroom beds with a good compost of loam, manure, and leaves, &c., cheaper and easier than I could with stable manure alone, and if we could heat the beds steadily by means of hot-water pipes—which in most cases could be done quite easily—we should be independent of the stables, and be able to regulate the heat of the beds just like a Pine, Melon, or other hotbed. It is well known that pure stable manure alone or manure and leaves is not necessary for Mushrooms—the spawn will run and Mushrooms grow in loam alone, as they grow in the pastures, where their abundance is not so much determined by the quality of the soil as by the season. Our Mushroom house beds are arranged in tiers in the usual way, have slate bottoms, and I am sure I could heat each bed by means of a coil of pipes under the slates as easily and steadily as our other hotbeds. The question is, would it suit the Mushrooms? In theory there seems to be no doubt about it. The essentials in Mushroom culture are a proper compost and the right degree of heat and moisture, steadily regulated. The moisture I could easily manage with evaporating troughs on the pipes. Coals are cheaper than manure with us, the expense of heating would be little, and one should at all times be independent of horses for the main elements of culture. The dryness of pipe heat would be the only difficulty to overcome, but pipe heat itself is not injurious. I was once where a pipe ran the whole length of the lower tier of Mushroom beds at the back, and although the bed was insulated by a partition between it and the pipes, the heat of

the pipe was sensibly felt for a foot or 18 inches out, and the Mushrooms always came up first there, but did not continue to grow so long as on the other portion. The pipe was, however, not intended to heat the bed, and was badly placed in other respects, but it showed what could be done in that way by a proper arrangement. When I came here first one pipe for heating the house ran under the bottom bed. When the season was mild, and not much fire-heat was wanted, this bed did well enough, but when the pipes had to be warmed smartly it ruined the crop, the temperature of the bed getting much too high; so it was taken out. Provided the spawn is fairly good, Mushrooms seldom fail if the spawn is inserted at a temperature of 80°, and the temperature is allowed to decline steadily, but slowly, from that date for the next month; but where fresh beds have to be made up in the same house and the walls are not thatched or double built it requires great care to keep the temperature steady. Another advantage of pipe-heated beds would be that when a bed did not succeed through bad spawn or any other cause it could be re-spawned again and started afresh without delay, whereas by the present method all the making, &c., has to be done over again.

There would be no objections, of course, to using stable litter for heated beds, but it would not be essential. Pure loam would do as well, and perhaps better, as the spawn runs in the loam as freely as in any other medium, and much of it is needed, as it is to surface beds. J. S. W.

VARIETIES OF RHUBARB.

In your issue of the 19th ult. "A. D." makes some remarks on Johnstone's St. Martin's Rhubarb, which, we believe, we were the first to bring prominently before the public, and which he says is the same as Early Red. To show the origin of this variety, and also to clear ourselves of the charge of "having sent out as a new thing a sort that has been in commerce for years and universally grown," we give the following extract from our circular of 1869, the year in which this Rhubarb was first advertised: "The raiser describes it as one of a batch of seedlings from Victoria; the seedling plant was a fortnight earlier than any of the remainder of the lot, and grown beside Prince Albert and Linnaeus, always ten days earlier than them, and giving a larger quantity of superior stems than either of these varieties. It forces better than any Rhubarb I know and has a splendid colour." This was communicated to us by Mr. W. W. Johnstone, who raised the Rhubarb in question at St. Martin's Abbey, near Perth, and from whom we purchased our stock. He is now nursery manager to Messrs. F. & A. Dickson & Sons, of Chester, and can, if necessary, corroborate our statement. Before advertising it we placed it for trial in the hands of several large market gardeners and others well qualified to judge of its merits. We were strongly advised by them to offer it to the public, and the large demand we have had for the roots, as well as the many testimonials we have received concerning it have amply justified us in doing so. We do not know who "A. D." is; he may have had the Rhubarb from us, but we doubt it; he appears to go upon what he has seen at Chiswick, and by his own showing more sorts than one seem to be grown there under the name of Johnstone's St. Martin's. How, then, can he be certain of its identity? W. P. LAIRD & SINCLAIR, Dundee.

Pea prodigies.—Few gardeners believe in sowing early varieties of Peas for late crops I should think (p. 454) except when it is too late to sow late kinds; but few were aware, I imagine, either that early Peas were "too tender" for late crops, as Mr. Muir asserts, their principal characteristic being their hardiness. Early Peas will grow when late kinds, especially marrows, will rot in the ground, and they will endure the hardest frosts above ground, which late ones are injured by. As for the Ne Plus Ultra Pea being third-rate, the Chiswick trials revealed that variety under, I

believe, ten new names, which does not speak ill for it. As an all-round kind I have found none to surpass it as a main mid-season and late cropper. It does not bear pods the whole length of its stem, and I would be almost inclined, about the month of August, to make a journey to Glamorganshire to see the sorts which Mr. Muir says "could be named that do." I never saw any tall Pea like Ne Plus Ultra that was "clothed with pods from the ground upwards," nor do I think anyone else ever did. The length a Pea will bear depends on the treatment and the room the stem has, but 3 feet or 4 feet is not bad. One of the distinguishing differences between an early Pea and a late one is that the first bears near the ground and the other does not. However, if Mr. Muir will at any time during the summer find and send to THE GARDEN office a single Pea straw of any late sort of the habit of Ne Plus Ultra (with which the comparison is instituted) "clothed with pods from the ground upwards," I will give in. Such prodigies should be seen as well as heard of.—J. S. W.

A VISIT TO BODNANT HALL.

In the formation of a home nursery at Bodnant Hall, near Conway, I think it was wise to choose a site at least 700 feet above the sea level. Last week I observed how robust and healthy the young trees were, notably Larch, Spruce, and Scotch Firs; some of the plantations formed with these plants reared at such an altitude have vigorous growth and compare favourably with those reared at a low elevation and consequently under more favourable conditions. I have always advocated the raising of strong, hardy plants suitable for the situations they are intended to occupy, and this can best be done by rearing the young plants at an altitude nearly equal to that of the intended plantation. At this place a speciality is made of alpine and herbaceous plants, hardy Ferns, American bog plants, and Coniferae, each of these classes being well represented. Amongst the new and rarer Conifers I noticed some fine, healthy young trees of *Picea nobilis*, *P. nobilis robusta*, *P. lasiocarpa*, *Abies Alcoquiana*, *A. Douglasi*, *Cupressus macrocarpa*, *Cedrus Deodara*, *C. Deodara argentea*, as well as several thriving specimens of the Umbrella Pine (*Sciadopitys verticillata*). The ornamental hard-wooded trees include a good collection of Japan Maples. Some of these are planted on the lawn in front of the house, where their beautiful foliage is shown off to the best advantage, and attracts the attention of everyone. The system of massing plants of one kind is here well carried out. In one place we find bold clumps of hybrid *Rhododendrons* in full flower, in another *Ghent Azaleas*, *Kalmias*, *Pernettyas*, *Daphnes*, *Andromedas*, and hardy *Heaths*, all flourishing in this Welsh mountain garden. Among alpine and herbaceous plants, I noticed that the *Soldanella* seems quite at home in the blazing sunshine, and, what is of rare occurrence in this country, reproduces itself from seed self-sown. *Saxifrages* and *Sedums* are here in abundance, each sort being grown in a patch or rather compartment of its own, something similar to what we noticed at Rockville, Mr. P. Neill Fraser's place in Edinburgh. There is a fine example of rockwork in course of erection by Mr. Pulham, of Broxbourne, an excellent imitation of Nature. A. D. WEBSTER.

Penrhyn, Bangor.

Hollyhock disease.—Mr Douglas says (p. 498) he is not likely to be troubled with this disease again, as there are no Hollyhocks, clean or unclean, anywhere near him. He may, however, be mistaken; it is not unclean Hollyhocks he has need to dread, but the wild Mallows of the hedges. In many places the latter weeds have been exterminated by the fungus, and in others the Mallows are covered with the pustules of the Hollyhock disease at all times of the year. When Mr. Douglas can write "there are no wild Mallows, clean or unclean, anywhere near," he may feel a little less anxiety for his pets.—W. G. S.

FORTHCOMING EXHIBITIONS.

JUNE.

- 12.—SOUTH KENSINGTON: Committee Meeting of Royal Horticultural Society.
- 13.—REGENT'S PARK: Second Summer Show of Royal Botanic Society.
- COLCHESTER: Annual Show.
- GUILDFORD: Annual Show.
- YORK: Floral Fête.
- 14.—LEYTON: Annual Show.
- 19 to 21.—LEEDS: Annual Show.
- WORCESTER: Annual Show.
- 26.—SOUTH KENSINGTON: Committee Meeting of Royal Horticultural Society; Show of Pelargonium Society.
- DISS: Annual Show.
- 27.—REGENT'S PARK: Evening Fête of Royal Botanic Society.
- CROYDON: Summer Show.
- 28.—SOUTHAMPTON: Show of National Rose Society.
- RICHMOND: Annual Show.
- 29.—CANTERBURY: Rose Show.
- 30.—REIGATE: Rose Show.
- BROMLEY: Show.

JULY.

- 3.—SOUTH KENSINGTON: Show of National Rose Society 3 and 4.—BAGSHOT: Show of Horticultural Society.
- 4.—WIMBLEDON: Show.
- TELDINGTON: Show.
- 5.—DUBLIN: Summer Show of Royal Horticultural Society of Ireland.
- FARNHAM: Annual Show.
- BATH: Rose Show.
- KINGSTON: Show.
- FARNHAM: Show.
- HIGHGATE: Show.
- 6.—SUTTON: Rose Show.
- 7.—CRYSTAL PALACE: Great Rose Show.
- CHISWICK: Show of Horticultural Society in Royal Horticultural Society's Gardens.
- 10.—SOUTH KENSINGTON: Committee Meeting of Royal Horticultural Society.
- OXFORD: Rose Show.
- WIRRAL: Rose Show.
- 11.—EDINBURGH: Summer Show of Royal Caledonian Horticultural Society.
- 11 and 12.—LEE: Summer Show of Horticultural Society.
- 11 to 13.—HULL: Flower Show.
- 12.—SHEFFIELD: Show of National Rose Society.
- NUNEATON: Show.
- BRAINTREE: Show.
- 13.—LUDLOW: Rose Show.
- 17.—LEEK: Rose Show.
- 18.—NOTTINGHAM: Floral Fête.
- DARLINGTON: Rose Show.
- 19.—ABERDEEN: Show of Horticultural Society.
- CHISWICK: Evening Fête.
- 21.—MANCHESTER: Rose Show at Botanic Garden.
- 24.—SOUTH KENSINGTON: Meeting of Committees of Royal Horticultural Society; Show of Carnation and Picotee Society.
- 25.—COLNBROOK: Show.
- 26.—EASTBOURNE: Show.

AUGUST.

- 4 to 6.—SOUTHAMPTON: Summer Show and Gala.
- 6.—HEADINGTON (Oxon): Annual Show.
- 6 and 7.—NORTHAMPTON: Annual Show.
- 14.—SOUTH KENSINGTON: Committee Meetings of Royal Horticultural Society.
- 16.—READING: Summer Show of Horticultural Society.
- EALING: Annual Show.
- 22.—TROWBRIDGE: Annual Show.
- 23.—MAIDENHEAD: Annual Show of Horticultural Society.
- 23 and 24.—EXETER: Show of Horticultural Society.
- 23 to 25.—DUNDEE: Grand Floral Fête.
- 23.—BASINGSTOKE: Annual Show of Horticultural Society.
- 31 and Sept. 1.—CRYSTAL PALACE: National Dahlia Show

SEPTEMBER.

- 5.—GLASGOW: Autumn Show of Horticultural Society.
- 5 and 6.—BATH: Autumn Show.
- 6.—DUBLIN: Autumn Show of Royal Horticultural Society of Ireland.
- ALNWICK: Annual Show.
- 6 and 7.—CARLISLE: Show of Horticultural Society.
- 8.—MANCHESTER: Cottagers' Show in Botanic Gardens.
- 11.—SOUTH KENSINGTON: Committee Meeting of the Royal Horticultural Society.
- 12 and 13.—EDINBURGH: Autumn Show of Royal Caledonian Society.
- 13 and 14.—CRYSTAL PALACE: Annual International Potato Show.
- 14 and 15.—ABERDEEN: Autumn Show.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

- 12.—South Kensington: Meeting of the Fruit and Floral Committees; Evening Meeting at Linnean Society's Rooms, Burlington House, at 8 p.m.
13.—Regent's Park: Second Summer Exhibition of Royal Botanic Society.

ROYAL HORTICULTURAL SOCIETY.—The next evening meeting of this Society at the Linnean Society's Rooms, Burlington House, will be held on Tuesday next, the 12th inst. The following papers will be read: Mr. W. Goldring on "Cypripediums;" Dr. Masters, "Notes on Conifers;" Mr. G. Maw, on "Crocuses;" and Herr Max Leichtlin, "Notes from Baden-Baden."

IMPROVED TIN BOXES.—We have received some excellent little tin boxes from the Tinplate Decorative Company, Neath. They are light and neatly made, having strong and simple little hinges, and they open easily. We should say they are excellent for those who have many plants or flowers to send by post. The decorated ones we do not care for; nor do we see the need of florid designing of any kind on a tin box.

BATTERSEA PARK.—The flowering trees here have been very fine lately, and their effects bold and charming from many points of view. It was sad to see the amount of smoke vomited forth by the engines in the railway goods yard near and many other manufactory chimneys. It was disgraceful to a city supposed to be the centre of civilisation. We shall never have tree or flower in parks with true freshness and beauty so long as this smoke pest lasts.

THE EDELWEISS.—An attempt has been made at the Grand Ducal Gardens at Schlackenweth, in North-western Bohemia, to create a sort of nursery for rearing young plants of Edelweiss, with the view of transferring them when sufficiently matured to the Keilberg, one of the mountains of the Erzgebirge chain, which divides Bohemia from Saxony. If the experiment succeeds, and the Edelweiss becomes acclimatised in the Erzgebirge, the flora of Northern Bohemia will have received a valuable addition.

THE MIXED BORDERS IN KENSINGTON GARDENS.—We have often called attention to these, and are sorry to see them this year as poor as ever. In that finely placed border in Kensington Gardens there is not one well grown or well chosen plant, bare earth and poor dwindling things everywhere. The trees and shrubs by the border, although overcrowded, give it many charms, and form a good background, if any good work were done with the hardy flowers to which it is devoted. Either it ought to be wholly planted with shrubs or made a decent flower border of. We trust none of our readers will mistake the work there for what is right with hardy plants.

ROYAL HORTICULTURAL SOCIETY.—Although one must deplore the times on which the Royal Horticultural Society has fallen, yet it is the bounden duty of all who are interested in horticulture to do what they can to help the efforts of a council which recognises that the advancement of horticulture is the main object of the society, a fact which many previous councils utterly ignored, and hence what in the current slang of the day is called "a new departure." The meetings at Burlington House deserve the support of all interested in the Society. There are many who possess in their gardens objects of interest who might be willing to submit them for such an occasion, although they would be unwilling to send them to the committee at South Kensington, considering them unsuitable; and if there are any sent, they may rely on it that the council would be only too glad to welcome such contributions.—DELTA.

Good room and window plants.—

From experience I can corroborate what "Veronica" says regarding the Aspidistra as a room plant and the Aralia Sieboldi as a window plant. I have had an Aspidistra lurida variegata in the same pot for nearly seven years. During that

time it has not lost more than three or four leaves, whilst its robust growth has enabled me to give a friend a piece of it which rivals its parent. The young leaves are beautifully striped and have a rich and glossy appearance. I have always kept it with a plentiful supply of water at the roots, in ordinary Fern soil, sponging the leaves from time to time as required. For the last two or three years I have, in filling my window boxes, placed an Aralia Sieboldi in the centre, with scarlet Pelargoniums, Lobelias, Ageratums, and Calceolarias flanking it, and very effective the grouping is, the rich green Palm-like leaf of the Aralia contrasting well with the scarlet and blue. My boxes were made of plain half-inch deal boards and covered on the outside with virgin cork, the cost being not more than three shillings each box.—A. H.

Birds and slugs.—As your correspondents seem inclined to deprive the blackbird of the credit of being a slug destroyer, I may mention that a tame one which has been left with me for some months to take care of devours the white, grey, and black slugs with avidity; as it evinces no objection to the slime of the former and the toughness of the latter, it is reasonable to assume that in its wild state the blackbird includes the slug in its bill of fare.—W. LLEWELLYN SALUSBURY, Llanwern Lodge, Leicester.

—In reference to birds eating slugs, I have been making some experiments with three blackbirds and a thrush which I have in a cage. I first gave them some small brown slugs, which were eaten with apparent relish. I then got some large brown and black slugs from beneath a block of wood, and was not a little surprised to see them also disappear. The birds were not hungry, as they had an abundance of their usual food in the cage at the time. The slugs were seized and rolled about in the sand for some time, as a thrush will serve a snail before they were eaten. Worms are also pinched and knocked about a good deal before they are eaten by birds. Those who have a thrush or a blackbird in a cage should try them with slugs as I have done, and report the result. I may add that we have a great many thrushes, but few slugs in the garden.—G. A. PAS-SINGHAM.

—I have always understood it to be a well-known fact that the common thrush or mavis was a determined enemy to both slugs and snails—a fact of which I many times have had ocular proof, and therefore can safely confirm the popular belief in regard to this bird at least. But as to its neighbour, the blackbird, I cannot undertake to say as much. Although I have repeatedly observed blackbirds picking up small snails, I have never seen them touch a slug, and my opportunities are many, as we have plenty of these birds here, being in the midst of plantations. This, I may at once say, is also the reason why we have so many slugs and snails. One plantation runs along the outside of our garden wall, and the long, rough Grass in it makes a capital breeding place and shelter for slugs. Here they abound, and during their nocturnal rambles they even cross the garden wall, though a pretty high one, and thrushes, I am sorry to say, seem to be nearly extinct; we have had none here either this season or the last; the late severe winters which we have had have been fatal to them as well as to many of our other small birds. The robin is a good snail destroyer, but the best destroyer I have seen is a four-footed one, and an ill-treated one into the bargain—I mean the hedgehog. Hedgehogs I always encourage near the garden. It is interesting to watch them leave their resting places and ramble over the Grass in search of their prey; the amount of noxious vermin which they destroy is inconceivable. Ducks I have not much faith in, a much better pair being the gull and the lapwing.—R. STEVENS, Paston, Northumberland.

—I am of opinion that blackbirds and thrushes do eat slugs and nearly all kinds of grubs and ground insects, else why should they be so busy in turning over dead leaves and vegetable matter were it not to search for what they know have

their hiding-place under them. Of shell snails know they are particularly fond, for many times have I seen them cracking the hard covering to get at the juicy morsel within. Although blackbirds and thrushes are very troublesome in the fruit season, I always find them much less so after rain, as then they can get insect food, and while they can do that they prefer it to Gooseberries or Strawberries, which they leave for days at a time, and are only greedy after when the earth is quite dry. All soft-billed birds I regard as gardeners' friends, and though they may do a little harm for a time, the good they effect for at least nine months in the year more than counterbalances the mischief, independent of which they cheer us with their twitter and song. Instead, therefore, of destroying them we should encourage them, as nets are cheap enough, and by their aid fruit may be preserved.—S. D.

Columbines (Mrs. H. L.).—Send them to THE GARDEN office, addressed to the editor.

MESSRS. A. JEFFKINS & Co. have purchased Mr. J. Cat-tell's nursery at Westerham, and propose to carry on the business there as usual.

Seedling Pansy (Enquirer)—An excellent variety, but we cannot judge of its distinctiveness in the absence of others of a similar colour for comparison.

White Pansy (E. J. W.).—Try Messrs. Dickson & Co., 1, Waterloo Place, Edinburgh; or Messrs. Laird & Sons, of the same town.

Three-leaved Tway blade.—"J. M." Charnmouth, sends us a specimen of this native Orchid (*Listera ovata*) having three leaves instead of the normal number—two. It is, we believe, a rare occurrence.

Fungus (K.).—The name of your fungus is *Agaricus præcox*, common in gardens and pastures at this time of the year—called *præcox*, we suppose, because it comes so precociously early in the season. We do not remember anything of its qualities for the table; some of its allies are said to be good to eat, but others are undoubtedly poisonous or offensive.—W. G. S.

Steam heating.—I forward you a copy of the monthly Proceedings of the New York Horticultural Society for March, 1882, which contains an article on steam heating by Mr. John Thorpe, which may give you the information you ask for in THE GARDEN (p. 310).—W. HAMILTON, Superintendent of Parks, City of Allegheny, Pa. [This was published in THE GARDEN, Vol. XXI, p. 361.]

Names of plants.—W. H. Winn.—1 and 2, we cannot name the double *Polyanthus*es; both appear to be good sorts; 3, *Spiræa hypericifolia*.—C. H. W.—1, 2 and 3, send better specimens with leaves; 4, *Potentilla*, send leaves; 5, *Erinus alpinus*.—C. D.—1, *Berberis Hookeri*; 2, *Iberis corifolia*; 3, *Lonicera etrusca*; 4, *Astrantia major*; 5, *Saxifraga granulata* fl.-pl.; 6, *Anemone narcissiflora*.—W. C.—*Allium Moly* (yellow), *Tradescantia virginica* (purple), *Geranium sanguineum*.—W. Forrester.—1, *Leucojum æstivum*; 2, send in flower; 3, *Cypripedium barbatum*.—J. C. C. (*Ingatestone*).—Poppy is *Papaver orientale bracteatum*; tree is *Ornus europæa*.—Mrs. Davidson.—*Cereus McDonaldiae*.—W. Borcham.—*Ornus europæa* (flowering Ash).—C. Parker.—1, *Abutilon Thompsoni variegatum*; 2, *Saxifraga sarmatensis*; 3, *Fuchsia microphylla*; 4, *Pelargonium denticulatum*.—T. N.—1, *Bryophyllum calycinum*; 2, *Begonia sanguinea*; 3, *Buddleia globosa*.—H. O. R.—1, *Ranunculus aconitifolius* fl.-pl.; 2, *Jasminum Sambac*; 3, *Cyrtocarpus reflexa*; 4, *Cypripedium barbatum*.

BOOKS RECEIVED.

Mushroom Culture for Amateurs, by W. J. May. L. Upcott Gill, 170, Strand, W.C.

The Apple in Orchard and Garden, by James Groom. G. Routledge & Sons.

Fruit Culture for Profit, by E. Hobday. G. Routledge & Sons.

Hardy Perennials, by J. Wood. L. Upcott Gill.

The Potato in Farm and Garden, by R. Fremlin. Routledge & Sons.

Report of the Metropolitan Board of Works.

Popular Guide to the Fisheries Exhibition. Pall Mall Gazette Office, 2, Northumberland Street, Strand.

CATALOGUES RECEIVED.

General Bulb Company's (late Barnaart & Co., Haarlem) Wholesale Catalogue of Dutch Flower Roots.

Messrs. Carter's (High Holborn) "May and June in the Garden." Choice Seed and Plant Catalogue.

"This is an Art

Which does mend Nature: change it rather: but
THE ART ITSELF IS NATURE."—*Shakespeare.*

NOTES AND READINGS.

HABITS OF TREES.—Trees, like plants of smaller size from seed, vary much in habit, and present us with a great variety of contour of top and branch, which by selection, as in the case of the Scotch Fir, might doubtless be perpetuated. The Sycamore presents the most noticeable differences; hardly two trees are quite alike, some being of a spreading habit, while others are compact and dense, bearing great masses of verdant foliage one upon another at this season of the year, when the woods are in their prime. The Beech and Oak and other trees differ in the same way. The Yew sports widely, no end of varieties being known to the nurseryman—some compact, some straggly, some growing in the pyramidal form naturally, and some round-headed, with all shades of difference between. Like a numerous family of children, hardly any two of the progeny from one tree have the same look; and the difference does not end here, but extends to the period of leafing and flowering. To the landscape gardener and woodman such differences of habit present themselves in different aspects. The first looks at the ornamental appearance of the tree, and the second at its timber, and prefers the straight-limbed specimen to that with the wide-spreading, umbrageous head so ornamental in our parks. There is room for both, however, and it will be acknowledged perhaps that the arboriculturist has not been so quick to take advantage of the sporting disposition of his trees as the gardener has been to fix special characteristics in his plants. The subject is one commending itself in the forester and nurseryman.

AURICULA FLORISTS.—Mr. Brockbank's remarks on alpine and herbaceous plants at Manchester thrust at the very foundation of the principles and practices of the florist, and Mr. Brockbank seems now to realise the possible consequences of his admissions. His present contention appears to be this—the alpine plants, &c., exhibited at the shows are forced, but the Auricula is not; therefore his condemnation of the former does not apply to the latter. A single question will show the falsity of this reasoning. The hardy plants at the Manchester and other shows consisted, numbers of them, of spring and other hardy plants quite as early as the Auricula. Will Mr. Brockbank explain, therefore, how, if the Auricula could be had in perfection at the National Auricula Show in April, without what he calls "forcing," the Manchester hardy plants could not, at the middle of May? The truth is the plants had not been forced any more than the Auricula is by florists, and they needed it less. One of the surest signs of forcing are insect plagues and diseases, and of these the Auricula fancier has enough, according to his own showing—plagues that are unknown almost on outdoor plants. It is open to Mr. Brockbank to withdraw or modify his remarks on exhibits of hardy flowers for the sake of florists and consistency; but their application to the Auricula florist cannot be disputed as they stand, and his words are about the truest and hardest that have ever been levelled at the "fraternity," who can ill afford to throw stones at others for not showing "alpine flowered naturally and in their proper character," and which have never been dressed or tampered with in any artificial manner.

FLORISTS AND THEIR FOIBLES.—I ought to be at least a match for the Rev. F. Tymons at the Scotch game of answering one question by asking another, but the exigencies of these "notes" prohibit me enlarging on the subject of florist's flowers at the length he does. I would just remind

him that what prompted him to take up the cudgels originally in defence of florists was my note on that exponent of the principles of "florists proper," who spoke of "the general beauty and perchance the perfume of flowers" as second-rate "points," appreciated only by the common herd; who dwelt with that complacent self-sufficiency, bred of his calling, on the superior wisdom and perceptions of the florist; who prated of the "law as to proportion" in flowers which florists have alone invented and they only believe in; and whose model of a perfect florist's flower was one which looked "as if it had been done by an artist"—meaning the man with the brush and colours, for when he spoke of an artist he meant the artist who paints those "precisely marked" ideals of the florist which are published annually in florists' catalogues. No true artist does that sort of work or paints in that style; but it is here the florist gives full swing to his fancy, and paints those standards of perfection that he has never yet been able to realise in culture. This is the florist I meant—who is not recognised nor owned, for very fear, by the cosmopolitan flower grower—the man who sets up standards of form and colour, &c., for which he has no authority in Nature or in art. Does Mr. Tymons acknowledge this florist, his teachings and principles, as his representative, or does he repudiate both? When he has candidly answered these questions I will answer his, as we shall both then be on clearer ground. At present it looks as if Mr. Tymons blows neither cold nor hot. As to his surmises about "Peregrine's" acquaintance with florists' flowers, it will suffice here to state that he is wrong, and has no means of knowing.

PACKING GRAPES.—*Appropos* of this subject it is interesting to read the theory of the matter as accepted in one of the most successful and famous Grape growing establishments in Britain, and recorded by a writer who we believe was the packer. It is from THE GARDEN of 1875.

Mr. — has sent many tons of Grapes to London without any packing between the bunches, and I have been told in Covent Garden that such packages arrived in as fine condition as if the fruit had never been packed. The baskets used for this purpose hold about 16 pounds of Grapes. Previous to placing the fruit in them a thin layer of paper shavings is laid over the bottom and all around the edges of the basket, after which filling is begun at one end, the bunches being put into position closely, and gently pressed against each other until the basket is full; on the slightest concussion the berries work themselves into the vacant spaces, and the whole becomes, as it were one *huge bunch*. The italics are mine. Clearly, big bunches are believed in for packing purposes.

MUSHROOM STALKS.—Mr. Wright, in his practical little book on Mushrooms, perpetrates an error when he says the stalks of Mushrooms cannot be eaten. They not only may be, but are eaten freely, and even a connoisseur could not tell the difference in the taste and flavour between the fresh portion of the stalk and the Mushroom itself. French cooks mostly all cook a good portion of the stalks and few or no cooks remove them wholly. They are perfectly wholesome, as we can testify by long personal experience, and stand in much the same relation to the Mushroom that the stem and branches of a Cauliflower do to the "flower," and which are always eaten more or less.

TOP v. BOTTOM GRAFTING.—It is now pretty generally admitted that a stock deprived of its own foliage is of little or no advantage to the scion, especially in the case of the Vine, as the root in a few years "becomes what the top makes it." Hence it is the correct thing now, with some practitioners, to graft Vines half way up and leave a limb of the stock as well; but some observations we have made lately suggest the idea that certain weak-growing and ill-finishing Grapes might be considerably improved by placing them between a good top and bottom of some other kind of Grape. Has any grower, for example, tried the Duke of Buccleuch on a Hamburgh or Muscat stock with a few feet of the same Vine

grafted on the upper end of the Duke as well? If the theory of the ascent and descent and elaboration of the sap has any force, there ought to be transfusion of blood by this plan, and consequent advantages to the middle portion of the rod, for "stock" and "scion" become rather confused in a case of this kind.

VIRGIN MUSHROOM SPAWN.—Mr. Wright, in his book on Mushrooms, dwells on the advantages of virgin spawn. It is by no means well known, he says, that the spawn is weakened every time it is transmitted from brick to brick—propagated by division, we apprehend him to mean—and that weak spawn from this cause accounts for many failures. The best crops are produced from spawn propagated from seed (spores), a very probable thing, it will be admitted. Good London growers find it to their advantage, we are told, to pay a guinea for a very small quantity of virgin spawn for their bricks. Many gardeners would like to know where such "perfect bricks" are to be had—propagation by division is, we fear, the rule. It is probable the London growers got their ideas from the French, as published in the "Parks and Gardens of Paris," where the value of virgin spawn was first pointed out to English gardeners, the French system in this respect being described as quite different from ours. The idea is worth acting upon at any rate.

PEREGRINE.

FRUIT GARDEN.

NOTES ON VINE CULTURE.

FOR some time before and after midsummer Vines require more attention than any other indoor fruits, and by carefully and timely looking after their wants at this season, the crops which they are now producing will not only mature properly, but a good foundation will be laid for next year's crop.

WATERING.—When Vines are in full growth, as all of them are just now, it is almost impossible to give too much water at the root. Even in borders badly drained anything approaching dryness should never be allowed to occur, and where the borders are as well drained as they should be, copious and frequent waterings are absolutely necessary in order to insure free and perfect development of wood, leaves, and fruit. There should never be any stated time for giving water. Some may make a practice of watering at the root once a fortnight, and others may do so when growth begins, when the fruit is formed, and again when it is half swelled, and that is all. But it is not half enough, and those who follow a rule of this kind would soon find out the advantage of being more liberal with water if they would only try the experiment for the sake of comparison. The appearance of the inside borders is often very deceptive. They look as if they were wet and in proper condition for the roots, but frequently they are nothing of the kind; the surface only is wet, while underneath where the principal feeders are they are dry. Vines in a properly made border would be greatly benefited by being thoroughly watered once a fortnight at the present time, while their roots are active. In poor soil or old borders, manure water may be given with advantage. One handful of the best guano dissolved in 4 gallons of water is a suitable rate at which to apply this stimulant. Sometimes it is spread on the surface and watered in, but this plan is not so immediate in its effects as when dissolved. All kinds of drainings from manure heaps are good for Vines and should be utilised. Borders recently made, or rich in manure, should not have manure water, but abundance of clean water; other artificial manures should be spread on the surface and washed down to the roots. We simply give a slight moderate or heavy coating according to the strength of the Vines and the condition of the border. Soot is one of the cheapest of all dressings which can be watered into a Vine border just now; of course it is not so nutritious as the best manufactured manures, but it keeps insects in check, and makes the foliage rich in colour.

STOPPING AND TRAINING.—Vines will not give satisfaction unless these operations are properly attended to. Stopping the shoots for the first time at the first or second joint beyond the best bunch is an old way of dealing with them, and no modern system is yet superior to it, but it may be well to point out that to follow it out successfully stopping should not be too long delayed. When the Vines are healthy and growing fast the shoots soon run out some feet in length; they should, however, be checked long before that takes place, and the best time to do this is immediately the position of the best bunch can be ascertained. The point of the shoot, being then young and tender, may be easily removed by means of the forefinger and thumb. In a week or two after this the bud behind the stoppage will push into growth, and this in its turn must be stopped. This should be done at the next formed joint, and when growth again breaks out, as it will be doing at the present time, the same operation should be repeated, and onwards after this no young shoots should be allowed to extend except those wanted for young fruiting canes next season. All Vines have a strong tendency to grow just now, but the growths must be checked and kept well in hand; allowing an innumerable quantity of small shoots to run all over the roof, and shade and smother the main shoots and fruit is a bad plan, productive of no good this year, and hindering the proper maturing of the wood for another season's work. The young rods for fruiting next year may be allowed to run as far up as the ordinary rods go, but when they have acquired a reasonable length it is better to restrict them so as to have substantial wood than encourage the formation of superfluous growth. Tying in the shoots must also begin as soon as stopping commences. Some shoots go the right way for tying on to the wires from the first and give no trouble, but others run straight up to the glass, or take an opposite way to that in which they are wanted to go, and it is these which take some training. At first they require to be carefully handled, as the slightest twist or strain will cause them to snap off at their union with the old wood. In the beginning they must only be gently drawn down a short distance and be tied there for a time, and in a week or so they may again be drawn down a little, and possibly on the third occasion they may be secured in their proper place. Crowding so that the leaves overlap each other should never occur. To avoid this, when the rods are young and the buds close together, a good many of them should be rubbed off. If shoots or spurs are emitted from the rods at a distance of 1 foot or thereabouts, there will be nothing objectionable in their distribution.

THINNING THE FRUIT.—This consists in reducing the bunches where too numerous and thinning the berries of those left for a crop. The question is frequently asked, What weight should I allow each Vine to carry, *i.e.*, how many bunches per rod makes a good crop? To this question I will not undertake to give a definite answer, so much depends on the age and strength of the Vines. A Vine might mature fifteen 2-lb. bunches; whereas half this number of 4-lb. or 5-lb. clusters would be enough. Where the crop was excessive last year, and the fruit did not perfect in consequence, the Vines should be dealt with more moderately this season, and when it has been discovered, as anyone may soon do, what weight each Vine or house will bear with impunity, adhere to that. No bunches, except very small or deformed ones, should be thinned off until after they have bloomed and the berries have become formed. In the case of Muscats especially, some of the finest looking bunches may fail to set properly, while the smaller ones may do so and be the most compact. These, therefore, should be allowed to produce the crop. Bunches composed chiefly of small berries, with few or no stones in them, should always be cut off, and, as a rule, where there are two or three bunches on one shoot, often the case, all but one should be removed, the principal object to be kept in view being to allow every Vine to carry a fair share of the general crop and have the bunches as evenly distributed as possible. After the number of bunches has been selected, thinning the berries

should be commenced. They should never be allowed to become larger than Peas before being thinned, and must on no account be permitted to become massed together. It is easy to thin them when loose and pliable, but when firmly packed the operation takes longer time, and the worst berries cannot be so well seen and cut out. In thinning, all the smallest sized ones should be removed, the inside of the bunch should be well cleared, and the outside berries, which go to form the size and shapeliness of the bunch, should be preserved. Those not thoroughly conversant with thinning are always inclined to leave too many berries, and the result is that before they are half swelled or begin to ripen they are so close that they cannot swell without bursting. In that case every bunch should be gone carefully over, and the berries which cause the pressure should be cut out with long sharp pointed scissors. The majority of Grapes will have been thinned by this time, but many bunches may still be too crowded and should be relieved.

INSECTS of all kinds must be kept in check if not wholly exterminated. Red spider, thrips, and mealy bug are the most troublesome. The two former eat the leaves, disfigure them, and check their growth. Mealy bug sometimes finds its way into the bunches and renders them unpalatable. In winter, at dressing and clearing time, mealy bug may be cleared off, but unless the most stringent measures have been taken to do this it will again make its appearance. One of the best ways of checking it is going carefully over the Vines now and destroying all that can be found. Frequent syringing, too, displaces it, and this is destruction to the red spider and thrips. Some insecticides are useful in these cases, but to work with them when the Vines are in full leaf and fruit requires special care, or damage may be the result.

GIVING AIR in proper quantity and at the right time is another matter requiring at present considerable attention. Many vineries suffer from not receiving sufficient care in this way. In large places the vineries are opened hourly if need be, according to sun and shade, but amateurs have often to ventilate in the morning, and in that position the ventilators remain all day. In cases of this kind I would recommend the roof to be slightly shaded, and at this season a little air admitted at back and front constantly. In this way it is astonishing how the health of the Vines can be maintained, but when grown without proper ventilation and kept too close insects are the only inmates of the vinery which really prosper. When it is desired to force Grapes to ripen at this season, the best way is to keep up the temperature of the house by means of fire heat, and, at the same time, let abundance of air circulate through it. CAMBRIAN.

Market fruits.—Mr. Gilbert, in answer to some inquiries made concerning these, replies as follows: "Noblesse Peaches are to me useless except for home use, and now we don't eat Peaches. They have the best flavour, but that is all; no colour and bad setters; and indoors they do not look at you with that vigour which the modern Beatrice, Challenger, and Early Rivers do. In the market only the old stagers who know what flavour is will look at them. We have never yet sent a good ripe Peach to market; we only want size, colour, and croppers, and they must be so hard that they cannot be bruised. This is the rule with everything. Little Tomatoes fetch simply nothing and what people would say if they tasted a Grizzly, a black, or a white Frontignan Grape, I am at a loss to say. Marketing is what the old song says, 'the world is turned upside down.'"

Best black and white Grapes.—The best black Grape is doubtless the Black Hamburgh, which is grown in greater numbers than all other sorts put together; and as to the best white companion for it, I should say for general purposes Foster's Seedling. It would not be awarded a prize if placed in competition with Muscat of Alexandria, but it will beat the Muscat on almost

every point in which the average Grape cultivator requires it to do, *i.e.*, it will show bunches abundantly under almost any kind of training or pruning, and will set its fruit evenly and well in a greenhouse temperature. Its bunches, too, are handsome, being exceptionally well proportioned, and old Vines of this kind are just as fruitful as many kinds are at three years old. Give it good culture and time to ripen its fruit thoroughly until it assumes a golden colour, and there will be no lack of flavour. The question of what Grapes to plant can only be settled by knowing the special requirements of any particular case. But for a black and white Grape to suit the majority, Black Hamburgh and Foster's Seedling will be found trustworthy.—JAMES GROOM, *Gosport*.

The fruit crops.—Apples are at present a most promising crop; in fact the fruit is set so thickly as to resemble Cherries. We had a fine downpour of rain on the 9th, which refreshed the trees wonderfully. Strawberries are also a fine crop. Cherries flowered well, but get thinner every day. Plums are scarce, even Victoria. I have a few on a wall of the following sorts, *viz.*, Victoria, Jefferson's, Winesour, and Golden Drop. Peaches on the open wall are very good, though they had no protection whatever. Of Gooseberries I have a very fair crop; but in not a few gardens in this neighbourhood they are almost a total failure. Our garden is well walled in and well sheltered. Currants of all sorts will, I think, be plentiful.—GEO. CARPENTER, *Rydens, Walton-on-Thames*.

Kieffer Pear.—I hope your readers will not be induced to plant the Kieffer Pear from what is quoted from the *Rural New Yorker* and other American journals on page 433 of THE GARDEN. I have had specimens of the fruit sent to me from various places, and have tested it carefully from the time it is coloured until it begins to decay. It is beautiful to look at, being very large, of a golden yellow colour with a red cheek. The shape is that of a barrel, or rather keg. The tree possesses great vigour and bears early; the leaf, like that of the Japan Pear (its mother parent) is large and glossy. Now all is said that can truthfully be said in its favour. The quality is such that it is only fit for canning or preserving like the Quince. Several nurserymen here have been praising it to the skies, and hundreds—thousands probably—have been induced to buy largely at a high price, believing, from several injudicious words of praise from well-known men, that its quality is excellent. The flesh is coarse, tough, gritty; in fact very little better than the Sand Pear.—E. S. CARMAN.

5002.—Litter for Strawberries.—The chief objection to the use of even bad hay as litter for Strawberries is that it is likely to be full of seeds, which will germinate freely and fill the beds with Grass and other weeds. If it is certain that no such results would follow, then hay may be employed as usefully as straw. But another objection may be raised against the employment of bad hay for such a purpose, and it is this—that bad hay has an objectionable fusty smell, and as the fruits lie upon it such smell may affect them. Such a result would very likely follow if the hay were put down just as the fruits were ripening, but it is obvious that if down long enough to get well aerated and washed by rains the bad smell would disappear. Indeed, such an objection might be taken to the use of long stable litter, of which vast quantities are employed for mulching Strawberry beds in the market gardens. A week's exposure to the air after it is laid down and one or two washings are found to remove all unpleasant smell, and to leave the litter innocuous.—A. D.

—The best thing to spread over Strawberry beds is small wood charcoal. It is a great protection to the fruit against snails and mould, and in wet weather prevents them from being covered with mud. I have used it with great success for the last five or six years, and I think that it has some influence on the quality of the fruit, for with the same kind of plants I certainly get better results than most of my neighbours.—J. H.

CYPRIPEDIUMS, OR LADY'S SLIPPERS.*

I HAVE chosen the *Cypripedium* as the subject of a few remarks, on account of its being one of the most interesting genera in the great family of Orchids, and one, moreover, that is numerously represented in gardens and becoming more and more popular every day. Among Orchids there are many genera that possess showier flowers than the *Cypripedium*, but few in which there is such a combination of ornamental foliage and handsome and singular flowers; consequently, the Lady's Slippers, as the genus is popularly called, find many admirers, and in most good gardens a few of them at least may be found in bloom throughout the year.

THE LADY'S SLIPPERS are also a very accommodating class of plants under cultivation; everyone may grow them. Those who have no stove may grow a few in the greenhouse, and those who have no house at all may grow some in the open air, and these hardy species are among the most attractive in the genus.

As time is precious and my subject a wide one, I can only deal broadly with the chief points of it; therefore I must confine my remarks to the main sections of the genus, its geographical distribution, and to the hybrids that have been raised in this country.

Of the 334 genera in the Orchid family, none, perhaps, possess such well marked characters as the *Cypripedium*; there is no likelihood of anyone confusing its species with those belonging to other genera. It is so distinct structurally, that some botanists have even gone so far as to strike it out of the order altogether. The most recent classification, however, places the genus as the type of one of the five primary tribes of the order. This tribe includes four genera, two only of which are in cultivation, namely, *Cypripedium* and *Selenipedium*, but the latter, for reasons that I will presently explain, might well be merged with *Cypripedium*, at any rate as far as garden purposes are concerned, as its distinctive characters are purely of a botanical nature.

A CYPRIPEDIUM may be at once recognised by the inflated pouch-like labellum or slipper, the only exception being *Uropedium Lindenii*, in which the labellum is prolonged into a tail-like appendage similar to the petals. Another remarkable character in *Cypripedium* is the two perfect stamens, whereas in all other Orchids there is but one developed. *Uropedium Lindenii*, which I have just mentioned as having an abnormal labellum, is also irregular as regards the stamens. It has three perfectly developed stamens; two are lateral, as in true *Cypripedium*; the other springs from beneath the stigma. Its anther is borne on a long stalk so as to bring it in contact with the face of the stigma, and thus fertilisation is effected. No other Orchid that I know has the third stamen developed, and in this case it seems as if Nature, by way of compensation for the loss of the slipper-like labellum, thereby preventing fertilisation by insect agency, had added the third stamen in order to enable the plant to fertilise itself. It is, I believe, the only instance in Orchidaceæ in which self-fertilisation is possible. It is a singular fact that no mention is made of this anomaly by Bentham and Hooker in their late revision of the order in the "Genera Plantarum," though Reichenbach gives full details of it in his "Xenia." I have examined some dozens of flowers, and find this character to be constant in every case. What should have been the third stamen in *Cypripedium* proper is transformed into a fleshy organ covering the stigma, and is called the staminode. As the shape of this staminode is very variable, it furnishes an important character in determining species. In some its outline is square, as in *hirsutissimum*; in others it is crescent-shaped, as in *barbatum*; but in the majority it takes a triangular form, as in *villosum* and all the hardy species. The other parts of the flower are much the same as in other Orchids, except that the two lateral or side sepals are united in one

piece placed under the labellum, the only exception to this character being in *guttatum*, which has these lateral sepals quite free. In several other species there is often only a partial cohesion of these sepals, notably in *lævigatum* and in some of the hardy kinds. All the species are herbaceous perennials, and for the most part terrestrial. The majority are stemless herbs, producing tufts of evergreen leaves arranged one above the other in two rows. The rest are deciduous and have leafy stems.

THE GEOGRAPHICAL DISTRIBUTION of the genus is very interesting. When we consider how circumscribed the limits of most genera of Orchids usually are, the range of the *Cypripedia* is very remarkable. They are represented both in the Old and the New Worlds, and both in the northern and southern hemispheres. Some are found in the arctic regions of Siberia and the cold swamps of North America; others occur in the mountainous regions of South America, but the metropolis of the genus, so to speak, is in the hottest parts of Asia, especially in Further India and the surrounding archipelago. Though so cosmopolitan, no *Cypripedium* has, so far as I am aware, been found in the great continents of Africa and Australia, neither do they reach the southern latitudes of South America; in fact, all the members of the tribe appear to have sprung from a few local centres.

According to the latest computation in the "Genera Plantarum," *Cypripedium* numbers about forty and *Selenipedium* about ten species, or, in round numbers, about fifty in the two genera, but in this calculation several of the so-called species in gardens are no doubt only regarded as varieties. The greater number of the known species of both genera are in cultivation at the present time.

The whole of these species fall naturally into three groups, each possessing a set of characters peculiar to itself, and correlated by a distinct geographical dispersion, each, moreover, requiring separate treatment in cultivation. These groups may be conveniently called—1st, the temperate region group—species inhabiting the temperate parts of the Old and New Worlds; 2nd, the *Selenipedium* group—those confined to South America; and 3rd, the eastern group, or those inhabiting the Tropics of the Old World.

THE TEMPERATE GROUP numbers about a dozen species, all of which possess quite a distinct habit of growth from that of those of the other groups. All are herbaceous perennials, and all with four exceptions bear leafy stems ranging from 1 foot to 3 feet high. These leafy stems are deciduous; they die away in the autumn, and leave plump dormant buds which form the stems the following season. All the hardy Lady's Slippers bear more or less attractive flowers, and often showier than those of their tropical congeners.

This group has a wide geographical range, extending throughout the whole of the northern hemisphere, from the extreme east to the extreme west. The widest range is taken by *Calceolus*, one of our indigenous Orchids, but now almost extinct. This species occurs throughout the whole of Central Europe and as far north as Scandinavia. It is found in Siberia growing in company with the handsome *macranthum*, *ventricosum*, and *guttatum*, and in a modified form it is found in Japan under the name of *Atsomorii*. A few species are found as far south as the Himalayas, and, still going eastward to Japan, *macranthum* occurs with two or three local species, namely, *japonicum*, a very handsome plant, and two rather inconspicuous species, *cardiophyllum* and *debile*, the last probably the smallest of all the *Cypripedia*.

Turning to the New World, we find in North America no fewer than eight species, all of which are in cultivation in our gardens at the present time. In the extreme west occurs *C. californicum*; then in the Rocky Mountains is found *montanum* or *occidentale*, and further eastward are found the white *candidum*, *arietinum* (the Ram's-head Lady's Slipper), *pubescens*, and *parviflorum*, the two latter related to our native *Calceolus*. In the Eastern United States are also found *acaule* and *spectabile*, or the Mocasson flower, the handsomest of all Lady's Slippers. Another extremely beauti-

ful species is *Irapeanum*, the most southern of the group. It is found in the savannahs in Upper Mexico, but it is so fastidious in its requirements as to baffle all attempts to grow it successfully. It may be best described as a gigantic form of *Calceolus*, but with the flowers wholly of a bright yellow.

A knowledge of the native habitats of any plant often furnishes a clue to the cultivator as to its requirements, and in the case of these hardy Lady's Slippers this knowledge is important. Generally speaking, they are all natives of swampy places, particularly the North American species, which for the most part affect peat bogs. In most cases they are found growing in *Sphagnum* Moss and decayed vegetable matter, but not in soil. As regards shade and sunlight, the species are somewhat irregular in their likings. For instance, the beautiful *spectabile* seems to abhor direct sunlight, and only thrives perfectly in partial shade; on the contrary, the little *acaule*, which is common in Tamarac woods, does not mind the sun. Other United States species, *candidum* and *arietinum*, grow in peat bogs, where the roots are perpetually wet, but the stems are fully exposed to sunlight. The two yellow-flowered species, *pubescens* and *parviflorum*, are not at all fastidious as regards shade or sunshine. They are found in dry as well as in wet places and in loamy soil, and seem to have a particular liking for stiff clayey banks. In this respect they agree with *Calceolus*, our native Lady's Slipper, which invariably affects calcareous soils, and under cultivation will not thrive well unless it is placed in a stiff loamy soil mixed with limestone. It is also rather partial to full exposure, though, as a rule, it is best to give slight shade. The Siberian species *macranthum* and its near neighbour, *ventricosum*, are the most difficult of all to deal with in gardens, but this difficulty arises, no doubt, from placing the plants in moist peaty bogs, whereas they require to be treated similarly to *Calceolus*. This species grows in company with *macranthum*, and importations of roots from the localities where they grow generally contains a large percentage of *Calceolus*. In the York Nurseries *macranthum* has been successfully grown and flowered this season in heavy calcareous loam, the same as that in which *Calceolus* is grown. *C. japonicum* is considered a very difficult plant to grow, but no doubt it would succeed if grown in loamy soil instead of wet peat. It occurs naturally in moist and shady Bamboo groves, and the fibrous wiry roots penetrate into a yellow loamy soil. The Siberian *guttatum*, which is perhaps the prettiest in colour of all the Lady's Slippers, being white and blotched with crimson, is found on the eastern slopes of the Ural Mountains. There it is even commoner than *Calceolus* or *macranthum*. It grows in Birch, Pine, and Poplar woods, where the soil is rich in humus, and constantly damp. It appears to be confined to the woods composed of the three trees mentioned. It grows in grass and moss, and seems to like the same treatment as that of *Pyrola* or *Epigæa*. The Pelican Flower, as *Irapeanum* is called, is found in Upper Mexico, at elevations of from 3000 to 4000 feet, and where the conditions are such that the plants are saturated with moisture at the roots while the stems are in active growth, but when these have died away the soil is dry, and thereby giving the plant a decided season of rest in winter. The ill success in cultivating these hardy Lady's Slippers may, in most cases, be attributed to putting all under the same conditions, generally in a moist shady peat bed, which suits some, but not others.

THE SOUTH AMERICAN or *Selenipedium* group numbers about a dozen species, nearly all of which we have in cultivation. They all possess quite a distinct habit of growth from other *Cypripedia*, with the exception of a few of the East Indian species. All have long sword-shaped leaves of thick texture and wholly green, and all bear tall, several flowered stems usually furnished with conspicuous leafy bracts. Their most important distinguishing character, however, is in the flower, the ovary or seed-vessel of which is three-celled, whereas in all

* A paper read by Mr. William Goldring at the evening meeting of the Royal Horticultural Society, Linnean Society's Rooms, Burlington House, June 12.

other *Cypripedia* it is one-celled. On account of this difference in structure, Professor Reichenbach founded his genus *Selenipedium*, but in gardens the species comprising it always have been, and probably always will be, classed with the true *Cypripedia*. There are other minor differences in flower structure in this group; for instance, in most of the other species the dorsal or odd sepal is as a rule the largest; but in the *Selenipedia* it is generally the smallest. Moreover, in nearly all the species the petals have a decided tendency to prolong themselves into tail-like appendages. An extreme case of this we have in *caudatum*, one of the most wonderful of all Orchids.

In this species the petals are excessively prolonged, sometimes measuring a yard in length. It is interesting to observe how rapidly these petals or tails are developed. When the flowers first expand they are only about an inch long, but during the four or five days following they attain 18 inches or 20 inches in length, and they have been observed to extend as much as $5\frac{1}{2}$ inches in one day. A similar example of this lengthening of the petals we have in the curious *Uropedium Lindeni*, which, as I said before, differs from other *Cypripedia* in having a long-tailed appendage instead of a slipper-like lip.

The distribution of the South American group is somewhat limited compared with that of the other groups. Its headquarters are the mountainous districts in the north-west part of the continent, but outlying members are found in Central America, and one, the rare *C. vittatum*, is found even on the eastern coast of Brazil. A few species, not introduced, also occur in Brazil; *C. longifolium* is found in elevated districts of Costa Rica, and, coming southward, we come across its near neighbours, *Roelzii*, *Hartwegi*, *Hinksianum*, and *Lindleyanum*, which so much resemble each other that many regard them as only geographical forms of one species. The beautiful little *Schlimi*, which has played such an important part in hybridising, a very distinct plant, is found near Ocana, but the best variety of it, and also the white form, occurs in Antioquia. It invariably grows in rocky crevices, and usually where it is almost perpetually deluged by water splashing upon it. This hint should be taken by cultivators to grow the plant in a moist and not too warm an atmosphere, as it is so liable to attacks of thrips if kept too hot and dry. In New Granada the singular *Uropedium* is found in the districts around Lake Maracaibo. Further south, in Peru, in the Andean Cordilleras, is the home of *caudatum*, which also occurs in the more northern parts of the continent, but as a richly-coloured variety named *roseum*. The little Sedge-leaved Lady's Slipper (*caricinum*) was found by Pearce in Bolivia, and it commonly goes under the name of *Pearcei*. All the *Selenipedia* require to be grown in an intermediate temperature and in a moist and well ventilated house, as they invariably grow naturally at high elevations where a cool and moist atmosphere prevails.

THE EASTERN GROUP is the most numerous of all and, moreover, the most important from a garden point of view, as it has yielded the handsomest species we have in cultivation. This group numbers some thirty species, nearly all of which have been introduced. The species may be conveniently placed into two series, according to the character of the inflorescence. One series bears solitary flowered scapes, as in the well-known *barbatum*, and may be termed the *Unifloræ*. The other series includes those species which bear several flowers on a stem, similar to the South American *Selenipedia*, and may be termed the *Plurifloræ*, an example of which may be seen in *C. levigatum*. All the *Plurifloræ* have long, wholly green leaves of leathery texture, and seem to be the counterpart of the *Selenipedia*, except that the ovary is one-celled. There are five species in gardens belonging to this group, namely, *Stonei*, *levigatum*, *Parishi*, *Loweii*, and *Haynaldianum*. Another handsome species of this section is *glanduliflorum*, a native of New Guinea, but it has never been introduced in a living state.

The *Unifloræ*, or one flowered species, number about two dozen species, and these again may be divided into two classes according to leaf character, one class having plain leaves, as in *insigne*, the others mottled, as in *barbatum*. In the mottled-leaved group such a strong family likeness prevails, that the idea suggests itself that they are but forms of one or two very variable species. In all these there is a more or less distinct mottling of the foliage, and the flowers as a rule bear large upper or dorsal sepals, and almost invariably have wart-like glands on the edges of the lateral petals. To this group belong *C. barbatum*, *biflorum*, *Lawrenceanum*, *superbiens* or *Veitchianum*, *nigrum*, *Argus*, *ciliolare*, *Hookeri*, *Bullenianum*, *Dayanum*, *Petri*, *javanicum*, *virens*, *Burbidgei*, *Mastersianum*, *Curtisi*, *purpuratum*, *niveum*, and *concolor*. The green-leaf set comprises *villosum*, *hirsutissimum*, *Boxalli*, *insigne*, *Fairieanum*, *Druryi*, and *Spicerianum*.

These eastern species are confined to a comparatively limited area, and particularly the mottled-leaved series, which are almost restricted to Borneo, Malacca, Sumatra, and Java, the only outlying members being *venustum*, which reaches as far north as Nepal, and *purpuratum*, which is found in Hong Kong. Consequently, this race requires an abundance of heat and moisture in cultivation. The plain-leaved series with one-flowered scapes are all confined to the Continent, the most northerly species being the old winter-flowering *insigne*, which occurs in Nepal, and is therefore amenable to greenhouse culture. Coming south, the rest of the species occur in succession, including the dainty little *Fairieanum*, whose particular lair no one seems to know. The recently introduced *Spicerianum*, one of the handsomest of Lady's Slippers, comes from Further India, and is found growing in crevices of limestone rocks in positions where it is perpetually moist. The little *concolor*, so distinct from all other species in form of flower, has its native habitat on the mainland somewhere in Moulmein, and its counterpart, the beautiful little *niveum*, the only pure white Lady's Slipper, also occurs in this locality, but was first 'discovered' in the Tambelan Islands, a little group just off the mainland. Both of these species grow naturally in limestone rocks, but in cultivation the plants are none the better for limestone in the soil. The several flowered race are all insular, except *Parishi*, which occurs in Moulmein, and seems to be the counterpart of *levigatum* of the Philippines. *C. Loweii*, which is purely epiphytic, inhabits Borneo, and a slightly different form of it called *Haynaldianum* is found in the Philippines. The very handsome *Stonei* is also a native of Borneo. All the group require an abundance of heat and moisture.

Hybrids.

I now come to an important and interesting branch of my subject, and that is the hybrid *Cypripedia* that have been raised in gardens in this country, and which number nearly half a hundred up to the present time. No Orchids have lent themselves so kindly to hybridisation as *Cypripedia*, hence the large number of hybrids that exist, and of which several fine examples are before me. The aim of the hybridist has been twofold. He has sought not only to obtain variety, but has also endeavoured to infuse a stronger constitution into the weak growing species, or bad-doers as they are called, by crossing them with vigorous species. In both cases he has been very successful. He has produced wonderful variety, for none of the hybrids are like the parents from which they sprang, and in several instances the progeny is handsomer than the parents. The hybridist has also been highly successful in intercrossing weak with vigorous growers.

The hybridist's successes have been many, but he has also had numerous failures. As yet he has failed to intercross any of the hardy species among themselves or with either of the two other groups, though it has been attempted several times. Mr. Seden, one of the most successful of Orchid hybridists, tells me that in his attempts to cross the North American spectable with any of the tender species he has obtained swollen seed-pods, but

their contents invariably turned out to be nothing but chaff; at least, he has never succeeded in inducing any seed to germinate. Many attempts have been made to intercross the Old World species with those of the New World, but up to the present time no one has succeeded in flowering a hybrid between the two groups. There is, however, in Messrs. Veitch's nursery a presumed hybrid between *C. caudatum* and *barbatum*, the foliage of which bears unmistakable evidence of a cross between these two widely different species. Every effort is being made to induce this interesting hybrid to flower, but though eleven years have elapsed since it was first raised, it has shown no signs of flower. The flowering of this hybrid will no doubt be looked forward to with interest by botanists as well as horticulturists, for they will be curious to know how far the three-celled and one-celled character of the ovary is represented. It is a singular fact that every one of the hybrid *Cypripedia* is exactly intermediate between the two parents, so that by intercrossing two given species, the hybridist can pretty well judge what will be the features of the progeny. Of course some species intercross more freely than others, and the results of the hybridist's labour are not without value to the botanist, as they tend to show the relationship of species.

It is an important fact that every one of these hybrid *Cypripedia* possess a more vigorous constitution than their parents, and they are not only freer growers, but freer flowerers, and no more remarkable instance of this free-flowering character could be adduced than the now popular *Sedeni*, one of the finest hybrids yet raised. Some time ago I saw in Sir Trevor Lawrence's garden a huge plant of this variety bearing tall, branching spikes, and carrying fifty or sixty expanded flowers. Of course this was an exceptionally fine specimen.

This *Sedeni* is typical of a race of high-coloured hybrids, all likely to prove most valuable garden plants, as they are of such robust growth and bear such a long succession of flowers, that they may be termed perpetual flowerers. *Sedeni* was the result of intercrossing *longifolium* and *Schlimi*. The little *Schlimi* is the key, so to speak, of all the high-coloured hybrids of the *Selenipedium* race. These two species produced exactly the same variety when both were used as a pollen and seed parent, the brightest coloured of which type is *cardinale*, the result of crossing *Schlimi* and *Sedeni*. This may be termed a secondary cross, and the progeny seems to have extracted all the colour possible from both parents. *C. calurum* is another secondary cross between *Sedeni* and *longifolium*. By intercrossing *caudatum* and the Sedge-leaved *caricinum* or *Pearcei Dominianum* was the result, and by again crossing *Dominianum* with *Schlimi* the very handsome rosy coloured *albo-purpureum* was obtained.

It is now some fifteen years since the first hybrid *Cypripedium* was raised. This was *Harrisianum*, a cross between *barbatum* and *villosum*, and was raised by Mr. Dominy. Since then the production of these hybrids has been carried on at an astonishing rate until now they number nearly as many as the wild species. The most valuable hybrids have been produced by intercrossing the East Indian species, particularly the one-flowered and the many flowered races. For example, the finest hybrid that has been raised is *Morganæ*, which is remarkable as being almost the counterpart of the extremely rare and very handsome platytenium variety of *Stonei*, which has long, broad, lateral petals copiously spotted with black. This hybrid was obtained by crossing *superbiens* and *Stonei*. It is interesting to observe that the tendency to produce several flowers on a stem was prepotent in this case, and likewise in other instances of intercrossing the one-flowered and several-flowered series, such as *selligerum*, between *barbatum* and *levigatum* and *euryandrum*, which had for its parents *Stonei* and *barbatum*.

One would suppose that there would be but little variation among the individual plants produced from the same seed-pod, but such is not the case with these hybrid *Cypripedia*, and in several instances some seedlings are vastly superior to

others. For example, of the earliest hybrid raised by Mr. Dominy (Harrisianum), there is a variety named superbum, which is superior to it in every respect, and being somewhat scarce commands a ten times higher price than a plant of the ordinary form. Again, in the case of selligerum, it also has yielded a very fine variety, having much larger and more highly coloured flowers than usual, and is known as the majus variety.

In Messrs. Veitch's nursery, Chelsea, where most of these hybrids have had their origin, there is quite a host of others which have not yet flowered, but of which great expectations are entertained. Patience and skill are necessary in Orchid hybridising, for in many cases the seedlings are several years before they flower. In the case of Cypripeds, however, which have no pseudobulb to develop before flowers can be produced the case is different. Some of the quick-growing kinds, such as Sedeni and others of a similar nature, have been flowered within four years from the germinating stage. On the other hand, the hard or slow-growing types, such as caudatum and Stonei, do not flower until they are several and often a dozen years old.

The chief workers in the field of Cypripedium hybridising have been Mr. Seden, who has raised for Messrs. Veitch no fewer than thirty distinct varieties; Mr. Bowring, of Forest Farm, Windsor, has also raised some very distinct and handsome hybrids; likewise Mr. Warner, who has, unfortunately, lost the memoranda relating to the parentage of his seedlings; Messrs. Cross, Swan, and others have also contributed to the work. It is a noteworthy fact, moreover, that the raising of hybrid Lady's Slippers has been carried out almost entirely in England. I have seen but one Continental hybrid which was Dauthieri, much in the same way as Harrisianum.

LIST OF HYBRIDS.

	SEED PARENT.	POLLEN PARENT.
Ainsworthi	Sedeni	Roezli
albo purpureum	Schlimi	Domini
Arthurianum	insigne	Fairieanum
Ashburtoniae	insigne	barbatum
calanthum	barbatum biflorum	Lowe
calurum	longifolium	Sedeni
cardinale	Sedeni	Schlimi
conchiferum	Pearcei	Roezli
Crossianum	venustum	barbatum
discolor		
Domini	Pearcei	caudatum
euryandrum	barbatum	Stonei
Fraseri	barbatum	hisutissimum
grande	Roezli	caudatum
gemmiferum	Hookeri	Dayanum
Harrisianum	barbatum	villosum
lucidum	Lowe	Lowe
macropterum	Lowe	Veitchianum
Marshallianum	venustum pardinum	concolor
marmorophyllum	Hookeri	barbatum
meirax		
Morganiae	Veitchianum	Stonei
microchilum	niveum	Druryi
melanophthalmum		
nitens	villosum	insigne Maulei
onanthum	Harrisianum	insigne Maulei
Seden's variety	Harrisianum	insigne Maulei
porphyreum	Roezli	Schlimi
porphyrospilum	Lowe	Hookeri
polium		
pycnoptrum	venustum	Lowe
Sedeni	Schlimi	longifolium
Sedeni	longifolium	Schlimi
selligerum	barbatum	laevigatum
" majus	barbatum	laevigatum
Schrodere	caudatum	Sedeni
supericili	barbatum	Veitchianum
stenophyllum	Schlimi	Pearcei
Swanianum	barbatum	Dayanum
tessellatum	barbatum	concolor
venixium	Argus	villosum
vestibularium	barbatum	Fairieanum
Williamianum		

Birds v. slugs and snails.—In reference to this question I may state that in this locality, where blackbirds and thrushes are very scarce, slugs and snails are more plentiful than I have ever met with them before in districts in which birds are numerous. There can, therefore, I think, be no question that slugs form the greater part of the food of blackbirds and thrushes when procurable. I have repeatedly noticed after rain when worms, slugs, and snails were plentiful on the surface that these birds were not troublesome to the fruit, but in periods of drought, when short of what one may call their natural food, they would

go under fish nets or through any aperture to get at either Strawberries, Cherries, or bush fruits. Here after rain good sized bushes are quite weighed down by loads of shell snails that devour the leaves.—J. G., *Hants.*

PLANTS IN FLOWER.

MAGNOLIA TRIPETALA.—A huge species was shown at the horticultural meeting the other night by Mr. William Wickham, of Binsted-Wyck, Hants, in a very fine state of flower, its enormous foliage being healthy and well developed.

THE ALPINE ASTER.—The ordinary purplish form of this plant, with its large yellow centre, is very pretty indeed on the table. Some flowers of it, sent us by Mr. Ware, are more than 2 inches across. The white form is also pretty. Asters of this type are valuable for cutting in early summer. The plant is very easily grown in any soil.

THE TREE LUPINE.—It is not the first time that we have spoken of this hardy Lupine, but some good spikes of its rich yellow, sweetly-scented flowers from Mr. Ware remind us of its value. It perhaps more legitimately belongs to the shrub division than to that of herbaceous plants. The scent is delicious, and might be excessive where a large quantity of it is planted.

THE LARGE ST. BRUNO'S LILY.—This is a noble flower for cutting, and, even in the hot weather we have lately had, lasts very well in a room. It endures all the better if the seed-pods were pinched off as the flowers "set." Its pure white bells are charming. Of the two plants perhaps the purest in flower and best in habit is the ordinary St. Bruno's Lily, but this large white one is a distinct gain, and associates well with the finer early summer bulbs.

DIANTHUS HISPANICUS.—Among a choice group of cut hardy flowers, exhibited by Mr. G. F. Wilson, Heatherbank, Weybridge, on Tuesday last, was this extremely beautiful Pink, one of the rarest species in cultivation. It is of slender growth, and bears flowers about 1½ inches across of an intensely deep crimson. We first saw this Dianthus last year in Mr. Wilson's garden at Wisley, and we thought it then one of the prettiest hardy flowers we had ever met with. It is a pity that such a desirable plant should be so rare.

JAMESIA AMERICANA is a rare neat growing American shrub, producing at this season numerous clusters of small white blossoms on the tips of every twig; so plentiful, indeed, are the flowers, that a good sized and well flowered specimen such as that in the herbaceous ground at Kew looks like a mass of white. It belongs to the Saxifrage family and is perfectly hardy. It is a pretty object, too, in the Hale Farm Nursery, Tottenham, where it appears to be perfectly at home on elevated mounds in the alpine garden.

LYCHNIS VISCARIA SPLENDENS FL.-PL.—This double-flowered variety is one of the best plants in flower at the present time in the Hale Farm Nursery, Tottenham, where it may be seen by the square rod, a perfect mass of bloom. The colour, a rich rosy purple, is very striking, rendering this by far the best of all the hardy perennial Lychnises. It grows from 1 foot to 1½ feet high, and produces its rosette-like blossoms thickly on the erect branching stems. A double variety of Lychnis dioica is also finely in bloom in the same nursery.

GUERNSEY IXIAS.—A gathering of Ixias sent to us by Mr. Hubert, Fountain Street, Guernsey, shows what beautiful colours exist among these Cape bulbous plants, and also how finely they can be grown in the genial climate of the Channel Islands. Mr. Hubert states that the flowers sent are from unnamed seedlings raised from carefully hybridised seeds. Most of them are remarkable for their large size and substantial texture, as well as for the large massive spikes on which they are produced. Some are particularly fine in this respect. Some of the flowers are a rich port wine colour, but the majority are white or creamy white, and mostly striped or blotched with crimson.

Some, too, are pale yellow, and nearly all have dark, almost black centres. In a cut state these Ixias are very valuable, as they last a long time in perfection, and if cut when only half the flowers on the spike are expanded, the rest develop quite as well as those on the plant. Ixias, Spaxaxis, and similar bulbous plants are almost unknown in gardens as a rule, but they are a valuable and beautiful class of plants.

TORENIA RUBENS.—This is a near ally of the well-known *T. asiatica*, a favourite plant for suspended baskets. The new species has much the same drooping habit of growth and is also similar as regards the size and shape of the flowers, but the colour is deeper and somewhat richer, a circumstance which makes it quite distinct in appearance from the other. A well grown specimen of it in one of the compartments of the T range at Kew is a pretty object. It is in a hanging basket, its shoots, full of blossoms, falling gracefully over the sides.

HABRANTHUS PRATENSIS FULGENS.—A very fine spike of this hardy bulbous plant has been sent to us by Mr. Allan, Gunton Park, Norwich. There are five blooms on the spike, which is about 9 inches high. The flowers, which are 2½ inches in length, are brilliant orange-scarlet and very striking—indeed, one of the finest hardy flowers in cultivation. As Mr. Allan seems particularly successful in the culture of this rare plant, perhaps he could give our readers the benefit of his experience in that respect. This plant was figured in *THE GARDEN*, Vol. XIV., p. 514.

SCHIZANTHUS RETUSUS.—Some fine specimens of this showy annual from Mr. Crook, Farnborough Grange, remind us of its great value as a conservatory plant at this season, but how seldom do we meet with it grown as it should be for such purposes. Its light elegant growth and foliage and brilliant orange and carmine blossoms make it distinct from the ordinary run of early summer greenhouse plants. It is more showy than its commonly grown relative, *S. pinnatus*, the flowers being nearly twice the size. These beautiful half-hardy annuals receive as a rule but scant attention in gardens as regards their pot culture, yet when well grown there are few that repay so well the trouble of cultivation.

VERONICA GIRDWOODIANA AND PINGUIFOLIA.—These two Veronicas are very beautiful with us this season. *V. pinguifolia* is growing on our rockwork, where it has stood for two seasons. It forms a dense, small shrub, and appears to be admirably suited for rockwork, as the plant seems almost to "nestle" among the stones. *V. Girdwoodiana* is flowering in the open quarters in the nursery.—**ROBERT VEITCH & SON, Exeter.** [Two very pretty hardy shrubs. *V. Girdwoodiana* is very twiggy in growth, and every tiny shoot is terminated by a dense cluster of purplish blue flowers, somewhat similar to those of our common Speedwell (*V. Chamædrys*). *V. pinguifolia* is a dwarf compact growing shrub, with small glaucous leaves, and with small clusters of white flowers having purple stamens.]

GARDEN IN THE HOUSE.

Double zonal Pelargoniums.—Amongst plants for furnishing the flower basket there is hardly any more useful, and certainly none more continuous or unfailing, than the double and semi-double zonal Pelargoniums. They are, however, only at home under glass protection, as even in mid-summer heavy rains soon spoil the blooms—the centre of the truss gets decayed before the outer blooms are expanded; but under glass they are really most effective, and for cut blooms where brilliant colour is required they are indispensable. This is the time to get up a stock for next winter's display. Young plants in 3-inch pots, if shifted into 5-inch ones and grown on in cold frames, keeping all the bloom pinched off, will make a fine show when dark days again come round. There are so many beautiful varieties of double Pelargoniums in various shades of scarlet, that it would be well-nigh impossible to say which is the best,

roofed pit if at command. Plunge them with their heads well up to the glass, let the minimum temperature range about 60°, and give sufficient atmospheric moisture to keep them steadily progressing throughout the winter.

PEACHES.—EARLY HOUSE.—When the buds begin to show colour a slight rise by day may be indulged in on bright, fine days; but a gradual fall back to 45° or thereabouts at night will be advisable until the flowers are perfected and begin to unfold, when more air and gentle fire heat will be necessary. Look well to the fermenting leaves on the internal border, as the humid warmth from these is so much better than that obtained from the hot-water pipes, and further, the necessity for constant syringing is greatly reduced, no small advantage in the dark, dull month of December, when complete saturation of the buds is not always desirable. If the roots have the run of an external border, this must be well covered with Fern or litter to keep out the frost, and tarpaulin may be used for throwing off snow and rain; but in these high feeding days an outside border attached to an early house is looked upon as a superfluity, the main points in the management of the roots of Peaches being good drainage, sound calcareous loam, frequently changed, and plenty of water at all times. If Strawberry plants, the forerunners of confusion in forcing houses, must be introduced, let them be well dipped in sulphur water to cleanse them from spider before they are taken in, then clear off the surface soil, ram well, and top-dress with stiff loam and old cow manure. When the most forward trees approach the flowering stage, fumigate the house once or twice with tobacco paper. At this stage it is just possible that no enemy may have appeared in sight; but so destructive is green fly when smoking is omitted, that an operation so simple and inexpensive should never be neglected.

SUCCESSION HOUSE.—Prune, cleanse, and tie in the trees as opportunity offers, and keep the house well ventilated until the time arrives for starting. The first week in January is a good time to close the second house, as the earliest varieties form a close succession to the latest in the early house, and as Peaches cannot be kept for any length of time after they are ripe, a careful selection of kinds that will follow each other in their order of ripening should be made for every house. Assuming that the second house has been stripped and the lights properly repaired and painted, there will be no fear of the buds dropping for want of water; but where the roof is a fixture, copious waterings will be necessary, and immediately after the fall of the leaf will be the best time for internal painting. Keep the latest houses as cool and airy as possible to prevent the buds from getting forward in mild weather, and avoid using them for tender plants which cannot stand a few degrees of frost. When all planting is finished, re-arrange the reserve wall, without which a set of forcing houses cannot be kept going, and fill up all available spaces with young trees from the nursery.

VINES.—Examine inside borders in the early house as soon as the buds are fairly on the move, and, if necessary, give old Vines which cannot be over-stimulated a good soaking with warm diluted liquid; also mulch the roots with rotten manure, renovate the fermenting material, and let the temperature range from 50° to 56° at night, and 65° to 70° by day. As old Vines generally break well, direct syringing may be moderated on dull days, but young ones which have not been forced early will require more careful management, as it not unfrequently happens that the most prominent buds take the lead, and unless timely attention is devoted to bending down and sometimes rubbing out the terminal buds, unsightly blanks will be sure to mar the appearance of the house. When this stage of growth has been reached, strip the outside borders of Fern and shutters, and cover to the depth of 18 inches with fermenting Oak leaves. Make them very firm to keep in the heat, and replace the shutters above, but at the same time clear off the leaves.

LATE HOUSES.—Look over hanging Grapes two or three times a week, as this intensely damp weather is very bad for Alicantes, Gros Colmar, and Muscats, and one neglected berry soon mars the beauty of a bunch. Get rid of the foliage little by little, as it parts freely from the Vine, but do not take off any more laterals, at least where the Grapes are to be bottled, otherwise the wounds will give off moisture and colour when the bunches are taken to the dry atmosphere of the Grape room. Ventilate freely with gentle warmth on fine mornings. Keep the house quite close in foggy weather, and let the temperature range from 55° by day to 45° at night. Make a good selection of eyes from early prunings, and if young planting canes are wanted early in the spring insert in sods or small 3-inch pots before Christmas. Keep them in a cold frame for three weeks, then place them in or over bottom heat. Cut back to the required length or quite down to the pots yearling Vines intended for planting. Dress the cuts with styptic and keep them in a cold house until the time arrives for encouraging growth. If any lifting or border making in late houses is being put off until the Grapes are cut, take advantage of fine days for firing the Grape room and cut as soon as the leaves fall from the Vines; meantime get the compost properly mixed, ready for use, and protect from the weather. Prune mid-season houses, cleanse, paint, and put everything in working order, then throw open the ventilators at all times when the weather is not unusually severe.

KITCHEN GARDEN.

VEGETABLES FOR EXHIBITION.*

No work in the kitchen garden is more interesting than that of cultivating vegetables for exhibition. It is in many respects an unlimited subject, as the quality of the produce can never be too high, or cultivators and exhibitors too numerous, and they may belong to all classes, from the owner of a garden many acres in extent, to a cottager who only rents a small allotment. Where vegetables are exhibited, often extensively and successfully from any garden, it is a pretty sure sign that vegetable culture receives proper attention and that the soil is well tilled. No ground is allowed to remain empty in the garden of one who grows vegetables for exhibition, and everything which can be converted into manure is taken advantage of. Some say that when a cultivator begins to grow for exhibition, crops for every day use are made a secondary consideration, and that except at certain periods there is a deficiency in the supply, but that is a mistake, as crops throughout the year must be of the highest excellence to enable extensive selection to be made for successful competition. For instance, anyone wishing to exhibit a dozen Cauliflowers in June would never think of only growing a dozen plants to secure that number of fine heads, but scores, or even more as the case might be, and, therefore, a surplus of fine heads would be the result; and this would happen in the case of all crops at all seasons. There is, moreover, the desire which every exhibitor possesses of growing only improved varieties of everything, and the best show vegetables are also the best for table use; indeed, they cannot be otherwise. Veitch's Autumn Giant Cauliflower, for instance, is one of the very best for exhibition purposes, and a better Cauliflower for ordinary use could not be. Intermediate Carrot is vastly superior to the Long Surrey for exhibition, and so it is also for the table. The handsome smooth fruit of the Drumlanrig Tomato is better than that of distorted kinds, and Drumhead Cabbages would stand no chance, either in a show room or on a dinner table, with the variety called Redbraes. The only exception to this rule may probably be found in Potatoes, as among these the handsomest looking, such as Interna-

tional Kidney and Porter's Excelsior amongst rounds, are inferior in quality to others less attractive in appearance. Still, many of the newer sorts such as Schoolmaster, Covent Garden Perfection, and others, are not without merit. Before success can be attained the

SOIL must be got into proper condition. Few crops can be brought to any great degree of perfection in poor shallow soil; richness and deepness in the way of tilth are necessary in order to secure perfect development. A deeply-dug and well-manured soil will always produce good vegetables, but a soil which may produce fine Cabbages, Cauliflowers, Brussels Sprouts, and similar crops may not be capable of growing beautiful, clean Carrots, Parsnips, Beetroots, &c., as while the former delight to feed on fresh lumps of manure, and abundance of it, the latter can only be had clean and perfect where the ground can be penetrated freely without causing the roots to emit prongs and rootlets, which they are apt to do in newly manured soil. All such crops should be grown in soil which was well manured the previous year. Heavy land may always be made suitable for roots by adding sand, road scrapings, or leaf soil, and insects, which are so injurious to some crops, especially Carrots, may be prevented from doing much harm by the judicious application of soot, lime, or salt. Potatoes can only be had of the largest size by the aid of plenty of manure. Peas, too, delight in abundance of this stimulant, and so do Onions, Leeks, Broad Beans, and Celery. Leeks for show cannot be too large, and the more blanched the stem is the better. Onions can never be too large, provided they are good in shape and perfectly solid. In spring and early summer autumn-sown Onions are best for exhibition, but after the month of August spring-sown ones, if well grown, are generally the best. Celery, when strong, spotless, and well blanched, is an excellent vegetable for exhibition, and a good dish of it always commands attention. An ordinary amount of manure will grow Celery more firm and crisp than a superabundance of it. Of water it can scarcely have too much, and the soil with which it is earthed up should always be quite free from grubs, as it is these which disfigure the stems. Soil which will produce clean Carrots will always grow perfect Celery, and with us these two crops are never grown far apart. Undue crowding must be strictly avoided in growing vegetables for exhibition, but at the same time it is quite unnecessary to allow more space between the rows or plants than is really wanted. Onions, for instance, grown 6 inches apart should just be as fine as any which could be produced at 12 inches apart. Timely attention in the way of sowing, planting, and thinning are important points, and good results are not so much a question of space as of system and order. Unsuccessful exhibitors who have never given their vegetable crops due attention often think and say, when they see some high-class vegetables shown, that more means than can be commonly employed have been taken to produce them, but in the majority of cases that is not so; there is, indeed, no secret whatever in the matter of growing good vegetables; all they want is sound cultivation, care, and attention. Some crops may be stimulated by strong manures, and these may be the means of forcing certain things into prominence, but to depend on stimulants to produce all kinds of vegetables fit for exhibition is a great mistake. Artificial manures are deficient in sustaining powers, and therefore both crops and soil would ultimately suffer were no other manures used. Fertilisers, in the shape of top-dressings or manure water, may be employed with advantage at certain times during the season, especially in over-dry or poor soils, but I would never recommend anyone to grow show vegetables in such a, if I may be allowed to use the term, spasmodic way. The mainspring of success does not rest on such fits and starts, but on the general high condition of the soil—the result of good cultivation. Quality must be the sole characteristic of vegetables for exhibition, and this can only be obtained by steady, persistent growth.

* A paper written by Mr. J. Muir, Margam Park, Taibach, S. Wales, and read before the Scotch Horticultural Association Edinburgh, December 4

IN SELECTING VEGETABLES for exhibition, preference should be given to those varieties that require most skill in cultivation. In unlimited collections specimens of everything may be shown, but where prizes are offered for collections of six, nine, or twelve sorts only the choicest should be taken. A good collection of six kinds should consist of Peas, Kidney Beans, Cauliflowers, Tomatoes, Potatoes, and Carrots. In the case of nine dishes I would add Cucumbers, Celery, and Vegetable Marrows, and in that of twelve Turnips, Globe Artichokes and Leeks or Onions. Larger collections should include Broad Beans, Runner Beans, Asparagus, Beetroot, Cabbage, Brussels Sprouts, Parsnips, Salsafy, Savoys, Lettuces, &c. Rhubarb is sometimes shown as a vegetable, but it is not distinct enough to make a good dish. In single dishes a number of Cabbages or Savoys would stand no chance of being placed before good Tomatoes, Celery, Carrots, Cauliflowers, Potatoes, and similar produce, and in order to exhibit successfully attention must be paid to these matters. Over-grown vegetables or those past their best are not suitable for exhibition; they should be just on the eve of their prime, and it must never be forgotten that quantity can never make up for want of quality. In a really first-class collection of vegetables every dish should be good enough to win were it placed in the single classes, and unless that is so disappointment is sure to be the result. One of the best collections of vegetables I ever exhibited was shown at Gloucester in 1880, when four Cauliflowers beat twenty-four, and six Onions weighing 24 ounces each were preferred to heaps of two dozen. These are instances of quality being of more importance than quantity. A plan often resorted to is to show collections with one or two good specimens in each dish and the remainder inferior—an unprofitable mode of exhibiting. In preparing vegetables for exhibition, all superfluous matter in the form of loose leaves should be trimmed off and only the useful parts left. Roots should be washed clean, but any kind of polishing should never be attempted. In dishing up and arranging, no particular plan need be followed, but everything should be shown off to advantage. All kinds of salad plants may be included, but, with the exception of Cucumbers, none of them can be shown to win against good vegetables of the ordinary types. At many shows, however, there are salad classes. Cucumbers, Lettuces, Endive, Radishes, Mustard and Cress, Beetroot, and Celery are amongst the chief subjects which come under this heading. Cucumbers should never be too old when shown; young and tender specimens alone merit a prize. Fruits from 12 inches to 20 inches in length are generally preferred to yard long ones. Lettuces should be crisp and firm and always well blanched in the centre. The Batavian Endive is the best, but this is chiefly used as a winter salad. Radishes may consist of both the long and short-rooted varieties, and they may be red or white in colour, but they must be clean skinned and firm at the core. Apart from Celery being a first-rate vegetable, it must be included as a salad, and when well grown carries great weight in any exhibition. The

IMPORTATION of vegetables into this country is very considerable, and the only way to lessen it with advantage is to improve and extend vegetable cultivation. At exhibitions, as a rule, vegetables are not fairly dealt with. I have often seen more money offered for half-a-dozen Pelargoniums than for a dozen dishes of the best and choicest vegetables. Let us hope, however, that improvement in this direction will soon be forthcoming, and that ere long awards for good productions in the way of vegetables will not be left to be wholly made by our leading seedsmen.

Bliss's Abundance Pea.—A dried specimen of this Pea, thickly covered with pods, has been shown to us by Messrs. Howcroft & Watkins, Covent Garden. It seems to belong to the same class as the American Wonder, and is evidently equally prolific. It is a dwarf Pea—a cross, it is said, between Little Gem and Champion of England.

Autumn Cauliflower.—"J. S." (p. 436) is perfectly right as to Veitch's Autumn Cauliflower being one of the best of vegetables and distinct. "W. I." (p. 495) has evidently not grown the true variety of Eclipse, otherwise he would not assert that it is an exact counterpart of Autumn Giant, and yet he contradicts himself by saying that Dickson's Eclipse is fit for use two or three weeks in advance of the other. How, therefore, can they be counterparts? We maintain that our Eclipse is perfectly distinct in foliage, being much more self-protecting, dwarfer in growth, growing almost close to the ground, facts which have been proved by gardeners who have grown the two varieties side by side for years. We do not detract from Autumn Giant its legitimate value; both varieties have their distinctive qualifications and good properties.—DICKSON, BROWN, & TAIT, Manchester.

THE FRINGED BUCKBEAN.

LIMNANTHEMUM NYMPHÆOIDES, known more commonly as *Villarsia nymphæoides*, is one of the loveliest of British water plants. It merits



The Fringed Buckbean as it grows naturally; flowers yellow.

introduction to our ornamental waters, in which its cultivation is so easy that no attention is required after it has become established. It is a creeping perennial, the flowering-stems of which float far and wide, and bear leaves like those of a Water Lily, but smaller. They are prettily dappled with red-brown, or are even almost entirely of that colour, instead of green, and amid these sparkling spots on the water the flowers appear during July and August. They are funnel-shaped, about an inch across, bright yellow, and fringed. It grows from Norfolk and Gloucester to Sussex, and is naturalised elsewhere, but it is rather rare in England. In Holland it is much more common. There large tracts of canal are covered with its beautiful leaves and flowers. It is not at all like the Buckbean, as its popular name would indicate, but it does belong to the same Order, though few would think it a Gentianwort. The plant which it most resembles in general appearance is *Limncharis Humboldti*, a lovely aquatic, which may be seen every year in the Victoria tank at Kew, but they are not related, as the *Limncharis* belongs to the Alismaceæ, the same tribe to which the flowering Rush or *Butomus* belongs.

R. I. L.

Goat moth (*Cossus ligniperda*).—The larvæ of this insect are found in many of the Oak trees in this neighbourhood. Their whereabouts can easily be detected by the powerful odour and moisture exuded from their burrows. From an Oak here 2 feet of rind fell off the trunk, which

is full of holes as large as one's finger made by these larvæ. On examining these holes I found about a dozen of the larvæ half their natural size. The part of the tree in which they are deposited is sure to decay; only Oaks are affected here as yet.—W. RICHARDSON, *Bessborough, Piltown.*

FRUIT GARDEN.

OUTSIDE V. INSIDE VINE BORDERS.

I HAD hoped that the article on this subject by Mr. Clayton in *THE GARDEN* (p. 217) would have led to a thorough discussion of this matter, but apparently everybody is contented with his own practice. I said everybody, but I do not mean that to include myself, else I should not be writing this record of my experience in regard to both sides of the question, that is, "outside and inside." And, first, I must ask to be allowed to shirk the Phylloxera part of the subject, and that for the best of reasons, namely, that I have hitherto been fortunate enough not to have had a visitation of that

pest, but, by the general scare there is about it, perhaps it will be best not to boast too loudly. I will, however, venture to say this much, that the idea of its prevalence is, I believe, really a scare, and nervous mortals would do well not to be too precipitate when told that the cause of their vines looking sickly is the Phylloxera. Do not believe it till you have a lively faith by a sight of the live insect. But now as to borders, outside or inside, which are best? Well, neither, but both are alike good, with this qualification, that season be studied—that is, as to what time of year the Grapes are to be ripe—when their different positions are determined. For early and late houses I unhesitatingly vote in favour of the borders being entirely inside, my reasons being that with regard to early houses no covering of borders is needed, either with the view of imparting heat to the roots, or of throwing off rain or snow; moreover, warmth, by watering with warm water when needed, can be imparted and retained far more effectually than were it applied to an outside border, not to mention the being able to do it just at the time when it would be likely to afford the Vines most benefit, this obviously could not be the case with outside borders that might be already unduly saturated by heavy rains. Apply the same rules to late houses, more particularly as to their immunity from over-saturation or the chilling effects of a heavy snowfall, together with the non-need of border protection, and the advantages of inside borders must be apparent. I say nothing in reference to additional labour as to watering, &c.,

Victoria, Ferns often looking in the latter colonies as strong and stiff as if they were cut out of tin. On emerging from the bed of the creek you gain a narrow plateau or terrace on the side of the mountain, on which stands a humble, but picturesque shanty containing a "but and a ben," where reside Mr. Wood and his wife, sole inhabitants of these heights. Wood serves as guide to those who want one, and boasts of being able to find his way on the mountain blindfolded. In his unscientific way, too, he is well acquainted with the various native plants, and plies a little trade by carrying bunches of flowers and berries into Hobart for sale at hotels and such places. Very hospitable were this couple and very talkative, especially on the glories of

MOUNT WELLINGTON FLOWERS, the lady having quite an alarming flux of adjectives at her command; only on one topic did the communicative flow run more slowly. The information given about the locality of certain desirable plants was of a vague and useless kind, and I soon came to the conclusion that whatever plants I wanted I must find without a finger-post. "The Spring," as the hut and its immediate neighbourhood are called (for here are the mountain springs which supply Hobart with water), may be considered about halfway to the top, and the cabin professes to serve as a refreshment house for those who want refreshment. The staple is Dandelion beer, a really excellent drink manufactured by the woman of the house, and having an agreeable bitter and astringent taste. From the door of the cabin is seen one of the most enchanting views probably in the whole world. Over a steep forest slope of Eucalyptus in the foreground, the eye wanders to the town of Hobart and passes on to an extensive and varied stretch of river and foreland, island and bay, until in the far distance the filmy blue of the Tasman peninsula and the circular sweep of the ocean and sky-line bound the vision and round off a landscape picture of unrivalled beauty. The innumerable convolutions of land and water lie before you outlined with all the exactness of a map. The air of Tasmania and Australia gains by distance a depth of blue which I have seen nowhere else. At a short distance the film begins to form, and every successive height marks its distance by the increasing depth of tint, till the far-off ranges are covered with a mist of colour—a purple blend of amethyst and sapphire. Looking out over the estuary of the Derwent and away past the Iron Pot, over the expanse of Storm Bay, where many a blue foreland and peninsula lie defined by a band of white sand or shining foam, one thinks of dying Gaunt's

Precious stones set in a silver sea,

for there is the stone and there is the setting—sapphire in silver filagree. Inside the cottage were many bunches of berries and flowers, mostly of Ericaceous plants, in which the mountain is very rich. These are tied on at intervals to a long rod which Mr. Wood carries on his shoulders into town, where he disposes of them to his various customers, chiefly visitors. I saw in a glass in this cottage a flower, unfortunately past its best, of a very fine shrub called the Tasmanian Laurel (*Anopterus glandulosus*). It is usually a medium sized shrub, 6 feet to 10 feet high, though specimens have been met with as many as 30 feet to 40 feet in height. The leaves are long and bluntly serrated and are very stiff and glossy; it bears nodding racemes of white flowers three-quarters of an inch across. Though the shrub is plentiful on certain parts of Mount Wellington, I did not come across any specimens. It is hardly likely that such a distinct plant, even when not in flower, should have escaped my notice; however, I was able to procure a small healthy specimen in Hobart, which has made excellent growth like a young *Rhododendron* since it has been in my garden.

Behind Wood's cottage the mountain rises abruptly, and from this point straight up the side there is a rough track like the stony bed of a torrent, made by prison labour in the early days of the colony. It is a very rough track, but is easily seen in contrast with the surround-

ing chaos of boulders, scrub and fallen trees; and it requires only a scramble over a few roods of this pathless chaos to make one appreciate the luxury of even such a rough and stony track as this. Instead of turning off up this steep ascent behind the hut I kept on a much better made path which ran along the side of the mountain, failing to notice where the proper track diverged from it, and in this way I went quite two miles out of my road, which I had to retrace in order to begin the ascent at the right point. This mistake, which was very annoying at the time, eventually turned out the happiest of mistakes, since it gave me the opportunity of seeing several fine plants which otherwise I should not have seen and a piece of sublime mountain forest scenery—the very abomination of desolation, which no one who had once seen it could ever forget.

PAKEHA.

ROSE GARDEN.

FIXING ROSE SHOWS.

THE fixing of Rose shows is daily becoming a matter of greater difficulty. The fact is, and it is well to recognise it, Rose-showing is becoming more of a science and of a business every day. A certain number of cultivators—all too limited, perhaps—look upon the winning of prizes as the highest object of their ambition. To carry off these no toil is too arduous, no cost too heavy, no strain too severe. Rosarians in general are greatly indebted to these growers for show for keeping up Rose culture to the highest possible standard. Their toil and enthusiasm forces the Rose to yield up its best forms, colours, fragrance, size, substance. Judging them by results—that is, the quality of their Roses—they have their reward; and as nothing succeeds like success, so nothing can prove more satisfactory to this class of rosarians than the sweeping off of as many first prizes as possible. In this laudable endeavour, however, not a few of those growers for sale are sadly fettered and hindered by the inadvertence or thoughtlessness of societies or their officers in arranging two or more large Rose fixtures on the same day, or on days so close to each other, as to render the presence of the same exhibitors at both impossible. Some may consider this an advantage, as it spreads the prizes over a wider area, or, in other words, increases the number of prize-takers. But as the object of Rose shows should not be personal, but general, the best Roses only should always win, though these should belong to the same exhibitors. Hence the propriety of so fixing as many of the great shows as possible on such days as should render the presence of the best growers possible at them all. How this is to be done is rather a difficult matter. But "where there's a will there's a way" is a motto well known and generally practised among rosarians. Were the motto more generally acted on in the fixing of the days of shows, better arrangements might be made. Perhaps a conference of secretaries of Rose or horticultural societies might be held. The fixtures of last year might also be published in the Rose year book or annual. Better still, the secretaries of

THE NATIONAL ROSE SOCIETY might be advised of all the great Rose shows of the coming or current season, and with such data in their hands they would be in a position to render valuable advice concerning the fixtures of the ensuing year. Local secretaries might also attend the annual meeting of the National Rose Society, when such matters might be talked over and arranged. It is the more needful that something should be done in this matter, as from the growing practice of Rose and general horticultural societies of keeping their exhibitions open till eight p.m. or dark, exhibitors lose two days in attending one show. Without an extraordinary staff of assistants, and a supply of show boxes *ad libitum*, few rosarians can manage to be at the whole of the chief meets without a considerable loss of rest and of money. Could the country be divided into Rose centres, and in each of these all clashing of days be avoided, and the chief local events be kept as clear as

possible of the National, Crystal Palace, and other great metropolitan Rose tournaments, perhaps that is as much as is practicable.

STRINGENT RULES in regard to the times of entry and removal might also often be relaxed in favour of exhibitors from a distance, and some effort made to allow them to leave by the last train at night at the latest from any particular town or locality. It is really too bad, and almost akin to cruelty to animals, to coop up rosarians for a whole night in the thick of the season of Rose shows when a relaxation of the rule of removal by half an hour would enable them to be among their Roses at the dawn of the next day and winning fresh honours before noon, and so on and on perhaps for a week in succession. It must not be supposed for a moment that I wish to convert Rose showing into a monopoly more close than it is now; on the contrary, no one is more anxious to increase the number of prize-takers as well as of Rose growers. Still, in the interests of the highest Rose culture, it is of the utmost moment to remove every barrier out of the way of the best Roses winning the highest honours as often as possible. Those who have had most experience either as judges, reporters, or occasional exhibitors must know that such is not always the case, and that one of the chief reasons for this failure of justice and merit arises from the number of shows held on the same day, or too close to each other. This

EXCESSIVE OVERCROWDING of shows also lowers the merit of the blooms exhibited, especially by amateurs, for unless facilities are enjoyed it is difficult to cut several boxes every day in succession for a week or a fortnight or three weeks at a stretch. Finally, might it not be better for Rose culture, rosarians, and even the societies themselves, to have fewer shows and larger, giving larger and more numerous prizes? There seems a tendency to fritter away effect and influence by the undue multiplication of little goes in Rose showing. Societies as much as exhibitors are too often found struggling against each other. Better far often for the fostering of Rose culture and of horticulture in general if these small societies, when within reasonable distance, would concentrate all their forces and hold one great good show between them. In writing thus it must not be understood that I am deprecating village or cottagers' societies. No; I wish that each had its Rose, Gooseberry, Leek, Cabbage, or general vegetable, fruit, or flower show. But for rosarians, professional or amateur, the area of competition might often be vastly widened to the raising of the standard of merit, the increase of the general interest in Rose culture, the greater usefulness and prosperity of the societies concerned, and the greater comfort and higher honour of the exhibitors. D. T. F.

AMONG THE BRIERS.

THESE promise well this season. Unless in the coldest localities, but few were killed by the winter frost, which was mostly concentrated into March. The cold winds and dry weather that prevailed through April and part of May held them back, and gave the outlook of a late budding season. But this tropical heat by day of the last three weeks has pulled the Briers forward by leaps and bounds, and the rosarian will be busy budding in advance of cutting his show Roses. This rapid growth seems to have enabled the Briers to grow out of insect pests as well as weakness, and, on the whole, they have seldom looked better. Disbudding should be attended to at once if not already done, and all suckers removed so soon as sufficiently advanced to enable them to be removed bodily and completely. It is not good practice merely to cut off a sucker so soon as seen, or to break it off before it has sufficient substance to hold together back to its base. Such prematurely checked suckers will only grow again and produce crop after crop, or their suppression will force others on other portions of the roots. Whereas if a sucker is allowed to grow until it can be carefully traced to its base and wholly removed there is an end of it, and other crops seldom succeed to the first.

Of course in all disbuddings and removal of suckers a sharp look out will be kept for aphides and maggots. Though both these pests prefer Roses to Briers, neither are above feasting on the latter when the former are absent. It is most important that Briers should be free from insects before being budded, as otherwise insect pests quickly shift their quarters from the Briers to the Rose buds almost before the latter burst into shoots. Any Briers that are weakly, or may not have broken at all, should be cut over at the ground line. This forces a strong break at their base, which may grow into a shoot strong enough to be budded as a dwarf before the end of the growing season. Such vigorous shoots may also at times be left to form fair standard Briers for next year.

The present favourable appearance and forward state of the Briers favour the assumption that they will be ready for budding before the Rose buds are sufficiently advanced for transference to their new quarters in the Briers. But in most gardens more or less Tea or other Roses are grown in pots or on walls, and the buds of these will come in nicely for the more forward Briers. By the time all these are utilised and any spare material on early Roses converted into cuttings the majority of the buds on the Hybrid Perpetuals will be sufficiently plumped up for budding with a reasonable hope of success. At present the state of the Briers and the improving condition of the Roses promise a more than usually busy and successful budding season. D. T. F.

THE ODOURS OF ROSES.

THE odours of Roses (p. 517) are not all pleasant; but then they are so generally so, that it is hardly worth while giving prominence to the well-known fact that one family smells like bed bugs. The Austrian Briers are, however, comparatively little grown, and where they are their early blossoms and brilliant bronze or golden colours are most telling at a distance; they also bloom most freely when left in a semi-natural state. The single golden or copper-coloured varieties are the most useful for such purposes, and having little staying power, there is but little inducement to gather them. Besides, it is only when gathered or crushed that they become so offensive. Has "Nez" noticed that the double variety of the golden (I have never seen a double bronze) is less offensive in its odour than the single, whereas the double Persian is sweet in comparison with the Austrian and the closely allied and beautiful Harrisoni?—a fine, soft golden Rose introduced from America nearly half a century ago, one of the most charming of all our golden Roses, and fragrant as Primroses. We have had some perfect standards of the latter at different times, in which the weakly, almost unpruned branches have formed the most compact and charming heads, the weaker ones weeping thickly-blooming sprays of golden beauty and pleasant fragrance, the most popular as well as the earliest belles of the Rose garden. D. T. FISH.

New red Tea Rose.—A coloured plate of a new red Tea Rose named André Schwartz, raised by Mr. Joseph Schwartz, of Lyons, has been sent to us by Messrs. August Röller & Sons, New York, who are distributing it. The colour, which is said to be darker than in the plate, is a rich orange-scarlet—a colour much wanted amongst Tea Roses. Therefore, if fragrant, vigorous in growth, and free flowering, this new Rose cannot fail to be an acquisition. It has the appearance of a Hybrid Tea, a class but yet in an incipient state; within a few years it is likely there will be a great number of varieties where now there are but few, and being crossed with Hybrid Perpetuals they will probably be harder than ordinary Tea Roses. Beauty of Stapleford and some others belong to this class.

Rose William Allen Richardson.—I was much struck by this Rose when I first saw it exhibited by Mr. House, of Peterborough, two

years ago, at a local show. In the bud state it is very beautiful, the colour, a coppery kind of orange, being almost unique. It is valuable for its early blooming habit. We have it on a south wall alongside Gloire de Dijon, and both have been beautifully in flower some time. I suppose I may call it a Noisette with a Tea scent. It grows freely, but has small slender wood and foliage. If it will only bloom freely in autumn it will be valuable for cutting.—E. HOBDAV.

ROSE GLOIRE DE DIJON.

In a recent number of THE GARDEN it was stated that this Rose is not well fitted for growing as a standard. Neither is it if pruned in the ordinary way, as in the course of a few years it becomes so over-burdened with wood as to form a by no means attractive object. I have seen plants quite a yard across when cut back before starting into growth a mass of ugly branch-like growths, and so top-heavy as to require several stakes to support them. The orthodox method of pruning this Rose is to leave some half-dozen eyes where the wood is strong, so that the superabundant vigour is as it were sub-divided, with the effect of producing flowers instead of running away into sappy wood which yields no bloom. This repeated year by year has for result the ugly specimens one so often meets with. There is, however, one way of treating this Rose whereby very handsome specimens may be formed, and which in more ways than one will enhance the enjoyment derivable from the old Glory. Instead of pruning long cut-back wood to within one eye if there is much wood, and to two if the branches are comparatively few, growth will of course be strong, especially in the case of vigorous established trees, and when the shoots have made about a foot of growth pinch out the tops. This will naturally have the effect of causing laterals to push, each one of which will be sure to produce several good blooms later in the season of course, but all the better for that, as they will come at a time when good Roses are scarce. Last year early in October I had a standard Glory with nearly one hundred fine blooms on it, and it furnished flowers until the first hard frosts came. This plant had only been budded two years, and had been pinched in the manner described; it was a perfect picture. We can have plenty of Roses in summer; the scarcity comes at its close and in autumn, but a few plants of Gloire de Dijon managed in the manner indicated would yield a bountiful harvest at that time.

J. C. B.

SLAG SAND V. SLUGS.

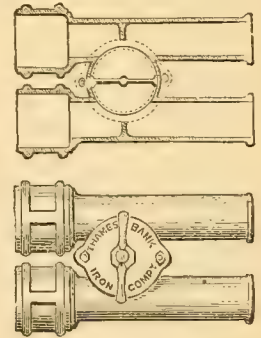
THE manufacture of slag sand is a patent. The price is 1s. 3d. per ton. A truck carries about six tons. It is a good plan to get two or three neighbours and share in a truck-load; this in the southern counties reduces the cost of carriage. The large slug (not the one which feeds on garbage), about 3 inches long (I forget its name), will go almost anywhere, and I despair of success in circumventing his depredations. As to the fawn coloured and little black slugs, the sand answers well, but not perfectly. For instance, I have a patch of plants consisting chiefly of *Edraianthus*, *Campanula fragilis*, *Dracoccephalus*, &c., adjacent to a moist border containing *Auriculas*, *Primroses*, and *Hepaticas*. The last is a good harbour for slugs, and it cannot be denied that the first named plants are well liked by slugs. By surfacing the patch with slag sand it has sustained no damage. There is a large class of rockery plants which we are advised, and rightly, to grow in moist vegetable loam and grit. I refer especially to the *Gentians*, *Primulas*, some of the *Saxifrages*, but I might go on to a great length. Last autumn I procured a supply of what is termed unfermented leaf mould (the surface soil of an old Oak and Beech rockery); with a composition of equal parts of slag sand and this mould I have satisfactory success. Elsewhere it has been pointed out that ordinary leaf-mould is of questionable use, not, as I am inclined to believe, from its unnutritive, but from its fungus-breeding properties. On another occasion I will endeavour to show how

those who have parterres and whose love for rockery plants is out of all proportion to the space at their command can make the most of their ground and at the same time minimise their watering difficulties, not forgetting the slug and earth-worm. R. C. APPLETON.

Bar House, Beverley.

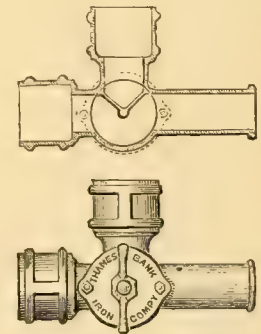
ROTARY VALVES.

THE Thames Bank Iron Company have patented a valve which they call the Reliance. It is simple in construction and very carefully fitted. All the



Three way H valve.

moving parts are of the best gun metal, and will not set fast or get out of order. The handle being the indicator, one half turn either way opens or closes the valve, and it cannot be strained or injured by overturning. It will be seen by the annexed illustrations that this patent as applied to what



Three way T valve.

are technically called H and T pipes dispenses with the necessity for the ordinary complicated three valves with their three handles which are often turned the wrong way and thus put out of order, the one handle having control over the three water ways of the valve.

Lawn mowers.—In reply to "An Old Lawn Mower" (p. 482), I would point out that I am ready to carry out the trial as stated by me in THE GARDEN May 5 (p. 415), subject to the reservation therein stated, and I fail to see why I am not entitled to know where he resides, as he plainly is afraid of the results of such a trial. Probably he cannot comply with the reservation named by me, and therefore wishes me to decline a trial on account of distance. Writing under a *nom de plume*, and giving no clue as to where he lives, I cannot of course state the terms of the trial any farther, but if he or anyone else likes, I will take a machine anywhere within 20 miles of London, at any date that will give me a week's notice, and cut any upstanding native Grass 6 inches high at one operation, i.e., the machine shall be passed but once over the piece cut, and the Grass shall be cut off clean, but of course it is not possible to have such a velvety appearance as on a well cut lawn.—W. J. MAY, *Walton-on-Thames*. [We saw the other day an Excelsior mower tried in the College Gardens, Dublin, on

Grass about 6 inches long, and the work done by it was anything but satisfactory. It had to be passed three times over the same ground before the Grass could be said to be properly cut. In fact, amongst Grass of the length just named it is useless, though a good machine on shorter Grass.]

NOTES.

THE ALPS OF NEW ZEALAND will doubtless contribute as much to the gardens of the future as the European Alps have done to those of the past and present time. I was glad to receive the other day, through a mutual friend, a very interesting little collection of seeds from the Rev. Mr. Greene, the gentleman who recently ascended Mount Cook, and among them I found a tiny plant of what may be called a kind of Edelweiss (*Gnaphalium grandiceps*). It seems the counterpart of the Swiss plant, but has short, rounded foliage, and as the seeds seem to be fully developed, I hope to be able to rear plants from them. Unfortunately, the ascent of Mount Cook itself, with its blinding snow-storms and dangerous glaciers, does not offer many facilities for the collection of either seeds or plants, but at the same time it is pleasant to know that this same New Zealand range offers to plant collectors, if not quite a new botanical field, certainly one but little worked up to the present time. Failing professional aid in collecting, amateurs who have friends on the spot might do worse than induce them to send seeds of such mountain or upland plants as may be now and then obtainable. Packed in boxes of dry earth, they would travel quite safely.

*

PLANT PORTRAITS. — To draw plants and flowers correctly is not so easy as it is by many supposed to be, and yet a good drawing of a plant is the best of all descriptions of it that one can give. The observations of Darwin and others have taught us that no twist or depression in a leaf, no wrinkle or wave in a petal, no curve or deflexion in a stem exists without that twist, or wrinkle, or curve having a meaning, a definite purpose and reason to be. I have long contended that to cut a flower or a spray from a plant and to "arrange" it ere it be sketched is fatal to a good and true likeness being obtainable. The practice is often convenient, I know, but it is none the less fatal in a great measure, and the true pose of leaf and flower is lost in drawings so made. Nearly all the flower pictures in works on florists' flowers are not drawings in the true sense, but simply coloured diagrams, and the same is true in a great measure of the pictures in botanical works also. The correct size of the leaf and of the flower may be given, but the living spirit of the plant is left out; in a word we have (as someone said of poor sculpture) the "animal," but not the "animus." If we are to believe thoroughly in evolution we must revolutionise the art of illustration as applied to botanical knowledge, or in other words we must learn to tell the truth ("the whole truth, and nothing but the truth") with the pencil as well as with the pen.

*

ST. BRUNO'S LILY. — Amongst hardy flowers this is just now most lovely. No white flower could well be prettier, since it has more purity and elegance than the true Lilies themselves. Bud and blossom are alike most dainty, and the much vaunted Bridal Gladiolus is a dingy or sulphur-white in comparison, however beautiful it may be when seen alone; and yet "comparisons are odious" when applied to flowers, since each has its own especial charm. This St. Bruno's Lily, with its elegantly crimped petals, is acceptable in many ways. It succeeds that queen of the Narcissus, *N. poeticus*, and, like it, opens out fresh and fair in water if cut in the bud stage. A tall Venetian vase with a few spikes of St. Bruno's Lilies arranged with their own elegant glaucous leaves has been much admired by people who know how to draw. The description of this plant was selected by Ruskin as his model of long-winded botanical lore in his "Proserpina." I wonder if he ever saw Parkinson's "Paradiseus." I am afraid not, or he

would have said something kindly of it in his own work.

*

APPLIED SCIENCE. — This is an age in which we hear much of science, but in our gardening practice we must depend on an accomplishment without which science is herself left stranded high and dry—I mean that combination of trained quickness of insight and sound judgment commonly known under the homely name of common sense. In gardening observation, attention to small details is everything. We must keep our eyes open. If I wanted to know what kinds of fruit trees to plant in a garden in any particular district or locality I should not look into trade lists or scientific books, but I should carefully observe what varieties were most fruitful in the neighbouring gardens. A friend of mine told me yesterday by letter that he had planted an orchard of 300 fruit trees, Apples and Pears, only ten varieties or kinds being admitted, but, he added, those ten kinds, as scattered here and there in our locality, have never missed a crop for the past ten years! This I have called common sense, but it is really applied science of the most valuable kind.

*

WHITE MARTAGON LILY. — How comes it that we so rarely meet with the white Turk's-cap Lily? So far as I can see, it is nearly if not quite as robust as the other varieties, and to my liking it is the handsomest, if we except *L. dalmaticum* Catani, which sometimes bears a spire of thirty bells on a stout leafy stem 6 feet to 8 feet in height. Yesterday I spent a most enjoyable half hour in a good old garden where this white Lily is quite plentiful, throwing up its nodding spires of pearly buds everywhere, among Rose bushes, Irises, near Currant bushes, and from clumps of Yuccas and Rosemary. These bulbs have been undisturbed for many years, and one reason of their having existed so long in this garden is, as I think, owing to their being grown in company with other plants which shelter and protect their early growth. The finest bulbs of Martagon Lilies I ever saw were grown in a perfect mat of root fibres belonging to a Privet hedge, and near to an Ivy-covered wall which sheltered them from too much rain during the winter season. Soils vary, however, and what one man can barely keep alive luxuriates elsewhere even if neglected.

*

ENGLISH NAMES. — This question of English names is too important a one to be "snuffed out by an article," however canonical the writer may be. I have never yet met with a tolerable argument against popular names. Everyone acknowledges the English names of Chaucer or Shakespeare, and this being so, I see not clearly how or why those of Turner or of Parkinson can well be repudiated. Here is an argument from p. 322 of THE GARDEN: "I must, therefore, enter my protest against the supersession of scientific [What is science?] names of plants except in those cases (which are not a few) where the English name is so thoroughly familiar as to be unmistakable." In other words, the intelligent reader is told not to recognise English names until they are recognised by others. The premises of this argument are wrong, for our argument is and ever has been that all plants with Latin names must have English names also. When the mass of the people ask for bread, we cannot afford to offer them a stone. "Supersession" is quite out of the question; all we ask for, all we claim, is a necessary and called-for addition to the duly recognised scientific or Latin or Greek name. All we ask is for our opponents to accept these premises as our own, and to take up their argument as best they may if they disagree with us.

*

FRINGED COLUMBINE is a very old and very pretty name, as I take it, for the tall growing feathery flowered species of *Thalictrum*; and of these the tall rosy and the sulphur coloured kinds are, as I take it, the most effective, producing as they do masses of flowers aloft on tall, wand-like stems, which have a most graceful motion in the summer breeze. The Rose variety is, if not

uncommon, by far the rarest, and was recently given to me from an old garden under the name of the "Feather Columbine." All the *Thalictri* are beautiful in early leafage even if not quite so showy in blossom as those above noted, and as such are well worthy of being more generally grown than seems to be the rule at the present time.

*

THE POET'S NARCISSUS. — It is simply astonishing how many there are, even among gardeners, who fail to recognise the many different forms or varieties of *Narcissus poeticus*; and yet one must not be too severe upon the gardener. I will quote from the *Gardeners' Chronicle* of June 2, 1883, p. 706. Under "Answers to Correspondents" we read: "*Narcissus poeticus* (A. Brooks).—This species does not give a succession of flowers, and its season is soon over; but still they do not always go off as soon as yours have done. Have you any reason to suspect foul play?" I never like to disagree with the "chronicle of the gardener," but in this case I do so in the interest of an old friend, who is not quite so black as the above extract would lead one to suppose. Here with us *N. poeticus* is in season from the second week in April until the first week in June, the varieties opening in this order: 1st, *N. stellaris* or *N. angustifolius*; 2nd, *N. ornatus*; 3rd, *N. grandiflorus*; 4th, *N. poetarum*; 5th, *N. recurvus*; 6th, *N. poeticus*; and 7th, *N. poeticus fl.-pl.*, which, notwithstanding the dry, hot weather, is still in bloom. All the *Narcissi* are extremely sensitive to hot sunshine and dry winds, or, as a reporter of a London daily recently wrote of them as exhibited at South Kensington, "of varieties of Daffodil, some are strangely pale, some double-ruffled, and of *Narcissi* (surely the most fragile flowers ever grown) some seem fainting away, evaporating into air as you look at them." Then have we not Herrick's "Fair Daffodils we weep to see; you haste away so soon." Alas! no foul play is needful to make such beauty leave us.

*

ST. BRIGID'S CHRISTMAS ROSE (*Helleborus niger* var. *angustifolius*). — I have further to say of this plant that on no account must it be confounded with the great Christmas Rose (*H. niger maximus*), a totally different plant altogether, and further it is yet a matter of doubt as to whether Miss Hope ever saw St. Brigid's variety, since at least one noted trade grower tells me it at present seems quite distinct from the *H. niger angustifolius* he obtained from Aberdeen. As I have before said, its chief characteristics are robust habit (healthy clumps are 18 inches to 2 feet in height on good strong soil), total absence of any speckling or red colouring in the petioles, flower-stalks, or leaves, which, when young, are of a bright, deep glossy colour, reminding one, in tint and in texture, of the foliage of *Aucuba japonica* vera when well grown. The flowers are as large or larger than those of *H. niger maximus*, pure white, and freely produced. Apart from this there is a distinct general appearance about this variety which at once distinguishes it from any other form of *H. niger* whatever. It now seems probable that both Mr. Barr and Mr. Ware will flower St. Brigid's Christmas Rose next season side by side with other forms, and no one else can possibly be better judges of its quality and distinctness.

*

"BARE EARTH." — In a state of nature pure and simple bare earth is, comparatively speaking, unknown. The great desert itself is barren only where water is absent, and wherever moisture is even bare rocks soon become covered with vegetation. I was extremely interested in hearing an arctic explorer describe the lovely carpets of *Saxifraga oppositifolia*, of *Dryas octopetala* or *D. Drummondii*, of the sheets of *Papaver alpina*, and of other equally beautiful plants which spring into flower as if by magic at the commencement of the short, hot arctic summer time, and it was not the first time by many that I bethought me of the acres and acres of bare earth, earth needlessly bare, which we find in our gardens. The London market gardeners seem to recognise the old saw

Nature abhors, a vacuum, for they do keep the ground well covered; no sooner is one crop removed than another is planted, due compensation being made to the soil in the shape of manure. I also think the less bare earth we have in our flower gardens the better. By covering every bare spot of soil with good plants weeds have no chance; it is because useful and ornamental plants are too few and far between that weeds are so many and so troublesome in our gardens.

*

SUMMER RAIN.—After what has been a long dry time genial showers have come again to us on this 7th day of June, and they are welcomed alike by birds and many thirsty blossoms. A garden is ever most pleasant at *Matin* time, but on a warm showery morning this enjoyment is intensified, and so it is to-day when every leaf is dripping and there is perfume everywhere. The birds warble in the shimmering depths of young leaves, and the tall crimson-scarlet—or oriental—Poppies have their great black eyes filled with tears for very gladness that the rain has come to their thirsty rootlets and to their parched and dusty leaves. The rain to-day is so gentle that one is tempted to walk about in it, and yet how soon that steady drizzle wets one through. There is no splashing of earth over leaf and blossom as in autumnal rains, no washing away of soil from high places as when thunder-storms sweep over our gardens, but the rain of to-day is welcome for its very gentleness—it is of all things precious to the garden and to the gardener this soft rain of the rosy summer time.

*

THE DOUBLE WHITE ROCKET.—Not the true old English or pure white Rocket, but the more robust French kind, is just now very showy and fragrant withal in our gardens. It is easily cultivated, and its foot-long spikes, arranged with leaves of *Funkia Sieboldi* (Siebold's Plantain Lily), are most useful for large vases indoors, enduring for many days, and being deliciously fragrant at vesper time. It is worth growing in quantity everywhere, and growers of the Rocket as a florist's flower were ever mindful to take the branchlets off the main spike so as to obtain the main stem as stout and as strong as possible; but we here allow them their own sweet will, and so obtain many secondary spikes smaller, but not less useful for cutting than the large central stems. Our plan of culture is simple. After blooming, or before every clump is mulched with leaf-mould, which induces the old stem to send up a whorl of offsets or side shoots, and these are taken off and replanted as soon as they are well rooted into the leaf-mould around them. Treated in this way, we have always plenty of young plants, and these flower better and stronger than the old ones left undisturbed.

VERONICA.

Killing weeds by poison.—The Earl of Haddington had a compound labelled "poison," used on a portion of the carriage drive to his seat at Arderne Hall, Tarporley, Cheshire, for the purpose of killing weeds. Shortly after, the herd of cattle grazing in the park showed symptoms of poisoning. A veterinary surgeon was immediately sent for, but, despite his skill, two valuable cows died.

Alexandra Park.—The Bill promoted by the owners of the ill-fated Alexandra Palace for giving them authority to turn the whole of their land, 150 acres in extent, into building sites has been withdrawn. Parliament, in 1866, sanctioned the making of certain railways to the palace on the express condition that the palace grounds should be used in perpetuity as a place for public resort and recreation. A year or two later the proprietors succeeded in obtaining from Parliament a release of this condition as regarded about 50 acres, and villa residences have been built over this area, on the faith that the adjoining grounds, about 150 acres in extent, would remain an open space in perpetuity. It is suggested that the land be purchased and dedicated as a public park by the Corporation of

London or the Metropolitan Board of Works. Nearly the whole area is outside the district of the latter body, so that the Corporation would be enabled to apply the metage on grain duty for the purposes of the purchase, while the amount of the purchase money should, of course, be calculated with reference to the restrictions imposed by Parliament on the use of the land.

TREES AND SHRUBS.

SELECT LAWN TREES.

TREES for a lawn may be divided into two classes, viz., those whose principal merit lies in the flowers, and those in which the blossoms play but a minor part. Under this latter head are included those with handsome foliage and elegant habit. Among

FLOWERING TREES the earliest to open are the several varieties of Almond (*Amygdalus communis*), which are generally grafted standard high, and soon form medium sized heads, and are beautiful when in flower either dotted singly on lawns, or occupying a prominent place in shrubbery borders. There are several varieties of Almond, but the most conspicuous is the deep rose-coloured form. Double-blossomed Peaches succeed the Almond, and afford a considerable range of colour, the blossoms being white, rose, red, and particoloured. They are also generally seen in the shape of standards. *Amelanchier vulgaris* is a low-growing, somewhat spreading tree at most only about 15 feet or 20 feet high, bearing pure white flowers, produced in such profusion as to cover the plant. This is the earliest flowering of the *Amelanchiers*, the American kinds being rather later in opening and larger growing, though equally desirable. Many of the *Pyruses* form handsome lawn trees: the Mountain Ash (*P. Aucuparia*) is pretty when in bloom, but much more so when laden with ripe coral-coloured fruit. The white Beam Tree (*P. Aria*) is more erect and formal in habit than the Mountain Ash; its blossoms are, however, much in the same way, though the leaves are quite different. The latter are large, ovate, and silvery underneath, and when stirred by wind are strikingly interesting. The Chinese *P. spectabilis* belongs to the same section as the Apple and Pear, and perhaps it is no exaggeration to say that when in bloom it surpasses both as regards beauty. It is a free, rather erect-growing kind, with large pink flowers, deep red in the bud state. The Garland *Pyrus* (*P. coronaria*) is an American form of the Crab, and valuable not only on account of the beauty of its large pinkish blossoms, but also from the fact that they are late in expanding. To these might be added many others; indeed, all the cultivated Apples and Pears form handsome isolated specimens when in flower, but the temptation afforded by their fruit when ripe often prevents their being planted for ornamental purposes. Amongst the different varieties of the Cherry (*Cerasus*) are the single and double, white and rose-coloured. The Bird Cherry (*Cerasus Padus*) now and then assumes the shape of a large bush, and at other times that of a small tree. It is remarkably handsome in spring when laden with racemes of pure white flowers, and scarcely less so in autumn, when the fruit is ripe, though birds then quickly destroy its beauty. Of *Prunus divaricata* there is a tree or large shrub some 15 feet or more in height on one of the lawns at Kew which every spring is very attractive. It somewhat resembles the Sloe both in growth and blossom. The lower branches of this particular plant rest on the ground, and when in flower it is clothed from base to summit with pure white blossoms. As seen at Kew it is certainly one of the best lawn trees which anyone could possess. Some of the Thorns also are well worth attention, the different varieties of the common Thorn (*Crataegus Oxyacantha*) being grand objects when in flower. We have single and double white, single and double pink, and bright crimson, the best of the latter being Paul's Crimson Thorn, which is very bright and effective. *Crataegus coccinea* (the Scarlet Thorn) is a vigorous growing tree, which flowers later than the common kind, and is handsome in

autumn when in fruit. The Cockspur (*C. Crus-galli*), or at least one of its vigorous varieties, such as *arbutifolia*, is also well adapted for a lawn. It has a bluntly pyramidal habit, leaves deep green, ovate, and very shiny. Besides the beauty of its foliage, this Thorn is valuable from the fact of its flowering very late in the season. Nearly allied to the Thorns is *Mespilus Smithi* or *grandiflora*, a tree about 20 feet high, with loose, irregular branches, somewhat like the common Thorn, but remarkable from the size of the pure white blossoms with which it is thickly studded in the end of May. The flowers, which are solitary, are as much as 1 inch or 1½ inches in diameter.

MAGNOLIAS form another beautiful class of lawn trees, the Yulan (*Magnolia conspicua*) opening its blossoms early in spring before the foliage expands, and when studded with its large white flowers it is a magnificent sight, and though at times liable to be cut by late frosts as a rule around London it opens its flowers satisfactorily. This *Magnolia* forms a bluntly conical shaped tree, 20 feet to 30 feet high, of very regular outline when grown clear of other subjects. The next in order of flowering is *M. Soulangeana*, rather looser in habit and less in stature than the preceding, from which it is said by some to be a seedling. Instead of the pure white blossoms of the Yulan, those of this variety are more or less tinged with purple, and expand about a fortnight later. Another of the early flowering section is *M. purpurea* or *obovata*, but it does not attain the dimensions of even a small tree, seldom exceeding 6 feet in height. The Cucumber Tree (*M. acuminata*) is regular in outline when young, but spreading when old. The leaves of this kind measure from 6 inches to 10 inches long; they are bright green and produced in abundance, but the greenish yellow blossoms are not very ornamental. It may, indeed, almost be said to depend wholly upon its foliage for effect; even in that case it is a handsome lawn tree. *M. auriculata* and *macrophylla* seldom do well, but where they succeed their very large leaves and handsome flowers render them noble trees. Contrary to the two last named species, another very large-leaved kind (*M. umbellata* or *tripetala*) succeeds almost anywhere, provided the soil be not too hot and dry. It is of free growth, openly pyramidal in habit, and about June when in flower is a grand sight. The leaves are from 1 foot to 1½ feet long, disposed in a ray-like manner around the branches, while the principal shoots are terminated by white open flowers 6 inches or 8 inches in diameter. For a damp spot *M. glauca* is well suited, as it thrives best under such conditions. It reaches a height of 10 feet or 12 feet, and is often shrub-like in habit, but at times assumes the shape of a small tree with irregular spreading branches, and during summer produces for a long time its white fragrant blossoms, each about 3 inches in diameter. The evergreen *M. grandiflora* is better adapted for lawns in the south and west of England than in colder districts where it is apt to be injured; an old tree of it on one of the lawns at Kew has stood many years, and occasionally flowers freely. The golden blossoms of

THE LABURNUM have no rival as regards colour, besides which Laburnums will thrive in almost any situation, and in an open spot form handsome trees. Another of the Leguminosae, and one seldom seen on lawns, is *Sophora japonica*. I have seen thriving specimens of this about 20 feet high clothed to the ground with branches, which about August become covered with creamy white blossoms. The Flowering Ash (*Fraxinus Ornus*) reaches a height of from 30 feet to 40 feet, but even when about half these heights and in a thriving condition it is a handsome tree, and one that does well in most soils. The flowers resemble greenish white plumes and are produced in great profusion. The red-flowered Chestnut (*Æsculus rubicunda*) makes a handsome isolated specimen. Besides the colour of the flowers the tree is less in size and the foliage darker than that of the common Horse Chestnut, but among large trees this latter is unsurpassed when in bloom. *Paulownia imperialis*, though its leaves are large and fine and

its panicles of Foxglove-like flowers pretty, has one great drawback, and that is during severe spring frosts the blooms perish while still in the bud state; when in full flower, however, it is very handsome. *Catalpa syriaca* bears a marked resemblance to the *Paulownia* when not in bloom, each being of open tree-like habit with stout, but comparatively few branches. The flowers of the *Catalpa*, however, more resemble those of the Horse Chestnut than the *Paulownia*, although on large branching panicles like those of the latter. The *Catalpa* flowers about July, and both it and the *Paulownia* like a good deep soil. The Snow-drop Tree (*Halesia tetraptera*) is a slender growing tree with horizontal branches, from the branchlets of which depend clusters of white Snowdrop-like flowers. The lightness of its appearance and the profusion with which, in the month of May, the blossoms are borne, stamp it as a distinct and ornamental tree. The Stag's-horn Sumach (*Rhus typhina*) often assumes the character of a small tree crowded with tortuous irregular branches. Its large pinnate leaves render it distinct in character, more particularly about the end of July when each shoot is terminated by a dense clustered spike of crimson-purple flowers. *Koeleruteria paniculata* is a low tree, in general character somewhat like a *Rhus*, but of more slender growth. It is especially valuable from the fact of its flowering towards the end of the summer when the bulk of flowering trees is out of bloom. Among

THE MAPLES (*Acer*) we have a great variety of trees with fine foliage. Amongst them may be noted the striped-barked Maple (*A. striatum* or *pennsylvanicum*), a tree 20 feet or so in height, with three-lobed leaves and beautifully striped bark. The Silver-leaved Maple (*Acer dasycarpum*), a large and rapid growing tree with spreading branches and finely lobed foliage, silvery white beneath, is also very ornamental. Of this there are several varieties of American origin, among them being *heterophyllum*, *laciniatum*, and *laciniatum Weihi*, which I have only seen in a small state, and as such they are beautiful. The red Maple (*A. rubrum*) is very handsome in early spring before the expansion of the leaves, as the clusters of small crimson flowers are produced in such profusion as to impart quite a feature to the tree. The young leaves are also bright in colour and the decaying foliage in autumn becomes tinged with red. This tree is too large for most lawns, and is better adapted for the park or pleasure-grounds. *Acer platanoides* *Schwidleri* is a variety of the Norway Maple, and, like it, a vigorous growing tree, but instead of the normal green foliage the leaves of this kind are crimson when expanding, but become greener as the season advances. The Japanese Maples are beautiful, but as at present seen in gardens merely shrubs. I have, however, a plant of *A. polymorphum atropurpureum* now growing away freely, and the admiration of all who see it. The common Birch (*Betula alba*) is very distinct from other trees, and forms a handsome isolated specimen when some 30 feet or 40 feet high. Among varieties of it are the cut-leaved, the purple-leaved, and a couple of weeping kinds known as *pendula elegans* and *pendula Youngi*, both of which are quite distinct from each other. Of the common Beech (*Fagus sylvatica*) there are also cut-leaved, weeping, and purple-leaved varieties, the last of which varies greatly in colour, but when a good form is obtained and judiciously planted, it is a very effective tree. *Salisburia adiantifolia* is distinct in foliage, habit, and general appearance from most trees commonly planted, and does not soon outgrow its allotted space. Several of the Elms are very pretty, especially some of the weeping kinds, and *Ulmus viminalis variegata* I think the most perfectly variegated tree that has yet come under my observation, except it be the variegated *Negundo*. *Ailantus glandulosa* is a fine vigorous pinnate-leaved tree quickly attaining a height of 20 feet, and not particular as to soil. It is remarkably handsome when studded with capsules, which in general appearance resemble the keys of the Ash, but are larger in size. Their colour is a bright brownish crimson, which, especially when the sun

shines, renders them very attractive, but unfortunately the tree is not often seen in a fruiting condition. The Hop Hornbeam (*Ostrya vulgaris*) in appearance resembles the common Hornbeam, except that it is more symmetrical in growth and differs as regards the female catkins. It forms a spreading, bluntly conical head, which about May is thickly studded with pendulous greenish male catkins, but towards the end of the summer the fruits become very prominent. They resemble very much the catkins of the Hop, and as they are produced in great profusion impart a distinct character to the tree. Near the old rockwork at Kew a large plant of this kind is every year very conspicuous about the months of August and September. In damp spots some of the Willows make handsome specimens, notably the common Weeping Willow (*Salix babylonica*) and the golden-barked *S. vitellina*. The cut-leaved Alder also does well under similar conditions. Between trees and shrubs it is scarcely possible to draw a hard and fast line, so that under the head of trees I may have included a few that would be by some considered shrubs, and have kept for a future time a few shrubs that might perhaps be regarded by some as trees. ALPHA.

FLOWERING TREES AT BYFLEET.

VERY prominent amongst flowering trees in Mr. Stevens' garden are Paul's Crimson Thorn and the snowy *Mespilus*. The first named is now well known, though scarcely so freely used as it might or ought to be, neither is the *Mespilus* so frequently met with as one might expect considering its vigour, hardiness, and extremely ornamental character. These two trees should be grown wherever space can be found for them. *Spiræa ulmifolia* is a neat, compact habited, but tolerably vigorous growing species. It clothes itself with foliage from the ground upwards, and the flowers, which are white, are numerous produced; it is an attractive kind. *Weigela Abel Carrière* is a fine variety of this useful flowering shrub, the flowers being very rich in colour and so closely set on the stems as to render it very effective. Lilacs, of which Mr. Stevens has a large collection, have by no means bloomed well this year—a common complaint, I find. Especially noteworthy amongst them are a pale-coloured variety with very large trusses of bloom called *unguis* and a very dark-flowered variety named *Josikæa*. The foliage of this is so curious and distinct that one would hardly take it for a Lilac when not in bloom. *Andromeda Catesbei* is a free-flowering, rather graceful growing shrub, and *Daphne Fioniana* is a neat-habited species, the flowers, though small, being as fragrant as could be desired. These are very recommendable for small gardens, and suitable for the foremost rank in shrubberies generally. On the rockwork *Onosma tauricum* is doing as well as could be wished, its long clear yellow flowers rendering it very effective. By the way, how deliciously fragrant the flowers of this plant are; it ought to be good for bees. It would probably prove useful for poor sandy soils, dry banks, and the like situations. *Cheiranthus Marshalli* and *ochroleuca* are apparently best at home on rockwork; they are of the brightest of spring flowers. Equalling these for effectiveness, but in a different way, is *Saponaria ocymoides*, a large specimen of which smothered with bloom is a most cheerful object; whilst not inferior, indeed probably more showy, are the dwarf *Phlox*, of which *setacea atropurpurea* may be singled out for unusual beauty. The compact habited profuse flowering *Cytisus purpureus* shows itself off well on a rockery, and one scarcely knows whether to admire it most thus placed or in the form of a standard. It is so distinct and pretty as to merit a place anywhere. A word of praise should be accorded the little *Mentha Requinii*; covering with a dense cushion of foliage a square yard of soil and studded with its small purplish flowers, it presents a very neat and attractive aspect.

J. C. B.

Eucalyptus coccifera.—During the past three years several of your readers have applied

to me for blooms of this *Eucalyptus*, growing in the American gardens here. The severity of the winters of the past few years has so destroyed the bloom buds, that I have not been able to favour them with any blooms. This year, however, they have escaped, and though the buds were very much advanced in March, when we experienced 14° of frost on several consecutive nights, with bitter east winds, yet they have escaped, and next week the tree will be a mass of bloom. I shall, therefore, be pleased to forward specimens to applicants if they will forward me their addresses again.—D. C. POWELL, *Powderham Castle, Exeter*. [This tree, a fine one, measuring nearly 60 feet in height, and with a stem upwards of 7 feet in circumference, was noticed in THE GARDEN, Dec. 25, 1880, p. 650.]

GARDEN FLORA.

PLATE CCCXCII.

CALLICARPA PURPUREA.

SEEING some remarkably fine examples of this East Indian shrub in Messrs. Veitch's nursery, Chelsea, last autumn, we were much struck with its elegant growth and the rich colouring of the myriads of berries which hung in dense clusters the whole length of the slender shoots, which were several feet in length, and drooped gracefully on all sides of the plant. These plants were very effective in the stove, being quite different in aspect from all their associates. The *Callicarpa* is an old plant, but we are convinced that it is not half known enough; therefore, with the view of making it more popular, we give the annexed coloured plate of it, which represents some of the best shoots on Messrs. Veitch's plants. In the Birmingham Botanic Garden this plant is grown to perfection by Mr. Latham—better, in fact, than we have ever seen it elsewhere. Some specimens of it which we saw in one of the stoves there some time ago were singularly beautiful and the admiration of all who saw them. At our request Mr. Latham has kindly furnished us with the following remarks respecting this shrub: "It was introduced from the East Indies about sixty years ago. As a decorative plant for a cool stove or warm conservatory I know of none more useful. Its branches grow some 3 feet to 4 feet in length, and from every axil of its bright green leaves are produced clusters of purple berries. It grows freely from seeds or cuttings. Started early in the year and grown on without a check, good fruiting plants may be had by the autumn. They should be potted in good loam with a little leaf-soil or manure, but must not be over-potted. Manure water may be given liberally when the pots get full of roots. Our plants are now about four years old from cuttings, and are grown as standards with stems about 3 feet 6 inches in height. These plants are cut back every year in February, leaving about 4 inches of the previous year's growth. They soon start afresh and form, as I have said, branching shoots 4 feet and upwards in length covered with berries. The leaves of this plant being rough and tender, it is necessary to keep them clear of dust and insect pests from the very commencement of growth, for once the latter obtain a lodgment it is almost impossible to clean the plants without damaging them."

5005.—**Destroying woodlice.**—These pests are easily destroyed by paying a visit to their haunts at dusk. They are easily caught and killed on a wall. Why not stop the holes up in early spring when the trees can be detached from the wall?—W. P. R.



SEASONABLE WORK.

INDOOR PLANTS.

STATICES.—Blue flowers are comparatively scarce amongst greenhouse plants, particularly such as are of a lasting character. The different species of *Statice* supply various shades of this colour; the flowers are most enduring, and the plants when healthy keep on producing a succession so long as they are in active growth, added to which the plants last for a number of years when well treated; but there are several matters connected with their cultivation in which they differ somewhat from the generality of other subjects. To keep the leaves in a healthy condition they must not be exposed to the full force of the sun from the time it gains considerable power until it wanes in autumn; otherwise, they assume an unhealthy, bleached appearance, and do not attain nearly their full size. The plants should not be kept lower than from 40° to 45° during winter, or the growth becomes stunted. They are free rooters, and require more pot room than many things which attain larger size. Good yellow loam is the best soil in which to grow them, and when in full growth during spring and summer they are much assisted by frequent applications of manure water. They require no training for ordinary uses. *S. profusa*, *S. Butcheri*, *S. imbricata*, *S. brassicaefolia*, and *Holfordi* are all deserving of cultivation. Anyone who will keep up a stock of these need not be without their flowers for any length of time. If cut whilst fresh and dried quickly, they will retain their colour and form for a length of time. Cuttings made of moderate-sized shoots kept in a medium heat and confined under a bell-glass strike freely. The present is a good time to put them in.

PLEROMA ELEGANS.—This bears lovely, large, violet-coloured blossoms, unapproached by any flower of a like colour. It is easily managed, requiring only to be turned out-of-doors from about the middle of July to the end of August, so as to ripen its wood. It attains a considerable size, but is best for general use when in a small or medium state; it blooms freely, and will flower in 8-inch or 9-inch pots. It succeeds in peat or loam, but I prefer the latter. All that is required is to see that the shoots are frequently stopped from the time the cuttings are well rooted until the plants have attained a bushy condition; by this means half-a-dozen sticks will give all the support which a good-sized plant requires. Cuttings made from the young shoots as soon after this time as the wood has attained a little solidity will strike in three weeks. It blooms from the young growth in July, August, or September, according to the way in which it is treated as regards warmth in spring. Half-a-dozen of its half open flowers well placed in a bouquet give an effect that nothing else I have ever seen used does. It likes a little shade in summer, or its leaves turn red, and do not last their full time.

CASSIA CORYMBOSA.—Although this is seen to the best advantage when planted out and covering a wall such as the back of a greenhouse or conservatory, yet, as generally grown in a pot, it looks well and yields a succession of its bright yellow flowers which come in during the summer and autumn. If kept repeatedly stopped, so as to induce the formation of plenty of shoots near the base, it will need no sticks. Cuttings of it should be put in about this time if they can be had 3 inches or 4 inches long; they ought to be taken off with a heel and treated in the usual way.

GENERAL STOVE STOCK.—More air should now be given to the general collection of stove plants than hitherto, but in doing this care ought to be taken never even at this season, whilst the growth of most plants is yet soft and tender, to carry this so far as to over-dry the atmosphere, otherwise the foliage gets stunted, and the attacks of red spider are almost certain to follow. Keep all but the exceptionally few things that do not like too light a position as well up to the glass as circumstances will permit. Where this is done, the

syringe may be used freely without danger of the soil within the pots getting too wet; mere sprinklings on the top of the leaves are useless, as far as keeping down insects is concerned. Instinct teaches most of them to keep to the underside of the foliage; consequently, unless the water reaches well the spots where they congregate, they are not affected by it. Close early whilst there is plenty of sun warmth; this is much preferable to fire-heat. Now that the stock of bedding plants will be cleared out from pits, where if necessary a little fire-heat can be given, it will be well to thin out such of the plants from stoves as can be accommodated in the pits during summer. This will be of immense benefit to the whole, as, wherever crowding exists, good cultivation is out of the question. Attend to the timely stopping of all young stock required to assume a bushy form, not that it is desirable to give plants in general a too formal, dumpy appearance, but the absence of early and sufficient pinching back of the leading shoots necessitates the after use of more sticks and ties to support many plants than should be employed.

CORONILLAS AND VERONICAS.—*C. glauca* is a pretty summer-blooming floriferous plant. It is not a large grower, and on that account may be used plentifully. Small examples of it in 6-inch or 7-inch pots bloom freely. It requires ordinary greenhouse treatment. When done flowering it should be cut back freely. Which ever way the autumn and winter-flowering supplies of *Veronicas* are managed—in pots or planted out for subsequent lifting—they must be encouraged to make bushy, stout growth. To keep them compact it is well to again pinch out the points of the leading shoots, but with the autumn-blooming kinds, such as *Andersoni*, the next stopping is the last they should receive.

STOVE TWINING AND CLIMBING PLANTS. grown as specimens for removal to conservatories or greenhouses when in flower later on, will require frequent attention as to keeping the shoots trained to the sticks or wire supports, but for home decoration, where the plants will not necessarily be subjected to any knocking about such as in conveyance to an exhibition, there is no necessity for their being tied so as to have any approach to formality. Where to be so used all that is required is a few sticks with the shoots loosely wound round them. Stove plants that can with advantage be so used in cooler houses during July and August may include *Allamandas*, *Bougainvillea glabra*, *Dipladenias*, *Clerodendrons*, *Ixoras*, *Rondeletias*, *Vincas*, *Tabernaemontanas*, and others of like character which are often kept wholly in stoves at a time when they would be most useful in conservatories to help to maintain a display of bloom, but to enable such subjects as above named to preserve their flowers in fair condition, and not to receive injury by being thus submitted to cooler treatment they must have been so treated previously as will ensure their bearing this. It is not enough that for two or three weeks before being taken out of the stove they should have more air and less shade, which will effect the necessary conditions of keeping the atmosphere drier, but they should all along, whilst the growth was progressing, have been kept with their heads close up to the glass in a light house; without this no amount of after hardening that they can have will enable them to stand the lower temperature and preserve their flowers so as to have a good appearance. It is the want of this gradual preparation—this exposure to light through the early stages of the season's growth—that prevents the possibility of many stove plants being used in the way here indicated, thereby reducing much of their usefulness. We have found that the check thus given for a time during the warmest part of the summer was the best means of giving many things a rest, and much to be preferred to the severe root-drying process often practised.

BEGONIA FUCHSIODES.—This plant, not now so much grown as it used to be, is, nevertheless, one of the best of all the *Begonias*, and where well managed gives a profusion of flowers for a

lengthened period either when grown in pots or planted out. Where trained to a pillar or rafter, and it can be accommodated with intermediate warmth, it is one of the most effective plants in cultivation, with the still further recommendation that its flowers are well adapted for cutting. Examples required for flowering in autumn should now be exposed to all the light possible, giving no more shade than is necessary for such other things as may happen to be grown in the same house. If treated in a way to give solidity to its succulent shoots it will bloom in either a large or small state; moderate sized plants, such as may be grown in 9-inch or 10-inch pots, are generally the most useful. Small ones that have been hitherto kept in 6-inch or 7-inch pots if now moved into others two or three sizes larger will make nice specimens before autumn.

FLOWER GARDEN.

HUMEA ELEGANS.—When well grown, this greenhouse biennial ranks amongst the foremost of plants noted for handsome foliage and elegant feathery inflorescence. It is invaluable for the centres of large vases in summer, and also for the sub-tropical garden, either for putting out in beds or for plunging in the pots in the turf, or near the margins of walks in order that its rich fragrance may the more frequently be enjoyed. It should be raised from seeds sown on a hotbed in May, and the seedlings should be pricked off as soon as they can be handled and potted on before the roots get matted together. They should be grown in the open air, where they should be treated like *Chrysanthemums*, and be housed about the beginning of October and afforded ordinary greenhouse cultivation. By the new year they will be ready for their final shift into large pots, and about the middle of May they may either be placed in position in the open air or be planted out in beds. They flower best when plunged in the beds in the pots, but need more attention as to watering than they do when turned out.

GENERAL WORK.—Notwithstanding the absence of rain, the advancing season bespeaks how important it is that planting should be finished as quickly as possible. This done, the next most important item is the well-doing of the plants; to this end and also to the earlier effectiveness of the same, mulch or keep the ground loosened with a small hoe, or where the plants are very close together, with a pointed stick. Carpet beds we prefer to mulch with Cocoa-nut fibre; *Violas*, *Calceolarias*, and the like with manure. Sub-tropical plants are indirectly mulched by pegging down the groundwork plants as soon as practicable. Trivial and unnecessary as these operations may appear, they are important factors to real and speedy success. Staking, tying, and keeping the flowers picked off *Cannas*, *Castor-oils*, &c., to aid their more rapid growth are the only other immediate requirements needed by sub-tropical plants. Ordinary kinds of bedding plants should be frequently gone over in order to remove bad foliage and flowers. *Pansies*, *Violas*, and *Calceolarias* are quickly exhausted, and cut a sorry figure in dry weather if the old flowers and seed vessels are not removed frequently. Peg down or pinch as may be requisite all groundwork plants; high keeping and the working out of every line or panel true to pattern is of the utmost importance in carpet bedding, and those who do not intend to take this pains ought not to attempt it. Now is a good time to make another sowing of biennials and perennials, such as *Brompton Stocks*, *Sweet Williams*, *Wallflowers*, *Delphiniums*, *Foxgloves*, *Aquilegias*, *Canterbury Bells*; in fact, seeds of these may be sown now in the open borders with a fair prospect of success, the only real danger of any mishap occurring to the seedlings being from attacks of slugs, which should be prevented by using soot or lime liberally about the seed beds. Keep all herbaceous plants well up to supports; our rule is to place sticks to each plant—in size as may be required—at the beginning of the season, and look over the plants once a week after-

wards, in order to tie or remove suckers, weeds, &c. Finish the clipping of Box edgings and evergreen hedges, also the cutting back of flowering shrubs and the new growths of those that are encroaching on walks. Other pressing routine duties may be summed up in three words—mow, sweep, and weed.

FRUIT.

PINES.—Plants now swelling off fruit will require more water of a stimulating nature than has hitherto been given to them; they will also derive great benefit from diluted liquid carefully syringed over the surface of the bed and into the axils of the lower leaves after the house is closed for the day. Keep the atmosphere moist by damping the walls and all available spaces and by filling the evaporating pans with liquid from the manure tank, but avoid heavy overhead syringing, as it increases the size of the crowns and encourages the growth of gills and suckers. Let the temperature range from 70° at night to 85° by day. Give a little air at 76°, gradually increase it as the sun gains power, and close in time for the house to run up to 90° with solar heat. Remove ripe fruit to a cool vinery in which the Grapes are ripe and withhold water, or cut and suspend them in the Grape room until wanted for use.

SUCCESSIONS.—The best plants that were shifted into fruiting pots early in March should now be filling the soil with roots, and the bottom-heat being satisfactory, liberal supplies of liquid or guano water will be needful at every watering. Keep them well supplied with atmospheric moisture by syringing the paths, walls, and surface of the bed, and slightly dew them overhead after closing on fine days. If the plants are plunged in Oak leaves and there is a sign of the heat declining this is a favourable time for rearranging and giving them more room if required, but it will not be well to disturb or do more than level the surface of the bed, and place a few fresh fermenting leaves on the top and between the pots as the work proceeds, as the slightest disturbance at this season sometimes starts fresh fermentation, and a violent heat just now might throw many of them into fruit. Avoid strong fire heat and dispense with it altogether when 60° to 65° can be maintained at night without it. Give air early, gradually raise the temperature to 80°, and run up a few degrees after closing.

FIGS.—Trees in the second house now ripening or swelling off the first crop of fruit will require an abundant supply of stimulating liquid, and good syringing where water can be applied without wetting the fruit. Turn the foliage aside where the ripening fruit is too much shaded from sun and light, and maintain a gentle circulation in the hot-water pipes to keep the house up to 60° or 65° at night, and to admit of a plentiful circulation of air by day, without which Figs of high quality cannot be expected. If spider or scale attack the leaves, and a flush of ripening fruit puts a stop to syringing, sponge the parts affected with soap water to keep these pests in check until syringing can be resumed.

EARLY HOUSES from which all the fruit has been gathered will be the better for a good washing with the garden engine, and the mulching may be replenished with fresh manure, to be washed down to the roots with liberal supplies of tepid liquid or guano water. As the second crop of fruit does not always come so fine as the first, thinning with a liberal hand will be advisable, but instead of taking off all the smallest, it will be well to take off and leave some of all sizes, to prolong the supply when the trees again begin to produce ripe fruit. Although fire-heat will still be necessary at times, it must be used in moderation, particularly at night, when comparative rest will benefit the trees, and early closing with solar heat and moisture will redeem the time lost without distressing them. When young trees in pots intended for forcing have made their second growth, stopping must be discontinued and stimulating food must be withheld, in order to secure firm,

short-jointed wood, which will be thoroughly ripe by the autumn.

MELONS.—About this time a number of pits and frames will be set at liberty by the clearance of forced vegetables and the more tender bedding plants. To make the best use of these, a good stock of the leading kinds of free-setting Melons, including Golden Gem and Victory of Bath, should be ready for turning out in strong, but not over rich loam, placed in ridges some 18 inches from the glass. As many of the preceding occupants leave a colony of insects behind, the frames and lights should be well cleansed with boiling water, and in order to give the plants a start, a trench may be taken out along the centre of the old bed, and filled in with fermenting leaves or stable manure, which should be made very firm before the soil is introduced. A good external lining along the front will also assist the plants through the early stages of growth. Early crops now swelling or ripening off will well repay steady attention to linings and covering up with mats at night. Reduce the supply of water and atmospheric moisture when the fruit begins to change colour. Ventilate more freely on bright days, and insure flavour by full exposure to sun and air. The cultivation of Melons in houses after this time is a very simple matter, the main points being a bottom-heat of 84° to 90°, plenty of air on fine days to secure dark green, sturdy foliage, an abundance of water to the roots, and a good syringing to keep them free from insects.

PEACHES.—When all the Peaches have been gathered from the early houses the trees must be well washed with the syringe to free them from all kinds of insects, and the borders must be well mulched and watered with diluted liquid or clear water, according to the strength of the young growths and the quantity of fruit the trees have brought to maturity. As next year's crop depends upon a clean, healthy, well-ripened growth, all shoots rendered useless by the removal of the fruit should now be cut away to admit of the free admission of light and air, gross shoots should be stopped or removed, and ventilation should be of the most liberal character.

SUCCESSION HOUSES, in which fruit is now taking the last swelling, will require copious supplies of water, good syringing twice a day, with a temperature ranging from 60° at night to 80° by day. Elevate all pendent fruit and keep the foliage turned aside where colour is an object. Pinch the points out of the shoots intended for removal after the fruit is gathered, and secure flavour by giving an abundance of air. Where the brilliant weather we had in May has hastened late houses, the ventilators may be kept constantly open; frequent damping with cold water will keep the atmosphere cool, and an unrestricted growth of the young wood will help to retard the stoning and swelling of the fruit.

HARDY FRUIT.—Apples everywhere promise to be a good crop, but in places sadly blighted. Pears are not so badly affected in that way, and in many places the fruit is plentiful, clean and fine. Peaches and Nectarines are abundant, and the trees being clean, healthy, and vigorous, good crops of these may now be considered safe. Apricots are thin in most places. If any of the trees remain unmulched, no time should be lost in getting some kind of covering placed on the borders. Where they are heavily cropped good stable manure is undoubtedly the best material that can be used; but, lacking this, anything capable of checking evaporation will have a beneficial effect. On all light non-calcareous soils stone fruit trees derive great benefit from liberal dressings of old lime rubble, which, if laid on the borders in the spring, forms no mean mulching in itself, as it keeps in moisture better than many imagine, while the properties it contains supply an important want often severely felt by the trees at the time of stoning. Before the laying-in of the shoots of Peaches is commenced, a thoroughly experienced person should go over the trees to complete the disbudbing and thinning, and at the same time to pinch the points out of young shoots which are likely to become too

strong, to the detriment of weaker growths, or where they are likely to detract from the size of the fruit, and on no account should a single shoot be laid in unless it is wanted to carry fruit next year, or to complete the furnishing of the tree. Pears, Plums, and Cherries may now have all the strongest breast-wood cut away to the third or fourth eye, but the system of leaving all the growth to be cut away at once is not a good one. It is much better to commence earlier and carry on a regular system of pinching. In wooded districts the early kinds of sweet Cherries must be netted as soon as they begin to ripen to protect them from birds. Strawberries, too, apparently a most abundant crop, will require attention. There are numerous modes of treatment recommended for the production and protection of this valuable fruit. The most important points at the present time are copious supplies of water, a ground covering of straw or litter to keep in moisture, and protection from birds and slugs. Where the latter are numerous, or, indeed, where they do not exist—quantity and quality being the first consideration—the most economical plan is to place four short sticks to every old stool and two to younger plants, and form a support for the fruit by running a piece of matting or twine round them some 9 inches from the ground. All the trusses can then be turned outwards to the influence of sun and air. Slugs are isolated, and the fruit dries quickly in showery weather.

ORCHIDS.

EAST INDIA HOUSE.—There are certain varieties and species of *Cypripedium* that succeed best in this house; indeed, some that do well in a cooler house succeed quite as well here and grow more freely. Now is a good time to attend to re-potting them. Some succeed best in small pots, and amongst these may be named *C. barbatum* and its varieties, *C. Veitchi*, *C. Lawrenceanum*, and others of that type. *C. Lowi*, *C. Stonei*, *C. Dominii*, and others of that class succeed perfectly well in large pots in the form of good specimens. These should also be potted if they have done flowering, taking care to remove any decayed, useless compost from the roots. We find at this season that it is a good plan to syringe these plants overhead twice daily in hot weather, an operation which does them good and has also the effect of keeping them free from red spider and thrips. The different species of *Angraecum* should now be pushed on in a high temperature, with plenty of moisture; they are now pushing out fresh roots and are growing freely. A very small species of thrips does much damage to the plants by preying on the young leaves just pushing out from the centre of the plants. It is not observed until the effects of its presence is seen on the leaves. Tobacco water kills it. *Grammatophyllum Ellisi*, another Madagascar plant, well worthy of culture, does best in the warmest house. It generally flowers in August, and should now be pushing its flower-spikes from the base of the last growth. It does best near the glass in a pan or basket. The temperature of the house should now be 70° as a minimum.

CATTLEYA HOUSE.—Many of the Cattleyas are now starting into growth, and some have even made considerable progress. Where plants of *C. Mossiae* or *C. Mendellii* have flowered freely, they are not likely to produce more than one growth from each lead, and that is quite sufficient in the case of old-established plants. Plants done flowering and starting to grow ought to have a rather higher temperature, say 65° at night, and a moist atmosphere. We keep our house rather dry at present, with a temperature of about 60°, as we want to keep some Cattleyas and *Oncidium*s in bloom as long as possible. *O. crispum*, a good and distinct species, is now in flower in this house. It seems to do well potted and treated similar to Cattleyas, but we allow the roots to grow over the sides of the pots. *Odontoglossum citrosum* is over, and the bulbs, by their slightly shrivelled condition, show the strain to which they have been subjected during the flowering period; they will soon plump up in a higher and moister atmosphere, aided by a

good supply of water to the roots. The young growths are now pushing on rapidly. *Oncidium Marshallianum*, certainly one of the most beautiful of the yellow-flowered species, is also starting into growth, and the young roots are pushing over and down the sides of the pots. Look over them every night for slugs and snails, and also trap these pests with bran or Cabbage leaves. Allow the plants to have all the light it is possible to give them, but do not expose them to the direct rays of the sun.

COOL HOUSE.—Those who have a number of plants of *Oncidium macranthum* need not be without its flowers for the next two months at least. This is one of the most distinct and best of *Oncidiums*, and valuable because it succeeds well in the cool house. It has one fault, a serious one, viz., the flowers take so many months to develop, that the plants are well nigh exhausted before they open. Two seasons' flowering sometimes gives the plants a serious check; our best plant flowered two years in succession, and looked all the worse for it. This year it has not produced any flower-spikes, but is taking a rest, we hope, to produce better spikes next year. This species requires treatment similar to that needed by most other cool house species. If any plants require repotting, this can be done when they start into growth after the flowering period is over. The weather has not been very warm as yet, but if it should set in close and very hot, this house will require extra attention, in order to prevent the plants from being injured by the heat. Give plenty of ventilation night and day, and use thick shading, raised a foot or so above the glass, so that a circulation of air may be kept up between the glass and the shading.

KITCHEN GARDEN.

WE are just now planting in their permanent places Brussels Sprouts, the previous crop being spring Cabbage and Lettuce. Brussels Sprouts being strong feeders, we treat them to a good manuring and a deep digging. Few things are so profitable, scarcely any so hardy, as Brussels Sprouts; therefore, they deserve all we can do for them. Our first lot of Celery is already out and in the trenches, and the bulk of our crop will be out in a few days. Our favourite varieties are Carter's Incomparable Dwarf and another dwarf white called Hastings' White Celery. We also have a few rows of Major Clarke's, which grows to a large size, and is most useful on special occasions. Among the best varieties of Peas to sow at this season is William I. and Unique, both of the green marrow type, and not so subject to that fatal disease, mildew, as many of the strong growing varieties. Parsnips, Carrots, Beet, and Onions will now require thinning, hoeing, and cleaning. We find the smaller Onions keep better than giants, and are better liked. Late Potatoes should be cleaned and moulded up at once. Sow at once a good bed of Parsley for spring use. We intend next week to begin planting in the quarters Veitch's Giant Autumn Protecting and Walcheren Broccoli. Speaking of Broccoli, we may add that Cattell's Eclipse met within a week the hand-light Cauliflowers. Slugs this season are plentiful, therefore soot and lime must be freely used. We sow them broadcast over any kind of seeds appearing above ground. Soil dried to dust is also useful for sowing on small plants; these miniature vermin do not at all relish anything gritty. Sow now Coleworts, Early York Cabbages, and a few Lettuces, but defer sowing Endive until the first week in next month; if sown earlier than that it generally runs to seed. Scarlet Runner Beans and late Peas must at once be staked.

Hardiness of Pansies.—I have been very much interested in the notes on the hardiness of Pansies. I have a few that I raised last year from a packet of mixed seed. The plants were left in the ground all winter, and had no protection whatever. Not only did they do well, but in spite of the severe weather, one or two were in flower in

February. They are now one mass of bloom, and will, I expect, continue so for some time. To keep Pansies in full flower, I find it by far the best plan never to allow the flowers to seed, but the moment the fresh beauty of the flower fades to pick it off. The plant is not so much exhausted in this way, and so it has a far greater strength within it to continue flowering, and so adds to the beauty of the garden. The trouble is really very little, and the results far greater than one would imagine. I neglected last year four plants, and allowed the seeds to form. The flowers became very poor and insignificant in size, and gradually died away altogether, whilst long after that the other plants were in full vigour and flower.—H. F. M.

GARDEN DESTROYERS.

REMARKS ON INJURIOUS INSECTS.

SOME of the readers of THE GARDEN may be glad of a few short remarks as to the best means of destroying various insects which are now making their very unwelcome presence felt in our gardens. Among those which are the greatest nuisance are

THE CATERPILLARS of certain small moths, which attack the foliage and flower buds of Roses. When standards and bush Roses are attacked they may be destroyed by pinching the leaves they are ensconced in, making sure that the enemy does not drop out of the leaf before the pinch is administered, or by cutting off the leaves or buds and allowing them to fall into a basket or other receptacle. Climbing Roses are more difficult to reach, but a pair of scissors on a handle, similar to those used for gathering Grapes, might have a small basket or tin box fitted to it so that when the leaves or buds were cut if the caterpillars fell out they would be caught. These caterpillars curl up and fasten the leaves together in such a manner that no insecticide will reach them. After pruning the trees, the shoots cut off should always be burnt, as they may have eggs on them.

THE GREEN FLY is a no less troublesome pest, and may be best dealt with by using a wash of some kind, which should be applied as soon as any of these insects are noticed on the Roses, for the green fly increase and multiply with such extraordinary rapidity that if the operation is delayed for a few days the trouble of cleaning the plants will be very greatly increased. The wash may be composed of $1\frac{1}{2}$ lbs. of soft soap, 1 quart of Tobacco water, and 3 gallons of water, or 4 oz. of Quassia chips, boiled for ten minutes in a gallon of water; when the chips are strained off add 2 oz. of soft soap, or 2 lbs. of washing soda, 1 oz. of bitter Aloes, and 1 gallon of water. The affected shoots may be either dipped in or syringed with these mixtures. An hour or so afterwards the plants should be well syringed with clean water. Fruit trees suffer from the attacks of various

MAGGOTS and caterpillars, which destroy the foliage and fruit. Those which destroy the former are the commonest. Some kinds may be shaken from the branches; others must be picked off by hand, or the leaves on which they are feeding gathered. If the caterpillars do not roll up the leaves, a good syringing with one of the washes recommended for green fly would be very useful. The fruit should be examined if possible from time to time, and any Apples which have a black or reddish-brown spot on them, indicating the entrance to the gallery formed by the grub, should be at once destroyed. All windfalls should be treated in the same manner, and if we cannot save our fruit we can in this way kill the grub, and so help to lessen the numbers of the next brood of moths.

GOOSEBERRY CATERPILLARS are of two kinds; one becomes a moth, commonly known as the magpie moth; the other, which is the commonest and most destructive, is not a true caterpillar, but the grub of the Gooseberry sawfly. Both kinds may be destroyed by the same means. When quite young the bushes may be freed from them by a

good syringing with 1 lb. of salt dissolved in 1 gallon of water. Dusting the bushes when the leaves are wet with powdered white hellebore 1 lb., and whitening 6 lb., or white hellebore powder 1 oz., and powdered alum 2 oz., well mixed in a small quantity of water, and then added to 1 gallon of water, are very effectual remedies; but as white hellebore is a violent poison, care must be taken in using it, and seeing that the fruit is thoroughly washed afterwards; 1 oz. of powdered alum in 1 gallon of water is said to be very deadly to the grubs, and is perfectly harmless to the human species. Sprinkling the bushes with anything dry and dusty when the leaves are wet is very useful. Road dust, powdered sulphur, or coarse flour, have all been found very efficacious in clearing bushes.

THE AMERICAN BLIGHT should never be allowed to establish itself on Apple trees, as it has been in some places, for it is then very difficult to eradicate it. As soon as any are noticed on a tree, the part infested should be well scrubbed with a hard brush, and one of the following mixtures: 1 pint of ammoniacal liquor and 2 parts of water; Tobacco water (quarter pound of Tobacco soaked in 1 gallon of water; a wineglassful of petroleum oil to 1 gallon of water, add a little soft soap to make the liquids mix better, or common train or fish oil. Brushing the insects with a small brush dipped in turpentine or spirits of wine kills them at once.

LEATHER JACKETS, the grubs of the daddy-longlegs or crane fly, appear to be numerous and destructive this year; they live on the roots of Grasses and various other plants, causing them to wither and die. They may be caught by burying, about an inch from the surface near the roots of plants, small pieces of Potatoes, Turnips, &c., with a small stick or skewer attached to them to show where they are; they should be examined every morning, and any grubs found sticking to them destroyed. Wireworm may be trapped in the same manner; these grubs often come to the surface at night, and may then be killed by rolling the ground. Trenches 6 inches wide and with upright sides the same height are very useful for catching the grubs; in their nocturnal rambles they fall into these pitfalls and cannot escape. When plants wither and fade without any apparent reason, an examination should always be made of the earth round their roots, when grubs or caterpillars will generally be found attacking them.

THE ONION FLY is a great pest in many places. Some persons have found that by keeping the roots well earthed up so that the fly cannot get at them to lay their eggs, is a very sure preventive. In thinning the crop great care should be taken to disturb the soil as little as possible for the same reason; sowing sand which has been soaked in petroleum over the beds, or watering them with 1 pint of petroleum mixed with 2 gallons of water, has been found very useful in keeping the flies away. When once an Onion is infested, there is nothing to be done but to remove it carefully and burn it; this is best done by digging it up with a trowel, for if any of the grubs are left in the ground or are allowed to drop out of the bulb, they will probably find their way to other roots. If this method is properly carried out the next brood of flies will be very much diminished in numbers.

THE CARROT FLY may be prevented from laying its eggs on the Carrots by the means above mentioned. As a protection against the Carrot fly the earth round the roots should be kept as firm as possible, and when thinning them the first time it should be done so thoroughly, that the operation need not be repeated, keeping the crop in vigorous growth by suitable manures and waterings.

EARWIGS late in the season often prove annoying; hanging pieces of Reed or any hollow stem (those of the Sunflower being rather sweet are particularly useful) on plants and in places where they abound is as good a means as any of catching them; they are sure to creep into them, and may easily be shaken out and killed.

THE BLACK VINE BEETLE is often a great pest not only in vineries, but in conservatories, by destroying the leaves of various plants grown for their foliage. They feed at night and may be caught on the plants or by spreading a sheet under them and entering the house after dark quickly with a bright light, when they will fall, feigning death. If they do not fall a sharp tap or shake will bring them down. Their grubs are very destructive, and may be found feeding on the roots of Cyclamens, Primulas, Sedums, Strawberries, and various other plants.

RED SPIDER may generally be kept in check by affording a proper amount of moisture to the plants likely to be attacked. Sulphur is particularly obnoxious to it; any insecticide containing it is useful. The following mixture will be found very efficacious in destroying it: boil in 2 gallons of water half a pound of flowers of sulphur and 1 pound of fresh lime, add three-quarters of a pound of soft soap, and, before using, $1\frac{1}{2}$ gallons more water. G. S. S.

Turnip fly.—On warm, dry soil there will be some difficulty in keeping young Turnip plants free from fly this year, as the weather through May and the first half of June has been brighter than usual. The best plan is to pulverise the land well, that is, get it into a fine tilth. I am assuming that it is in good heart as regards manure. Sow in drills, having first soaked them with liquid manure. After the seeds are sown scatter a little superphosphate in the drills before covering in the seeds. Amies' manure is also useful, and a good substitute for the phosphate. I have also had great success with guano and salt mixed together. A comparatively small quantity will be of great value in hastening the crop when sown in the drills. Three pounds of guano and two pounds of salt thoroughly mixed and blended together will be enough for a rod of land. After the plants are up, lime is said to be a good dressing dusted along the rows, and frequently stirring the surface tends to disturb and keep off the fly. —E. H.

Pear tree borers.—I send a small piece of branch of a Beurré Bachelier Pear which was growing in a procumbent position and which I cut off close to the union with the stock. On cutting it through a yellowish green fluid covered the knife, and on examining the part severed I found it was produced by a large grub or caterpillar of a yellow-buff colour which quite filled the hole bored up the centre of the branch. The Pear tree is a young one purchased last year from a nursery in Naples, and the hole extends at least 6 inches in depth down the stock, which, I may say, is only 12 inches out of the soil, and is eaten quite smooth. Have any of the readers of THE GARDEN ever noticed a similar thing? Is it usual for grubs to be in Pear and Apple trees; and in this case is the grub indigenous to Italy or some others of the southern states? May it not be possible for us to import some new form of caterpillar in purchasing trees from that country? I filled the hole in the stock with petroleum to kill any larvæ that might be left in it. —C. BRAY, *Whitbourne Hall*.

Gooseberry caterpillar.—Now that the season has come when the Gooseberry caterpillar makes its presence known by divesting the trees of their foliage, I think it should be generally known that this unwelcome visitor may be quickly dispatched by syringing the trees with a solution of Gishurst Compound; about from 2 ounces to 3 ounces to the gallon of water will do, taking care to thoroughly wet the foliage and wood. I have also tried this season a decoction of the common Foxglove (*Digitalis purpurea*), with the same results, viz., dead caterpillars, but I prefer the first remedy, as the foliage and fruit look much cleaner after it, and do not require so much syringing with clean water afterwards, i.e., if rain does not come to wash them instead. On looking over the trees affected, I find here and there a handsome spotted caterpillar. Does it belong to the same family as the ordinary one? —C. BRAY, *Whitbourne Hall*. [See page 513.]

FLOWER GARDEN.

CULTURE OF THE SUNFLOWER.

Of late years Sunflowers have become favourites for decorative purposes in many places, and if not yet to be found in every garden it is not because there is no desire to possess them. They are easy to cultivate and sure flowerers, the only secret as regards perfect success lying in sowing the seed. Last year we sowed some seed in a hothouse early in March, and from the plants thus raised we had blooms in July 15 inches in diameter. More seed was sown in the open ground in April, but the plants produced in this case did not bloom until far on in the autumn, and were never so satisfactory as those raised and brought forward under glass. I would, therefore, advise all who have the means to raise their Sunflowers under glass, and treat them like half-hardy bedding plants. We do not bestow on them much labour or attention. Two or three dozen seeds are sown in an 8-inch pot in any light soil, and this is placed in a house or hotbed until the plants are pushing through the soil, when they are brought close up to the glass, and there they remain until they are about 3 inches high, when they are turned out of their pots and planted in our cutting boxes, which are 2 feet 6 inches long, 18 inches wide, and 4 inches deep. A few rough leaves are placed at the bottom of each box, which is then filled up with a mixture of loam and leaf-soil or old Mushroom bed manure, and into this the Sunflower plants are dibbled from 2 inches to 3 inches apart. In this way half-a-dozen boxes hold a great many, and they do not take up much space. As the boxes are filled they are placed in a temperature of 60°, and here the young plants soon begin to grow away rapidly, reaching a height of from 18 inches to 2 feet in a month's time. By the beginning of May they are hardened off and are ready for planting out anywhere according to fancy. Some plant them in a group by themselves, others place them in herbaceous borders, and not a few plant them about shrubberies. A deep rich soil is most suitable for them, as the blooms never gain any great size in poor ground. As soon as they are planted a stake should be put to each, and as the leading stem produces the first bloom, this may be cut off as soon as it is past its best, in order to induce the side shoots to push up and also bloom. All strong growing plants will do this, and they will continue to produce a succession of flowers until well into the autumn. J. MUIR.

Margam, South Wales.

HARDY AROIDS.

AMONGST hardy Aroids, *Arisæma triphyllum*, the American Jack in the Pulpit, is decidedly worth growing, owing to its quaintness. When it first appears above ground it is like a brown mottled horn. The flower is placed between two trifoliate leaves, and is really not unlike a little figure in a pulpit, with a sounding board overhead. The plant is about $1\frac{1}{2}$ feet high, and grows well in a bog bed or in ordinary damp soil.

ARUM ITALICUM is also flowering well this year, and although it is very like the wild *A. maculatum*, it is sufficiently distinct to be worth growing were it only for the leaves, which are usually veined with white in spring. This plant and *Arum Dracunculæ*, with its dark brown flowers, do not require a choice spot in which to grow; the latter does not blossom freely here. The scent is sometimes (happily, very seldom) extremely strong and disagreeable.

CALLA PALUSTRIS is small enough to grow even in a tub, and would probably grow equally well as a bog plant. The well-known Lily of the Nile, *Calla æthiopica*, is hardy in this neighbourhood (when grown as a water plant) except in very severe winters. In a bog bed during the summer it is very effective. A collection of all the good hardy Aroids in cultivation would be both curious and interesting. The description of the common wild *Arum maculatum* in chap. 2 of Sir John Lubbock's "British Wild Flowers in Relation to

Insects" is one of the most interesting parts of the book; and probably many other points of equal interest are to be found in other Aroids.

Knockmullen, Gorey, Ireland.

C. M. O.

DWARF ANTIRRHINUMS.

THAT remarkably dwarf strain of the Snapdragon originated on the Continent, and for which we are specially indebted to Messrs. Vilmorin, of Paris, has by no means become so well known or widely grown as it should be. The dwarf forms belonging to this strain are exceedingly beautiful, not only because they are dwarf, but because they all possess such charming variety in the way of colours and markings. The Continental growers have by dint of patient selection succeeded in getting distinct colours, so that of the mauve type and of the Tom Thumb type, which is even dwarfer, there are



Dwarf Snapdragon (Antirrhinum majus var. pumilum).

some twenty or more distinct forms. Some are sold under name, some according to colour, but the most striking are those in which some two or three colours are found in combination, either in the form of stripes, blotches, or clearly defined margins. It is a curious fact that the tall forms, though rich in variety of colours, yet lack many of the curious hues found in the dwarf section; hence if a bed be planted with the tall kinds, and margined with dwarf ones, a very charming effect is the result. It is to be regretted that in all gardens of any great size there is not set apart a few beds in some appropriate place, in which such good biennials as Snapdragons, Pentstemons, Sweet Williams, &c. can be grown, as whilst in bloom, and the season is a long one, they make beautiful masses of flower. They also furnish an ample supply of cut bloom, and, not least, they present variety in form and colour in garden plants that is singularly acceptable. When, further, it is known that all these biennials can be raised from seed, which may be purchased cheaply, we can but marvel that they are so little grown. Of this dwarf strain of Snapdragons the annexed illustration is a good example of the way in which they grow and flower. Exhibitors of Antirrhinums in spikes may not care for these dwarf forms, as their spikes of bloom are not sufficiently large for their purpose. But for pot culture, and it is as pot plants that for exhibition purposes Snapdragons should be encouraged, these dwarf kinds are admirably suited. From 8 inches to 12 inches in height, carrying when at their best a dense head of bloom in such admirable variety, they would, shown in dozens or less, make a capital class, and several collections would form a charming feature in any show. Seed may be sown at almost any time of the year, but much must depend upon the particular time at which the plants are desired to be at their best. A little seed sown

early in March in a pan and placed in warmth will give an ample supply of plants to flower at mid-summer, and a couple of later sowings will keep the supply up to the winter, so that the time of holding any show might easily be arranged for, and the surplus plants put out into beds or borders will prove serviceable for garden decoration. It is better to sow seed each year, as it is found that in the second year the plants yet taller if they stand the winter. As they come so true from seed, several beds may be filled with masses in colours, and thus produce a cheap and an effective display.

A. D.

NOTES ON IVIES.

WITH so many naked and unsightly walls to cover and beautify, a good deal more should be done with the better kinds of Ivies. I am not finding fault with our old friend, the rapid growing Hibernian Ivy. I admit its value everywhere, but variety is charming, and those who can afford to wait should plant the choicer slower growing kinds. They are easier to keep in order, and they impart a character of refinement to a wall or building that scarcely anything else in the same way can do. I have the following kinds growing on the north side of my house, viz., *Hedera aurea maculata*, leaves three-lobed, small, but of the brightest gold. *H. marmorata elegans*.—This also is a small variety, but very close and neat, foliage not much divided, marbled with creamy white. *H. palmata*.—Leaves small, five-lobed, deeply serrated, bright golden, but not so bright as the first named. This is a free grower. *H. elegantissima*, a very neat variety, with leaves heavily variegated with white, the new foliage having a faint, but distinct margin of pink; a slow grower, but does its work as it proceeds, and costs nothing to keep in order. *H. Emerald Gem*, a beautiful dark green variety, very close in habit. These are young as yet, but large enough to show what they will be by-and-by when they cover the wall. I intend to keep them distinct, permitting each to fill its allotted space, and no more. *H. latifolia maculata* is a variegated form of the Irish Ivy, and partakes of its robust character, but it is planted in a spot where it can get on to the chimneys, and will have more work assigned to it. All these Ivies are very easily propagated by means of cuttings. If the soil is bad and ungenial it is better to replace the worst of it with something better, in order to give the plants a fair start.

E. HOBDAV.

DRESSING FLOWERS FOR EXHIBITION.

I HAVE read the different remarks which have appeared in THE GARDEN recently on this subject, especially those relating to the dressing of Carnations and Picotees for exhibition, with a peculiar kind of interest, because they raised in my mind another question intimately connected with the progress of horticulture. It is this: Is this artificial system of presenting flowers to public view necessary? In my opinion it is not, and what is more I maintain it is misleading, because on the strength of what people see at exhibitions many are induced to attempt the growth of florists' flowers without having any idea that the productions which they have been admiring are to a great extent artificial; they are not as Nature formed them, and, therefore, without having acquired a knowledge of the art of dressing, they find in time that they cannot reach the standard at which they aimed, and which they were led to expect they would do. They, therefore, become disheartened, saying, "I cannot think how it is that I cannot grow my Dahlias, or Chrysanthemums, or Carnations in such perfect form as those which I saw," naming the exhibition at which they were first induced to begin florist flower growing.

In justice to all whom it may concern I think this state of things should be altered. I have no wish to interfere with the functions of florists, but if I was a manager of a flower show I would insist on their presenting their productions at an exhibition to which the public was invited in a legitimate manner. Upon every stand of flowers, be they

what they might, upon which any dressing had been performed a card should be placed, stating that the flowers had been dressed. The inexperienced could then understand whether they possessed sufficient of the florist's knowledge to undertake the cultivation of such plants with any prospect of success or not, and they would act accordingly. It is not the professional gardener who needs teaching the mystic art of the florist, for, as a rule, he is familiar with the share that the tweezers, the gum-bottle, and the invisible pins take in the work, but I write in the interest of the garden-loving public who have not had the opportunities of learning all the details of the profession. These are sure to meet with sufficient failures in conducting their gardens from unavoidable circumstances, and when florists place before them their skillfully manipulated flowers, I contend that they place themselves in a false position unless some means are adopted of informing them that skilful manipulation has been resorted to in order to bring before the public flowers with perfect forms and outlines.

J. C. C.

Linaria pallida.—I planted a little bit of this in the front of a border three years ago; it is now a yard in diameter and literally covered with little violet-coloured flowers. Unlike most of the Toadflaxes, it creeps under ground instead of above it. Many, indeed most, low growing plants should be encouraged to develop into patches large enough to be effective. To do this in some instances it would of course be necessary to plant five or six plants in a group.—E. H.

Lathyrus Sibthorpei.—Among border flowers at this season, this hardy perennial Pea is one of the most showy. So far as I know, this is the earliest of the tribe, but will be glad to learn from any of your correspondents if I am correct in this. With me it has been flowering freely for a month past, and promises to continue so for at least another. It grows about 3 ft. high, and where spring bedding is carried out nothing could be more effective for a background. It appears to be almost unknown in private gardens, and, except in Parker's, of Tooting, no nurseryman's list that I have seen contains it. It is cultivated in Glasnevin Botanic Garden and doubtless in other similar establishments, though I do not happen to have observed it anywhere else.—P. NEILL FRASER, *Murrayfield, Edinburgh*.

Limnanthes Douglasi.—This beautiful annual has lately been covered with showy flowers, but it does not bloom quite early enough for what is usually termed spring bedding, being just at its best at the end of May, when the beds have to be cleared for their summer occupants. It, however, well deserves a place where it can finish its flowering. If sown in September either where it is to flower or in a seed bed and transplanted as soon as large enough to handle, it will be found to be most effective in May and June.—J. G. HANTS.

Polyanthus Primroses.—These should quickly take rank amongst the best spring flowers for garden decoration. Everyone who sees them likes them, and they not only make a great show in the border, but are very useful for cutting. My two-year-old plants have been more or less in bloom since February, and have just finished up with a burst of from fifteen to thirty trusses to each plant, each truss consisting of from six to twelve flowers. Both with these and with seedling hybrid Primroses I find the culture usually advised to be erroneous. Primroses are usually recommended to be watered and kept growing during summer. I find these kinds much better for a good roasting in hot weather, so long as they are not allowed to die. With this treatment the whole summer growth seems to go to the production of flower-buds, and when the autumn rains come only a few leaves are produced, and then they start flowering. This is a great advantage, for the first flowers, having long individual stems, are not hidden by leaves, but appear like a market bunch of Violets—a solid mass of flowers with a circle of leaves round it. When the leaves begin to grow

the truss flowers rise, and after the bloom is over the principal production of leaves takes place; then the plants go to rest for the summer. Everyone having a garden should buy a few plants of these Primroses, and sow seed direct from the seed pods as soon as it is ripe. A plant that can be trusted for two months' continuous bloom is certainly an acquisition for the spring garden.—J. D. BARNET.

Hardy Geraniums.—The following are half-a-dozen good kinds which everybody should grow, being superior to many of the things cultivated in borders: *G. ibericum*, a kind having very large purple flowers, tinted with violet, is one of the best, especially for early flowering; with us the blossoms are now fast opening. *G. armenum*, purplish crimson, and *G. sanguineum*, crimson, are both showy and useful sorts; the latter is hardly ever out of flower in summer. *G. cinereum* has white flowers, finely striped and pencilled; it is dwarf in habit, and looks best on rockwork or on some elevated site. *G. pratense album*, also white, and *G. p. plenum*, purple, are striking, robust-growing varieties. Both have bold, deeply serrated leaves, mounted on the ends of long stalks, and their flowers open in succession for a long time. Strong plants of these look well isolated on Grass. They only require good cultivation, such as should be given to all plants expected to give satisfaction, and all of them are easily propagated by division in spring.—E. H.

Ranunculus repens fl.-pl.—You remark (p. 509) that Mr. Ware's *R. speciosus* is the same plant as this, but I have the two growing side by side and they are quite dissimilar. *R. speciosus* has by far the larger flowers, and it does not creep along the ground as the other does, but forms a solid clump and has an erect habit. It sends out runners, of course, as all the class do. *R. acris fl.-pl.* is another common garden variety very similar, but with smaller flowers. There is still another, more floriferous, taller, and every way a better garden plant, viz., *R. lanuginosus*, which I see was introduced from South Europe in 1683. It is by no means common, but it abounds with us; I had it from Tooting about six years ago. Although our variety of *R. repens fl.-pl.* was found wild as stated in your last, I see it was in the Cambridge Botanic Garden list of 1845, so it is not a new plant. Our common meadow Buttercup is *R. repens*, and as this is merely a double form of it, there will probably be many such found if search be made for them. *R. Ficaria*, the Lesser Celandine, has also been found both in its double yellow and its single white form in the meadows hereabouts, and they are growing here. These are two very pretty varieties.—WM. BROCKBANK, *Brockhurst, Didsbury*.

Self-coloured Daffodils.—Against "F. W. B.'s" opinion that there is no such thing as a real self yellow Daffodil (p. 522), you must set the published opinions of the following, who are all well known and thoroughly competent judges, and then decide which carries most weight, viz., Rev. H. Ewbank, Rev. C. Wolley Dod, Mr. Archer-Hind, "Rho," Mr. Douglas, Mr. Leo H. Grindon, Mr. Henry Brownhill, of Sale, Mr. Wm. Yates, and myself. All these names have been published during this discussion, in THE GARDEN, as witnesses, having seen truly self-yellow Daffodils, and with especial reference to this discussion. Mr. Barr said he had a yellow one. I, therefore, hold that the existence of self-yellow Daffodils has been established, and I can reasonably say, without any shadow of injustice to Mr. Burbidge or any lack of generosity, that if a stakeholder had held Mr. Burbidge's kettle it would probably have found a place in my museum.—WM. BROCKBANK, *Brockhurst, Didsbury*. [Here we think this discussion should stop—at least for the present.]

5001.—**Heuchera Richardsonsii**.—This may certainly be procured from Barr & Son, and possibly from Messrs. Ware and Backhouse as well. It has rich brown tinted leaves of satin like lustre, hence the popular name of Satin Leaf, and its foliage, which is freely produced, is well adapted for cutting, being both beautiful and enduring in water indoors.—B. W.

LARGE-FLOWERED PLANTAIN LILY.

ONE of the noblest of hardy plants and of the highest utility in beautiful gardening, whether grouped among summer and autumn flowers or used separately in masses, is *Funkia grandiflora*. It is one of the plants, of which there are many, that are brighter in shade than in sunlight, hence perhaps its best place is in woods and the shadier parts of gardens, where its vivid light green leaf-colouring and pure white flowers may have their full value seen against darker masses of leafage

ORCHIDS.

PEAT FOR ORCHIDS.

"J. S. W." may rest assured that the peat which he describes as being composed of Fern roots mainly is well suited for Orchids, and I doubt if any material can surpass it, as being so tough it is a long time in rotting, a most important point in Orchid culture. Many Orchid growers will, I am sure, be wishing that they were so favourably circumstanced as your correspondent, but as a fact

many other peat-loving plants will not; at any rate they do not last out when grown in it without the admixture of some other kind of soil. This is especially the case with Ericaceous plants, notably the hard-wooded kinds. For tender-rooted Ferns it is well suited, but strong-growing kinds demand more nutriment than it affords. I do not know of any better material than it is for drainage; one good sized crock and a few pieces of this peat are quite as good and even better than half-an-inch of crocks, and that the roots love it is evidenced



Large-flowered Plantain Lily (Funkia grandiflora)

or shadowy places. The Lily-like flowers are strongly scented like the white Lily, too strongly to be available for use indoors, but the leaves are always beautiful in important decorations of cut flowers and last long in water. As to flowering, this fine plant appears to be somewhat capricious, flowers appearing abundantly some years and not at all in others. It flowers best in a warm sandy soil, though the plant has a rather larger development in a stiffer one. Exposure to very hot sunshine is apt to turn the leaves yellow and wither them at the edges; this also points to the desirability of placing them in shade rather than in bright light.

G. J.

this kind of peat is not to be found everywhere, and is as difficult to procure in a general way as the Kentish peat. A few years ago this description of peat was obtained on an estate here, but as soon as growers in the neighbourhood and the London soil merchants became aware of the fact, they drew upon it to such an extent, as to quickly exhaust the supply. I agree with "J. S. W." that the mechanical rather than the chemical composition of the compost has to be considered in Orchid growing, else why do we often see such fine specimens in Sphagnum and charcoal alone? A proof of this lies in the fact that whilst Orchids thrive admirably in the peat above alluded to

by the fact that they always fill it with healthy fibres. For one thing especially I recommend this light peat, and that is for Lilies, especially *auratum*; they thrive admirably in it. I have had *L. lancifolium* growing in it, large specimens bearing hundreds of flowers, and perfect as regards health and size of foliage.

Byfleet.

J. C.

Cattleya nobilior.—This beautiful new *Cattleya*, certificated lately from M. Linden's nursery at Ghent, may now be seen in flower in Mr. Peacock's collection at Sudbury House, Hammersmith. It is a splendid variety, bearing two

fully developed flowers, and will, doubtless, prove a valuable addition to the genus, being distinct from all others and very dwarf. In Mr. Peacock's garden there is also the finest variety of *Cattleya Warneri* we have ever seen, both as regards the size of its flowers and their colour.

Three-leaved Twayblade.—I have frequently come across the Twayblade (*Listera ovata*) with three, and in one or two cases with five, perfectly formed leaves. All the plants of this kind I can remember were found growing in a wood, and where the soil was unusually rich, and the specimens consequently large and vigorous. As in many other cases of abnormal plant growth, this freak of Nature, or whatever else it may be called, is not constant under cultivation; at least it has not been so in my case. Have any of your readers found the cordate-leaved Twayblade (*Listera cordata*) plentiful? If so, I should like to know.—A. D. WEBSTER, *Llandegai, Bangor, N. Wales.*

Cattleya Mossiæ.—I send you a spike of this *Cattleya*; it is from a plant in a 6-inch pot. It bore four spikes, two of which had two blooms on each; one had three, and the one sent had four, in all eleven blooms, and this an average bloomed plant. When the plant came into my possession, two years ago, it had only one leaf on it. The plant from which the spike in question was cut has been in bloom three weeks, and most of the time on a table in a drawing-room.—JOHN CROOK, *Farnborough Grange, Farnborough.* [A beautiful variety, remarkable for the large size of its blooms, which are delicate in colour as regards the sepals and petals, and rich in the colour of the lip.]

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 12.

THIS meeting was a small one as regards the number of plants exhibited, though the few produced were highly interesting. The following were awarded first-class certificates:—

LILium LONGIFOLIUM VAR.—This was shown by Mr. G. F. Wilson, Heatherbank, Weybridge, as the Easter Lily of Bermuda. It was some 5 feet high, and bore five large pure white waxy blossoms with tubes 8 inches or 9 inches long.

CYCAS ELEGANTISSIMA.—An elegant plant with long, gracefully recurved, pinnate leaves of leathery texture and of a deep shining green colour. It forms a valuable decorative plant, being well furnished with foliage even in a small state. Exhibited by Mr. B. S. Williams.

MIMULUS RADICANS.—A charming little species, presumably hardy. The whole plant, including the flowers, is not more than an inch high, and the small oblong bronzy foliage forms a dense turf, on which are studded the showy blossoms, each nearly an inch across. The three lower lobes are pure white and the two upper ones bright purple—a combination which, with a dash of yellow on the crest, makes a sweetly pretty flower. Exhibited by Messrs. Veitch, Chelsea.

TROPEOLUM LUSTROUS.—A dwarf variety, not more than 9 inches or 12 inches high, compact and robust in growth, and so free as regards flowers as to be a mass of brilliant fiery scarlet. It, therefore, cannot fail to be a valuable bedding variety. Exhibited by Mr. R. Dean, Ranelagh Road, Ealing.

PELARGONIUM DR. MASTERS.—A seedling hybrid Ivy-leaved variety, raised and exhibited by Mr. George, Putney Heath. It is similar to that shown on the last occasion under the name of Masterpiece. The flowers and truss are large, and the colour, a carmine-crimson, is very brilliant. It appears to be robust in growth, and is as free a flowerer as the other hybrid Ivy-leaved sorts.

ROSE PRINCESS OF WALES.—This is one of the new seedling pedigree Roses raised by Mr. H. Bennett, Shepperton, who exhibited it. It is a Tea variety, with large, beautifully shaped, sweet-

scented flowers, the petals of which are of thick texture, and recurve at the edges like those of *La France*. The colour seems to vary from a delicate blush-white to a pleasing soft rose-pink, beautiful in all its phases. Some two dozen trusses were shown, cut from open-air plants.

PELARGONIUM FORMOSA.—One of the decorative class, vigorous in growth and an abundant flowerer. The trusses are large, the flowers of good shape, and brilliant scarlet, blotched with black and edged with white. *P. FANNY*, also a decorative variety, furnished with large trusses of light rose-pink blossoms with wavy-edged petals. The plants measured some 2 feet through. Both exhibited by Messrs. Hayes, Edmonton.

POLYSTICHUM ACROSTICHOIDES GRANDICEPS.—A hardy exotic Fern, having the pinnae of the fronds terminating in a crest, which makes the plant very handsome. Shown by Messrs. Birkenhead, Sale, Manchester.

ADIANTUM NOVÆ-CÆLEDONIÆ.—An elegant new Maiden-hair Fern of dwarf growth, having finely cut pedate fronds. Messrs. Birkenhead.

A group of choice plants was exhibited by Mr. B. S. Williams, Victoria Nursery, Upper Holloway. The most remarkable plant in it was a fine specimen of *Nepenthes excelsior*, a new variety in the way of *Rafflesiana*. It bore enormous pitchers, the finest we have seen. One measured fully 9 inches in length, and all were richly coloured. There were seven such large pitchers on the plant, for which a cultural commendation was awarded. The other plants in the group comprised a fine basketful of *Carnation Souvenir de la Malmaison*, with huge flowers; a fine potful of *Orchis foliosa*; two fine varieties of *Cattleya Mossiæ*; *Anguloa Ruckeri sanguinea*, a richly coloured and distinct variety; *A. Clowesi*; *Cypripedium superbiens*, a fine plant with seven flowers; *Crassula jasminiflora*, and a hybrid *Amaryllis* crossed with *Sprekelia formosissima*, which is, however, no great beauty. These bright flowering plants were intermixed with such beautiful fine foliaged plants as the *Adiantum bipinnatum*, *Pteris ascensionis*, a new species in the way of *P. straminea*, *Dracæna Lindenii*, and a collection of *Anætochili*, *Goodyera*, and *Microstylis*. A group of hardy shrubs was shown by Messrs. Veitch, from their Coombe Wood Nursery. It included some fine branches quite wreathed with clusters and white blossoms of *Viburnum plicatum*. Among new Japanese *Acer*s were *cratægifolium*, *linearilobum*, and *decompositum*, and *ribesifolium*, the last three varieties of *A. polymorphum*. The new white *Populus Bolleana* was also shown in this interesting group.

CATTLEYA GIGAS SANDERIANA was shown as a very fine specimen by Mr. Brymer's gardener (Mr. Powell), Puddleton, Dorchester. The plant, in a 12-inch pot, bore five spikes, eleven flowers in all. The flowers were large, but with rather narrow sepals and petals; the labellum, however, was very broad and open, of a rich amethyst tint, exquisitely grained with white. A large white and yellow blotch in the throat was a beautiful contrast to the colour of the labellum. For this fine specimen the exhibitor was awarded a cultural commendation. *Lælia majalis* was shown very fine by Sir Charles Strickland, Hildenley, Malton. A large mass growing in a cork basket bore three large flowers of a deeper rose-pink than usual. A cultural commendation was awarded. A marvellously fine variety of *Odontoglossum crispum*, named *Thompsoni*, was exhibited by Mr. Stevens, gardener to Mr. Thompson, The Mount, Walton Stone. The flowers were 3½ inches across, with a white ground heavily blotched with chestnut-brown. It is in the way of *Chestertonii*, but the finest form we have seen. Double *Begonias* from Messrs. Laing included the two fine varieties shown at the last meeting, named *Dr. Duke* and *Prince of Wales*. Both have very large rosette-like blossoms, the first of a bright scarlet, the other a deep crimson. A new seedling Maiden-hair Fern was shown by the General Horticultural Company. It was a beautiful variety in the way of *A. tenerum*, and was a fine specimen. A new *Caladium*, named *C. F. Bause*, also came

from the same exhibitors. It is a small, dwarf-growing variety, with heart-shaped leaves of a deep red bordered with green.

TROPEOLUMS in variety were shown by Messrs. Carter & Co., High Holborn. About a dozen sorts were included in the collection, all being of the dwarf *Tom Thumb* race. The following were particularly noteworthy: *Tom Thumb* (yellow), *Golden King of Tom Thumbs*, *Tom Thumb Beauty*, *Ruby King of Tom Thumbs*, and *Spotted King of Tom Thumbs*, all of which were distinct and beautiful, and appropriately named. Other fine sorts were *Empress of India*, *Géart des Batailles*, and *Zanderi nigrum*, a very dark variety of the climbing *Lobbianum* type.

A most extensive group of cut hardy flowers was exhibited by Messrs. Barr & Son, King Street, Covent Garden. It consisted of Oriental Poppies in variety, including *P. bracteatum*, double and single *Pyrethrums* in great variety, *Pæonies* of all shades, from crimson to white, *Lupines*, *Camassias*, *Lillies*, *Iceland Poppies* (*P. nudicaule*), and *Irises*, of which there was a marvellous array, comprising, we should imagine, every known variety of the Bearded Iris. The arrangement, too, was admirable, as each class or variety was represented by a distinct bold mass, which is a much better way of arranging, we think, than intermixing the whole of the varieties. A gold medal has been deservedly awarded to Messrs. Barr for this fine group. An extremely fine collection of choice hardy flowers was also exhibited by Mr. T. Ware, Hale Farm Nursery, Tottenham, which afforded a rare treat to the visitors, as so seldom can such a choice group be seen at a show. There was a large number of the finest hardy plants represented, the cream of them being *Cypripedium spectabile*, very fine; *Campanula dahurica*, *Brodiaea coccinea*, *Dodecatheon splendens* and *Jeffreyana*, *Spanish Irises*, Bearded *Irises* in great variety, *Oriental and Iceland Poppies*, double and single *Pyrethrums*, *Orchis foliosa*, *Lychnis Viscaria fl.-pl.*, splendens, a very fine plant, *Tropæolum polyphyllum*, and *Mertensia sibirica*. The above are but a few of the host of plants sent by Mr. Ware, for which he was awarded a silver medal.

FRUIT AND VEGETABLES were not numerous. Some excellent samples of Lord Napier Nectarines were sent by Mr. Stevens, Trentham, and two fine dishes of James Veitch and Sir Joseph Paxton Strawberries were shown by Mr. Goldsmith, Hollenden, who was awarded a cultural commendation. Mr. Laxton sent a new Strawberry called *King of the Earlies*, said to be earlier even than *May Queen*. It was recommended to be tried at Chiswick. Messrs. Paul, Cheshunt, also exhibited a new Strawberry named *Pauline*. A seedling Melon was sent by Mr. Herrin, Chalfont Park, named *Chalfont Hybrid*. Mr. Henderson, Thoresby, also sent a seedling Melon, but neither were commented upon by the committee. Messrs. Veitch exhibited a new Turnip named *Extra Early Milan*, apparently an excellent sort. It was awarded a first-class certificate.

ASPARAGUS PRIZES.—On this occasion the prizes offered by Mr. Robinson for *Asparagus* were competed for. There were more competitors this year than hitherto, and there was a marked improvement in the quality of the *Asparagus* throughout the whole of the sixteen bundles shown. The chief prizes were offered for 300 heads, to be competed for by market growers. The best bundle was exhibited by Mr. Harwood, Colchester, whose heads were uniformly large and in just the right condition for eating. The second bundle, from Messrs. Poupart, Kew, was also good, but the heads were rather too much open. There were six competitors in gardeners' and amateurs' classes. Mr. Cole, Colchester, showed the finest bunch of 80 heads, all of which were large and good, and indicated good cultivation and selection. The next best 80 heads were from Lord Suffield's gardener (Mr. Allan), Gunton Park, Norwich. This was also a fine bunch, but the heads were not so large as those from Mr. Cole, nor so uniform in size. The third bundle came from Mr. Speed, Penrhyn Castle. It represented excellent growth, but had selection,

that is, the heads were not of uniform size. The fourth bunch, from Mr. Pitt, Bury Hill, Dorking, consisted of small heads, but were uniform and succulent. Mr. Ward, Longford Castle, and Mr. Stewart, Maldon, also competed in the class for eighty heads. There were four bundles of fifty heads. The best were from Mr. Allan and Mr. Herrin, Chalfont Park, and Mr. Stewart took the other two prizes in the order named.

Pelargonium Society.—At this meeting the Pelargonium Society awarded first-class certificates to the two following Pelargoniums, both shown by Messrs. Hayes, Edmonton. They were, Fanny, a decorative variety of vigorous and compact growth, and producing large trusses of large rosy pink flowers, with prettily wavy-edged petals, and Garibaldi, also a decorative variety, possessing all the qualities desired in this class, and remarkable for its brilliant colour.

SCIENTIFIC COMMITTEE (Sir J. D. Hooker in the chair).—*Carnivorous habits of Cyclobothra pulchella.*—Mr. W. G. Smith exhibited drawings to show how this flower catches minute insects by means of long hairs on the perianth. The inner leaves of the perianth close over the flower and are provided with honey glands, and these are protected by long hairs which detain the insects and appear to consume them somewhat after the manner of the Sundew.

Æcidium sp.—He also brought several instances of plants attacked by this fungus, which appears to be extremely common this year. They were sent by Mr. Plowright, including *Æ. Thesi* on *Thesium linifolium*, from Mr. Straker, which was quite red with it. From Mr. Plowright came *Æ. rubellum*, forming large circular spots on Rhubarb leaves. *Æ. berberidis* on wild and cultivated *Berberis* as well as on *Berberis Aquifolium*. The last species he had proved, thereby corroborating former investigations by other experiments that it gave rise to wheat rust, but he also asserted that *Æ. rubellum* on the Dock and Rhubarb was identified with *Puccinia phragmitis* (*P. magnusiana*). Mr. G. Murray observed that he had found *Æ. berberidis* on *B. Darwini*.

Euplexia lucifera.—Mr. Pascoe showed this day-flying moth, the caterpillar of which attacks the roots of Ferns, both wild and cultivated in ferneries.

Seeds of Niphion (?) or Colchicum (?)—Dr. Lowe showed pink and white oval seeds which were found on the Grass. They were thought to be seeds of some Iridaceæ. They were referred to Kew.

Disease on Melons.—The Hon. and Rev. Mr. Boscawen showed Melon leaves diseased, apparently by some fungus. Mr. Murray suggested it might be *Peronospora parasitica*, but it was too immature to say. He retained the specimens for report.

Amelopsis Veitchi with gummy exudations.—Mr. Moore exhibited specimens of dead branches with curious red filamentous processes, soluble in water, and appeared to be gum.

Apples attacked by caterpillars.—From Rev. C. N. Sowell, of St. Austell, came shoots of Apple trees, which Mr. Boscawen said he was familiar with as attacked by small caterpillars. Mr. Smith remarked that similar appearances are produced by *Helminthosporium pyrorum*, but this fungus was not apparent on the specimens.

Japanese Varnish Plant (*Rhus vernicifera*?).—A plant was exhibited by Sir C. Strickland.

Cabbages with maggots.—Dr. Masters exhibited plants attacked by what appeared to be some species of *Lixus*.

Plants exhibited.—*Sarcopodium Dearei*, probably new, from Lieut.-Col. Deare; it had a fine orange-coloured blossom with the peculiar oscillating lip of the genus. *Mimulus radicans*, a very pretty species with white flowers and one purple petal, and with the leaves closely adpressed to the soil.

Evening meeting.—The second evening meeting of the Society at Burlington House took place last Tuesday.—Lord Aberdare in the chair.

As on the last occasion, the library was filled with a variety of interesting plants and cut flowers. Glorious gatherings of Orchid flowers were contributed by Mr. Lee, of Downside, Leatherhead, and Sir Trevor Lawrence. Among these were splendid *Cattleyas*, *Lælias*, *Odontoglossums*, and *Epidendrums* arranged in one effective group. A collection of *Rhododendrons* and *Azaleas* from Mr. Mangles, Valewood, Haslemere, was much admired, especially the larger species, such as *R. calophyllum*, of which there were some fine trusses. *R. cinnabarinum*, *R. triflorum*, and *R. javanicum* were also shown by Mr. Mangles, besides a whole series of varieties of *Azalea indica* cut from the open air.

A large collection of interesting plants was sent from the Royal Gardens, Kew, among which were some gigantic spikes of *Agaves*, one 9 feet high, and the huge spathe of *Amorphophallus campanulatus*. Among other plants from Kew were *Crossandra undulatifolia*, *Nymphaea zanzibarensis*, and *Hoya campanulata*. A similarly interesting collection was shown by Mr. Lynch, from the Botanic Garden, Cambridge. It included among others specimens of the hardy *Asimina triloba*, *Peperomia resedæiflora*, and *Candollea tetrandra*. Mr. Loder also contributed an extensive collection of cut hardy flowers, and a similar collection came from Mr. Ewbank, Ryde; a group of rare plants from Mr. Maw, hybrid *Iris*es from Dr. Foster, Pelargoniums from Messrs. Cannell, and hardy plants from Mr. Ware were also noteworthy. In the lecture room was an extensive collection of plants and flowers of *Cypripediums* contributed by Sir Trevor Lawrence, Mr. Lee, Messrs. Thompson, of Clovenfords, Messrs. Veitch, Williams, Ware, and others, for illustrating the paper on *Cypripediums*.

A pleasant feature was an arrangement of hardy flowers by Miss Jekyll. The object was to prove how they lend themselves to the highest class of indoor decoration. Miss Jekyll had no difficulty in showing this by several graceful groups, though the limited space in which they were placed restricted her from making as good combinations as she might otherwise have done. In her groups the Day Lilies were remarkable for their fine form and graceful habit. A large simple vase of great Poppies was very effective and well composed. Well-grown plants of the white Plantain Lily (*Funkia grandiflora*) were excellent in low, wide metal vases. They were not in flower, but their cool nests of fresh green leaves were excellent, and would be useful in the same way in halls or rooms. To place a number of vases of flowers rather closely associated together in this way is difficult. If fine, bold, and free forms are used, a large space round each is essential to the enjoyment of the picture. That is, why good vases seen separately in a house are enjoyed so much more. Perhaps the most delightful of Miss Jekyll's group was a huge dish of Scotch and Austrian Briers. It looked as free, and yet was as full of flower as the Brier bushes are. For fully eight months in the year fine and varied flowers and foliage may be gathered from any fairly stocked garden, and everything which promotes their good arrangement deserves our help and praise.

Dr. Masters commenced the proceedings by a few remarks upon peculiarities of growth in Conifers, particularly as regards the development of terminal buds. The peculiarity of the Silver Firs having a white appearance during the day and green towards evening was explained as due to the twisting of the leaves, the under side, upon which the majority of the stomata are found, being turned to the light in the day and reversed at night. Allusion was also made of the gyration of Pine branches, Dr. Masters stating that he had observed them make two revolutions in twenty-four hours, the apex being directed successively to all points of the compass. Specimens of the Californian *Pinus tuberculata* were also shown bearing numerous cones, which the lecturer stated never open unless the branch is killed or injured in some way by animals or forest fires. The seeds, which are winged like those of other

Conifers, are then wafted sometimes to a considerable distance, and there germinate and grow. Sir Charles Strickland stated that *Pinus pungens* has the same peculiarity of not opening its cones as *P. tuberculata*.

A paper on *Cypripediums* was next read by Mr. William Goldring, an account of which will be found at p. 531. It was illustrated by a numerous collection of flowers, representing all the sections of the genus. Sir Trevor Lawrence, in the discussion which followed, gave some interesting facts in connection with the cultivation of these Orchids and their commercial value. Mr. George Maw then read the following paper on the geographical distribution and culture of

Crocuses.

Out of a genus which is now known to number about seventy species, two only, *Crocus vernus* and *C. aureus* and their varieties, can be said to be thoroughly adopted as decorative plants. *Crocus vernus*, the parent of all the blue, violet, lilac, feathered, and white vernal *Crocuses*, ranges in a wild state through 23° of longitude, from the Pyrenees to the Carpathians, and through 12° of latitude, from Sicily to the Carpathians.

Crocus aureus, the parent of the Dutch yellow and its several varieties, is indigenous to Western Asia Minor, Turkey, and the Danubian Principalities, and extends as far north-west as Hungary. No records exist of the date of their introduction. It is clear from the *Crocuses* preserved in the various ancient herbaria consolidated in the "Herbarium Sloaneanum" at the British Museum, from the records in Gerard's "Flora" and in several other early English and Dutch works, that these two species at least were well known to cultivators at the end of the sixteenth century. The old herbaria contain, in addition to several wild species, complete series of all the varieties of *Crocus aureus* at present known, including *sulphureus*, *sulphureus pallidus*, *sulphureus striatus*, *lacteus*, &c. These were certainly not wild forms recently introduced, but degenerated horticultural forms of *C. aureus*, exactly identical with those we now cultivate, and imply a far-back cultivation of the wild *Crocus aureus*. In addition to *vernus* and *aureus*, eight or nine other species appear to have been sparingly in cultivation during the seventeenth and eighteenth centuries, viz., the Cloth of Gold, *Crocus susianus*, the Cloth of Silver or Scotch *Crocus*, *C. biflorus*, *C. versicolor*, *C. nudiflorus*, *C. sativus*, *C. speciosus*, *C. serotinus*, *C. byzantinus* or *iridiflorus*, and one or two others; but up to near the end of the first half of the present century scarcely more than a dozen species out of the seventy now known existed in English and Dutch gardens, and of these but two were generally employed for decorative purposes. The late Dean Herbert from 1840 to 1847, and the late M. Gay, of Paris, at about the same time, introduced to cultivation from fifteen to twenty more species, but many of these had been lost, and it remained to the lot of the Rev. H. H. Crewe and Mr. H. J. Elwes to re-introduce to our gardens many of Herbert's species and others new to science and cultivation. To many of H. M. Consls and to the missionary residing in the Levant I am indebted for supplementing my own collection with liberal consignments of many other species, and I believe that we have now not less than fifty out of the seventy species in English gardens.

Comparing the great horticultural results obtained by the earlier cultivators of *C. vernus* and *C. aureus* with our present possession of fifty species, may we not look to the Dutch and Lincolnshire growers to make use of them, and to enrich our gardens in proportion to their means? for many of the newly introduced species are even more decorative than those in general cultivation. The great horticultural importance attaching to the newly introduced species suggests my laying before the Society a brief summary of my observations on the geographical distribution of the genus, to which I shall supplement a few notes on the cultivation of *Crocuses*.

GEOGRAPHICAL DISTRIBUTION.—The limits of the genus, which is confined to the Old World in the

northern hemisphere, may be stated to be between 9° west and 87° east longitude, between 31° north and 55° north latitude, the main eastern limit being 50° east longitude, and the main northern limit 51° north latitude. The occurrence of *C. alaticus* in the Ala Tagh Mountains, of Central Asia, carries the genus far north-east of the general area of occurrence. *C. Clusii* in Portugal, is the most western species; *C. hymnalis*, in South Palestine, the most southern; and *C. Salzmanni*, the most south-western species at present known. The area of distribution would roughly centre round the Mediterranean and Black Sea coasts, though the genus does not form an essential feature of what is known as the Mediterranean flora, many of them ascending to high ranges of altitude. Looking at the prevalence of species and to general wide distribution, the district including Greece, the Greek Archipelago, and Asia Minor must be looked upon as the metropolis of the genus, for in these regions it forms a more important feature in the flora than it does in the outlying districts to which it extends.

Commencing from the west, the West European and North African district—including Portugal and Spain, the Balearic Islands and France to the west of the Rhone, Morocco and Algeria—possesses ten species, all of which are endemic, excepting *C. vernus*, which occurs sparingly in the Pyrenees and Southern France. The Italian district—including the Swiss and French Alps, Italy as far east as Venice, Sicily, Malta, Sardinia, Corsica, and the neighbouring islands—possesses eleven species, eight of which are endemic. The East European district—east of the longitude of Venice, and as far east as the longitude of Odessa, including Dalmatia, the Danubian Principalities, the Carpathians, Greece, the Ionian Islands, the Greek Archipelago, Crete, and European Turkey—possesses twenty-six species, twelve of which only are endemic. The Circassian and Caspian district, including Southern Russia, east of the longitude of Odessa, the Crimea, Georgia, the region bordering the west coast of the Caspian and North Persia, Kurdistan, Cyprus, and Asia Minor, possesses thirty-two species, seventeen of which are endemic. Syria and Palestine district possesses seven species, five or six of which are endemic. The Central Asia district, west of the Caspian, possesses two species, viz., *C. alaticus*, in the Ala Tagh Mountains, and *C. Korolkowi*, in Turkestan; and these do not occur within the general *Crocus* area.

In the centre of the area of distribution of a genus it is only to be expected that there will occur a greater intermingling of species than on its confines; but in the case of the *Croci*, the isolation of its species at the extreme eastern and western end of the *Crocus* area is remarkable, the species being notably less transgressive into the centre of the area of distribution than the intermingling of species over wider areas within the centre of distribution. I can offer no sufficient explanation of this fact. The west European species are essentially endemic, and so are the Syrian species. Of the ten West European and North African species, none occur east of the Rhone, *Crocus vernus* excepted; and this within the West European district is found but sparingly. Of the seven Syrian species, nearly all are endemic, except *C. cancellatus*. There is also a remarkable break in the mingling of species at the Adriatic and longitude of Venice, three species only out of a total of sixty-nine, viz., *vernus*, *sativus*, and *biflorus*, and perhaps also *longiflorus*, being common to the districts to the east and to the west of the Adriatic.

Nearly the whole of the species occupy continuous areas, and there is no instance of repeated occurrence in isolated districts separated by wide breaks. The three species most widely distributed are *Crocus vernus*, which has a range in longitude of 23° from the Pyrenees to the Carpathians, and 12° of latitude from Sicily to the Carpathians; *Crocus biflorus* has a wider range of longitude than any other species, extending for 38° from Tuscany

to Georgia; *C. sativus*, in its various forms, extends through 30° of longitude from Southern Italy to Kurdistan, and its distribution is mainly oriental. The same may be said of the species with annulate corm tunics, which have but one representative, *C. biflorus*, as far west as Italy. Of the division *Involucrati*, species having a basal spathe, thirteen are vernal and seventeen autumn flowering; and of the thirty-eight species of the *Nudiflori*, those having no basal spathe, thirty are vernal and eight autumnal. Of the thirty species of the *Involucrati*, about half occur to the east and half to the west of the Adriatic; and the *Nudiflori*, with two or three exceptions, are all limited to the region east of the Adriatic. Of the entire genus of sixty-nine species, forty-three species are vernal and twenty-six autumnal. Horticulturists who are only familiar with one orange *Crocus*, *C. aureus*, will be glad to know that there are no less than fourteen orange species. They all occur east of the Adriatic; they are all vernal with the exception of one, or perhaps two species; and the whole are now in cultivation with the exception of *C. lazicus*.

GEOGRAPHICAL DISTRIBUTION IN RELATION TO NATURAL AFFINITY.—The grouping geographically of allied species is not general, and the only two notable exceptions present themselves in Western Europe and in Italy. In the West European and North African district there are six or seven autumnal species, viz., *C. nudiflorus*, *C. granatensis*, *C. asturicus*, *C. serotinus*, *C. Salzmanni*, and *C. Clusii*, all closely allied, and forming a compact group; they are all limited to Western Europe and North Africa, where there are no other autumnal species. Two out of the three vernal species, viz., *C. carpetanus* and *C. nevadensis*, are also endemic, and are closely allied, especially in their singular leaf structure, so that with the exception of *C. vernus*, which is sparingly transgressive from the Alps, the whole of the West European and North African species are not only endemic, but both the vernal and the autumnal species respectively range themselves into compact groups. In Italy and the Italian islands and the Alps the endemic vernal species also form a natural group, but they are associated with *C. biflorus* and *C. vernus* of wider range. Beyond these two cases I know of no instance in which the majority of the vernal and the majority of the autumnal species within the same district predominate as natural groups, and as a rule the several types are intermixed. There are, however, many striking cases of the geographical isolation of individual species, the islands of the Mediterranean affording the most conspicuous examples. The remarkable *C. Cambessidensis* is limited to the Balearic Islands. Corsica and Sardinia and the neighbouring islets have two species, *C. corsicus* and *C. minimus*, which do not occur elsewhere. *C. Crewi*, with its singular black anthers, occurs in the island of Syria. *C. cypricus*, the only species with a scarlet filament, is confined to the island of Cyprus, and *C. veneris* to the islands of Cyprus and Crete.

Of insular varieties of species found on the mainland there are several striking examples. *C. adriaticus*, which in Albania is either pure white or white with a purple throat, appears in the neighbouring island of Santa Maura, with a golden yellow throat. *C. vernus* is represented on the Sicilian Mountains by the diminutive *C. siculus*; and *C. Sieberi*, which is self-coloured lilac on the mountains of Greece, appears in Crete, Andros, and some other neighbouring islands, with variegated purple and white or white flowers. Of the passage in colour, from white to blue, in one or two species in their ranging from west to east I have already referred to, and there are other somewhat similar cases of colour variation running as it were parallel through several species within the same district. In Dalmatia there is a general absence of the striping and feathering of species which occur elsewhere with feathered flowers. There are even more marked cases than this of mimetic colouring and of different species associated in the same habitat putting on some identical special form of colouring. Especially remark-

able is the exact identity in colour and markings of the Santa Maura varieties of *C. cancellatus* and *C. hadriaticus*, species which are not nearly allied, and the type colourings of which differ from that of the Santa Maura forms. Another remarkable case is that of the form of *C. cancellatus*, found on the Bithynian Olympus in association with *C. acrius* where it puts on the exact colouring of its companion; moreover, there is a large series of variations in the markings of *C. cancellatus* which are exactly mimetic of the variations in the markings of *C. acrius*, with which it is associated. I do not think that these are the result of hybridisation, for as far as my observations go, I have been unable to detect a wild hybrid *Crocus*; nor do I know of any authenticated case of the production of garden hybrids. It has been suggested that the sterile *C. stellaris*, an old garden plant, the origin of which is unknown, may be a hybrid between *C. aureus* and *C. susianus*; but mere sterility is not sufficient evidence, and it is within my own experience that many wild species tend to sterility after only two or three years' cultivation.

CULTURAL DIRECTIONS for a genus so well known and so easily grown seem almost superfluous, but there are a few points to which it may be convenient to refer in dealing with the *Croci* as decorative plants. Taking the whole genus of about seventy species, they must be viewed as in continuous succession from the beginning of August till April; and of these it is only the earlier autumnal or the distinctly vernal species that can be relied upon in our climate for open air garden decoration. Although all are hardy, and most of the winter flowering species will flower in the open ground, those that flower in November, December, and January are so liable to injury by frost and rain that they are practically worthless as decorative plants for the open garden. For such, as well as for the less robust and less floriferous species, the protection of a brick pit is necessary. The bottom of this should be well below the level of the ground, and it should be filled up with about 1 foot in depth of fine river sand or sandy loam, the surface of which should be a little below the level of the surface of the ground adjacent to the pit. Proper drainage is essential, but, this being attained, *Crocuses* during their growth delight in a uniformly moist subsoil. It is convenient to separate each species by strips of slate or tiles, which may be buried below the surface, and the corms planted about 3 inches deep. A mulching of rotted Cocoanut fibre or finely sifted peat keeps the surface uniformly moist and prevents the substratum of loam from clogging or caking on the surface. At the time of the maturity of the foliage, which generally takes place about the end of May, water should be withheld and the *Crocus* beds covered up and allowed to get quite dry till the end of July, when a copious watering may be given or the pit exposed to natural rainfall. *Crocuses* are easily multiplied by seed, which should be sown as soon as ripe in July, though germination will not take place till the natural growing period of the species. Seedlings take from two to three years to arrive at maturity, and should be left for the first two years undisturbed in the seed bed, and then taken up and replanted. Of the earlier autumnal species suitable for the open border the following may be enumerated for successional flowering:—

<i>C. Scharojani</i> , orange, early in August.	
<i>vallicola</i> , straw-coloured, late in August and early in September.	
<i>nudiflorus</i> , blue, September.	
<i>pulchellus</i> , lilac, September and October.	
<i>speciosus</i> , blue, September and October.	
<i>iridiflorus</i> , blue, September and October.	
<i>Salzmanni</i>	} lilac or blue, October and November.
<i>asturicus</i>	
<i>Clusii</i>	
<i>cancellatus</i>	} in the late autumn.
<i>Cambessidensis</i>	
<i>hadriaticus</i>	

These are succeeded by a long series of late autumnal, winter, and early vernal species, which are best grown to advantage under the protection of a brick pit. Of the vernal species suitable for

the border, the earliest is *C. Imperati*, flowering in February, followed by

C. susianus, or Cloth of Gold, in February.

biflorus
corsicus
etruscus
suaveolens
versicolor
vernus
Tommasianus
dalmaticus
banaticus
Sieberi and var. *versicolor*
chrysanthus
aureus
sulphureus
sulphureus pallidus and
striatus
stellaris
Olivieri
minimus
Balanæ

Flowering from the end of February to the first week in April.

Of the *Croci* but recently introduced, many more of the vernal species will probably be found suitable for spring garden decoration, but in the above lists I give those only which are more generally known and easily obtainable. Holland, with its rich, light, alluvial soil, and Lincolnshire, with its Trent warp, have been for many generations the sources from which the English market has been supplied with the varieties of the three or four species grown in English gardens. The last five or six years have put us in possession of five-sixths of the known species of the genus, and we must commend them to the care of the Dutch and Lincolnshire bulb growers wherewith to further enrich our collections.

ROYAL BOTANIC.

JUNE 13.

THE second summer exhibition, which took place on Wednesday last, was an extensive one, and on the whole was quite up to the average as regards the quality of the exhibits. The large tent with its picturesque undulating mounds presented a cheerful appearance, though not so brilliant as on the last occasion, when huge masses of Azaleas and Roses lent their gay tints to brighten up the place. The absence, however, of the Azaleas and Roses was amply compensated by an exceptionally large and fine display of Orchids, which were more numerous than ever we have seen them here or at any other exhibition of late years. The central mound, known to *habitués* as the "Orchid bank," was entirely filled with Orchids from amateurs and nurserymen showing in the competing classes. Besides this, one of the semi-circular slopes in the centre of the tent was wholly occupied by a magnificent display of Orchids from Mr. Peacock's garden at Sudbury House, Hammer-smith, which was, as may be imagined, the centre of attraction. Altogether the Orchids were so numerous on this occasion as to almost justify one in calling it an Orchid show; they were as plentiful as they were scanty on the last occasion, when really the season was more favourable for a better show. On the other three central mounds Messrs. Veitch, Williams, and Laing displayed large and interesting groups of choice plants.

STOVE AND GREENHOUSE PLANTS, though not so fine as those at the show a month ago, made a creditable display. The two chief competitors among nurserymen, Messrs. Jackson and Tudgey, who at the last show contested the prizes so keenly, were again the only exhibitors, but this time the order of priority was reversed, for Mr. Tudgey was first in the principal class for twelve plants, and certainly his group was a fine one. He had two huge globular plants of Azaleas, *Criterion* and *magnifica*, the latter quite a mass of white; an *Erica ventricosa magnifica*, perfect in every respect, and some 5 feet through; a gigantic plant, 5 feet through, of *Anthurium Scherzerianum*, and a similarly fine specimen of *Pimelea mirabilis*, *Dracophyllum gracile*, *Clerodendron Balfourii*, two *Ixoras*, and *Erica Cavendishi*, well flowered, and *Allamanda grandiflora*, made up the dozen.

Some extremely fine Heaths were the leading feature in the group from the Kingston Nursery, besides a couple of *Hedaras*, *fuchsoides* and *Tulipifera*, both as fine as could possibly be, and grown as only such skilful cultivators as Mr. Puttick can grow them. The perfect finish of the plants was remarkable, and no less so their freshness and vigour. There was also a grand specimen of *Franciscea calycina major*, which when grown and flowered profusely is uncommonly pretty. In the class for six plants Messrs. Jackson were first, and among the other two groups in the same class from Messrs. B. Peed and J. James there were some fine examples of the Flamingo Plant (*Anthurium Scherzerianum*), but they represented nothing else out of the ordinary run of exhibition plants. The amateurs' class was by no means so well represented as usual; though there was but one class for six plants there were but three competitors, and neither of the groups from these were very remarkable. In Mr. Child's first collection were some well flowered Azaleas, and in the second, from Mr. Rann, were fine specimens of *Aphelexis*, *Hedarama*, and *Erica*.

ORCHIDS.—There were four collections of twelve from amateurs, and among them were some really fine plants, and there was a much smaller percentage of made-up plants than usual. The first collection was shown by Mr. Cobb's gardener (Mr. Catt), Silverdale Lodge, Sydenham, and was a fine one. The most prominent plants were *Epidendrum prismatocarpum*, with eight fine spikes; *Lælia purpurata*, with seventeen flowers; *Thunia Marshallia*, with eight flower-stems; *Odontoglossum vexillarium*, a fine plant; *Cypripedium Veitchii*, with fourteen flowers; *C. Parishii*, with two spikes; *Masdevallia Harryana sanguinea* and *M. Lindeni*, both good plants; *Odontoglossum crispum* and *O. citrosimum*. The second collection was from Mr. Philbrick's garden, and was also a good one. In it were five plants of *Lælia purpurata*, with eighteen flowers on five spikes; *Cypripedium barbatum* superbum, *C. caudatum*, and *C. lævigatum*, *Epidendrum vitellinum majus*, and *Cattleya Mossiæ*, smaller plants of *Odontoglossum Roelzii* and *vexillarium*, and *Masdevallia Harryana magnifica*. The third group of twelve, from Mr. Southgate's garden, Streatham, comprised excellent plants of *Cypripedium Stonei*, with seven spikes; *C. Dominii*, with six spikes; *Oncidium crispum grandiflorum*, a fine variety; *Cattleya Mossiæ*, with eleven flowers; and a magnificent variety of *C. Mendeli* named *selbornensis*, which had an exceptionally richly marked labellum. In the other collection, from Mr. Little, were specimens of the rare *Vanda Denisoniana*, the new *Dendrobium Dearei*, the true *Cattleya amethystina* under the name of *C. Leopoldi*, *C. Aclandiae* with seven flowers. The best six Orchids from amateurs were shown by Mr. Bell's gardener. These included three fine plants, viz., *Vanda suavis*, with six spikes on two breaks; *Aerides Lobbi*, with two branching spikes, a fine plant; and *A. Fieldingi floribundum*, a plant with two breaks and carrying six spikes, all branching. In Mr. Cobb's second group was a plant of *Dendrobium Falconeri* not often seen, *Thunia Marshallia*, and a dark variety of *Odontoglossum vexillarium*, very beautiful. There were two other collections in the class both representing small, but creditable plants of ordinary kinds. Among nurserymen, Mr. James was first in both the classes for twelve and six plants, and both were uncommonly fine, and particularly the group of six, in which there was a fine plant of *Anguloa Clowesi*, also of *Cattleya Warneri*, fine masses of *C. Mossiæ*, *C. Mendeli*, *Masdevallia Harryana*, and *Dendrobium suavisimum*. Among the dozen plants from Mr. James were the new and rare *Odontoglossum cordatum aureum*, *Cattleya Mendeli* and *Mossiæ* in fine varieties, *Oncidium macranthum*, and *Masdevallia Harryana*. Messrs. Jackson were the other exhibitors among nurserymen, and had some showy masses of *Cattleyas*, *Odontoglossums*, and others.

ORCHIDS shown in the non-competing classes were numerous, the most extensive collection being, as we before remarked, that from Sudbury

House, which was the admiration of everyone, the arrangement being so tasteful. The group consisted for the most part of *Odontoglossum vexillarium*, all profusely flowered specimens, and exhibiting considerable diversity as regards shade of colour. These were placed in large masses. Similarly arranged was a rich assortment of varieties of *Cattleya Mossiæ* and *Mendeli*, while towards the margin were belts of *Odontoglossum crispum*. Interspersed in the background were fine specimens of larger growing Orchids, such as *Anguloa Clowesi*, *Lælia purpurata*, *Sobralia macrantha*, *Lycaste Deppei* and *Skinneri*, and the whole of these flowering plants rose from a verdant carpet of delicate Maiden-hair and other Ferns, the whole forming a charming gathering, and for which Mr. Peacock's gardener (Mr. Vicary) was appropriately awarded a silver-gilt medal. Another large group of Orchids, but less tastefully displayed, came from Mr. Bockett's garden at Stamford Hill; it comprised a large collection of *Odontoglossum crispum* and other species, and a host of varieties of *Cattleya Mossiæ*, which was also shown numerously from Mr. Little's and Mr. Philbrick's collections.

FINE-FOLIAGED PLANTS were, as usual, shown finely by Mr. Rann, who brought the best group of six from Handcross Park, all huge specimens. They were *Cycas revoluta*, *Areca sapida*, *Livingstonia rotundifolia*, *Croton majesticus* and *angustifolius*, both exceptionally high coloured, and *Gleichenia Mendeli*. This exhibitor also showed the best group of six Palms, having *Pritchardia pacifica*, *Versaffeltia splendida*, *Chamaerops humilis*, *Phoenix tenuis*, *Thrinax elegans*, and *Latania borbonica*, all represented by gigantic specimens in admirable condition. From nurseries the finest group of foliaged plants was that from Mr. James, who had grand examples of *Theophrasta imperialis*, *Cycas revoluta*, *Pandanus Veitchii*, *Cycas circinalis*, *Phormium tenax variegatum*, and *Alocasia macrorhiza variegata*—a good representative selection. There were a few creditable plants among the other groups, but nothing worthy of note.

FERNS were shown in fine style by amateurs. From Mr. Bell's garden at Garbrand Hall, Ewell, Mr. Child brought the winning collection of six, which in every way were perfect specimens. They were *Davallia Mooreana*, nearly 7 feet through; *Microlepia hirta cristata*, of similar dimensions; *Todea superba*, 4 feet through, and in the perfection of health and freshness; *Dicksonia antarctica*, and *Phlebodium aureum*, a huge plant about 6 feet through, with every frond of a bluish gray tint. A superb plant of *Adiantum farleyense* completed the half-dozen plants in this very fine group, which reflected great credit upon the exhibitor. A better or more representative selection could not have been shown, all being first-rate exhibition plants. A grand group of six was also shown by Mr. Rann for the second place. It comprised *Davallia Mooreana*, 7 feet through; *Gleichenia rupestris* and its variety *gigantea*, *Mendeli*, all three huge specimens; *Dicksonia squarrosa* and *D. antarctica*. Neither of the other amateurs' collections were remarkable. In the nurserymen's class the best group, from Mr. Stevens, Putney, contained fine specimens of *Davallia pyxidata*, *Adiantum formosum*, and some vigorous young Tree Ferns.

PELARGONIUMS, from which the exhibition derived a deal of its brightness, were, as usual, shown by the two leading growers, Messrs. Turner and Little, who showed large and admirably flowered specimens in nurserymen's and amateurs' classes of both show and fancy varieties. Zonal varieties were creditably shown also by one or two exhibitors. Begonias were better than we have seen them here for a long time, particularly the fine group from Messrs. Laing, at whose nurseries these flowers are a speciality. This firm was first in the class for a dozen from nurserymen, and a very fine collection they showed, all large and finely flowered specimens. The varieties included such beautiful ones as *Brilliantissima*, *Lothair*, *Mrs. Dr. Duke*, *Purity*, *Mr. Boscawen*, *Sensation*, *Marchioness of Bute*, *Golden Gem*, *No-*

vely, Perfection—a fine selection. Mr. Coppin's collection was also good, likewise that from Mr. Child among amateurs. There were two or three collections of Fuchsias, which, however, were not remarkable.

CUT FLOWERS seemed to be represented more numerous this year than ever. There was quite a bewildering assemblage of boxes and trays containing good, bad, and indifferent specimens. All, however, contributed to the interest of the show, and particular attention seemed to be paid to the collections of cut hardy plants, of which there were some fine examples shown by Messrs. Kelway in the competing classes. Roses were good, but not numerous, Mr. Turner's being the only really good collection of twenty-four trusses, though of course the Rose season has hardly set in yet. There were some admirable *Maréchal Niel*s from Mr. Turner, and other exhibitors showed *Climbing Devonensis*, *Adam*, *Lamarque* well, but which were probably cut from sheltered situations. There was a good display of cut Orchid blooms as well as cut flowers of other stove and greenhouse plants, all adding to the extent and attractions of the show. Wild flowers, as usual, were plentiful.

FRUIT on the whole was poorly represented compared with the fine displays that have been seen in previous seasons. There were about half a dozen Pine Apples, some fair examples, but none remarkable. Black Grapes were the best in the Grape classes, and some excellent Black Hamburgs were shown by Messrs. Aslett & Herrin in the class for three bunches, and by Mr. Bates, Twickenham, in the class for the best basket of Black Grapes of any other variety were very poor, except the first prize bunches, which were good examples of Black Prince from Mr. Bolton. Three bunches of Madresfield Court were shown by one exhibitor in the class, but the berries were quite red, and it seemed a pity that such fine bunches should have been sacrificed for the sake of a paltry prize of 10s. The white varieties of Grapes, too, were for the most part green, particularly the Muscats, and there was scarcely a bunch fit for eating of the whole number shown. There were, however, some good examples of Buckland Sweetwater and Foster's Seedling from Messrs. Herrin & Aslett. Peaches were few and Nectarines fewer. Among the Peaches, *Alexandra* and *Early Louise*, from Mr. Robins, took the first prize, *Bellegarde* and *Royal George* the second, and *Noblesse* and *Royal George* the third. Among Nectarines, *Pitmaston* and *Hunt's Tawny* were the first two dishes, *Elruge* and *Lord Napier* the second, and the same varieties the third. There were but four exhibitors of two dishes of Strawberries; the first, from Mr. Goldsmith, were of *James Veitch* and *Sir Joseph Paxton* varieties; Dr. Hogg and *Sir Joseph Paxton* were second; *President* and *Grosse Sucrée* third. Four braces of Melons were shown, the best being fine examples of *Scarlet Gem* and *High Cross Hybrid* from Mr. Hopkins. An interesting collection of Cherries, Peaches, and Nectarines was shown by Messrs. Rivers, Sawbridgeworth, consisting chiefly of their new varieties. There was no competitor for the three prizes offered by the Fruiterer's Company for the best collection of English grown fruit open only to market growers.

The miscellaneous class was a large one and the exhibits comprising it were as numerous as those in the competitive classes. Silver-gilt medals were awarded to Messrs. Veitch for a large mixed group of plants including several novelties; to Messrs. Laing & Co. for a group of fine foliage and flowering plants, among the latter tuberous *Begonias* being the most noteworthy; to Mr. B. S. Williams for a similarly large group, the flowering plants consisting, for the most part, of Orchids, among which were some grand masses of *Cattleya Mossiae*, and others. A large silver medal was also taken by Messrs. Barr & Son for an extensive display of cut hardy flowers, similar to that shown at South Kensington the day previous. Messrs. Hooper took a small silver medal for a fine collection of cut hardy flowers and plants. Bronze medals were awarded to Messrs. Kelway or a large collection of cut blooms of double and

single *Pyrethrums*; to Mr. Hooper, Bath, for collection of cut florists' flowers; to Mr. Salter, Streatham, for fine specimens of *Utricularia montana*; to Messrs. Cannell for a collection of cut flowers of show and fancy *Pelargoniums*; to Messrs. Paul & Son, Cheshunt, for a group of *Roses*; to Mr. Little for collection of *Cattleya Mossiae* in variety; and likewise to Mr. Heims for a similar group of same Orchid.

Botanical certificates were awarded to

CATTELEYA NOBILIOR, a new species in the way of *C. dolosa*. It is of dwarf growth and bears large flowers of a soft rose-pink, with a large sulphur yellow blotch on the labellum. Shown by Mr. Vicary, gardener to Mr. Peacock, Sudbury House, Hammersmith.

PRITCHARDIA GRANDIS.—The noble leaved new dwarf fan-leaved Palm, fully described recently in THE GARDEN. Shown by Messrs. Veitch.

NEPENTHES EXCELSIOR.—A superb new Pitcher plant in the way of *N. Rafflesiana*, but with pitchers twice the ordinary size, and highly coloured. Exhibited by Mr. B. S. Williams.

CATTELEYA GIGAS SANDERIANA.—A splendid variety remarkable for the large spreading labellum of a rich amethyst grained with white. Shown by Messrs. F. Sander & Co., St. Albans, and Mr. James, Castle Nursery, Lower Norwood.

PHALENOPSIS SPECIOSA.—A new species or variety, similar to *P. Luddemanniana*, but the flowers are more highly coloured and not so distinctly barred. Exhibited by Col. Berkeley.

CATTELEYA WARNERI SUDBURYENSIS.—A magnificent variety with an unusually large labellum of the richest amethyst-purple colour edged with a frilling of white, and also white in the throat. One of the finest forms of this *Cattleya* we have seen. Shown by Mr. Peacock.

ATHYRIUM FILIX-FEMINA KALOTHRIX.—A most elegant variety of the hardy Lady Fern, with the fronds divided into hair-like divisions. Messrs. Veitch.

DENDROBIUM DEAREI.—This beautiful new white-flowered species, described recently in THE GARDEN. Shown by Mr. Little.

SELAGINELLA CANALICULATA.—An elegant species having tall stems with branches springing out at right angles, which makes it very distinct. Messrs. Veitch.

ODONTOGLOSSUM CRISPUM PURPUREO-PUNCTATUM.—An extremely pretty variety, remarkable for the flowers being rather copiously spotted with rosy purple on a white ground. Messrs. F. Sander & Co.

CATTELEYA MENDELI SELBORNENSIS.—A splendid variety, among the finest we have ever seen of Mendel's *Cattleya*. The lip is very richly coloured, and the petals and sepals are of a beautiful rosy purple. Shown by Mr. Salter, gardener to Mr. Southgate, Streatham.

MASDEVALLIA ROSEA.—A new species recently described in THE GARDEN. Shown by Messrs. Veitch.

GYMNOGRAMMA CALOMELANOS GRACILIS.—Differing from the type in having more finely divided fronds, rendering it a very elegant plant. Messrs. Veitch.

The following plants, to which allusion was made in the report of the meeting at South Kensington, were also awarded botanical certificates: *Adiantum Novæ-Caledoniæ*, *Polystichum acrostichoides grandiceps*, shown by Messrs. Birkenhead; *Acer crategifolium variegatum*, *Cyathea microphylla*, *Hydrangea rosea*, *Mimulus radicans*, from Messrs. Veitch.

Floricultural certificates were awarded to the following:—

BEGONIA MRS. FOSTER (double), *H. WALTER* (single scarlet), *MRS. ANSON* (single), *ORANGE BOVEN* (single, orange), *MARCHIONESS OF BUTE* (single, rose), *NOVELTY* (large orange-scarlet, single), all splendid varieties of the tuberous-rooted class, and shown by the raisers, Messrs. Laing, Stanstead Park, Forest Hill.

PYRETHRUM COMPACTUM.—A single-flowered variety remarkable for the dwarf growth, being not more than 9 inches or 1 foot high. Mr. Hooper, Bath.

GLOXINIA MIRANDA and *DAIMIO*, both superb new varieties of the erect-flowered type. Raised and exhibited by Messrs. Veitch.

CHRYSANthemum AURORA.—The new double *Marguerite*, with compact rosette-like heads of bloom of a clear yellow. Messrs. Cannell.

LOBELIA SWANLEY BLUE.—One of the finest bedding varieties that we have seen, the habit being dwarf and compact, and the colour unusually brilliant. Messrs. Cannell.

[A list of awards is given in the advertisement columns.]

KITCHEN GARDEN.

Denham Favourite Tomatoes.—Mr Gilbert sends us some of these, which are very large and firm and in colour rather a dull red. They are extremely well grown, as Mr. Gilbert's Tomatoes always are. How far these various improved varieties of the Tomato surpass the common old red in flavour—the main point—is a question worth considering. These are extremely good in flavour and texture. The price of good Tomatoes, such as Mr. Gilbert's, in Covent Garden ranges from 2s. 6d. to 4s. per pound. With so many good kinds, so many good gardeners, and so many houses and frames not occupied in summer, we ought to be able to grow better supplies of them and at a reasonable rate.

St. Martin's Rhubarb.—My attention has been called to a controversy regarding this Rhubarb. I raised this variety from seed saved from Victoria in 1846 or 1847. The seedling plant (one of about one hundred) for two seasons showed itself to be so much earlier than the other seedlings or any other variety of Rhubarb which I cultivated, that I divided it, and after repeated trials grew it to the entire exclusion of every other variety except the Victoria. The stock which Messrs. Laird & Sinclair purchased was the produce of the one plant just alluded to. I have seen several lots of Rhubarb called St. Martin's which were not true. The variety is very distinct, and I believe one of the best in cultivation, and this I say after an experience of it for thirty-five years.—W. W. JOHNSTONE, *Chester*.

5003.—Flageolet Beans.—These are of the ordinary dwarf type, similar to our so-called French Beans, and are to be found in commerce, though rarely offered under this name in English lists now. It is supposed, though whispered only with bated breath, that the now famous Canadian Wonder Bean is but the old French Red and Crimson Flageolets re-imported from French Canada, and thus converted into a new variety. Without doubt it is a good main crop kind, but it was unfair if it be the Flageolet to give it a new name. In Continental lists that of M. Benary, of Erfurt, for example, we find no fewer than thirty so-called kinds of dwarf Beans, amongst which the crimson-seeded, purple-seeded, and white-seeded Flageolets appear at the low price of 6d. per pound, and there is also a wax Flageolet which has yellow pods, and said to be of delicious flavour. It would be interesting to learn why the term Flageolet is applied to a Kidney Bean.—A. D.

5013.—Potatoes on the same ground in successive years.—Whilst it is a received maxim of Potato culture that it is best to alternate Potatoes with other crops from year to year, yet the exigencies of culture often prevent this from being done. I am perforce compelled to grow Potatoes on the same soil year after year in many parts of the ground, and I find, first, that as a rule the crops are both just as good and sound as when grown in succession to Peas, Beans, or other diverse crops; there are myriads of others who can say the same thing, and probably will say, as I now say, that it matters very little what crop has preceded the Potato, even whether it be Potato or not; the chief point is found in the

state of the soil at the time of planting, and if that be well pulverised, deeply worked, and in good nutritive condition, Potatoes will come as good after Potatoes as after anything else. Who that has seen the robust growth usually made by self-sown plants can doubt that such is the case, for these always come strong, and if left to stand produce large crops of tubers. "F. B." is, however, in doubt as to the effects of the disease upon his Potato crops this year, following as they do in one part Champions that were diseased last year. Now upon such a point it is absolutely impossible to give a positive opinion, not only because all authorities are not quite in accord as to the nature and operation of the disease, but also because it does not follow if the *Peronospora* is of the spreading or sporadic nature usually assigned to it, that plots of ground that adjoin, and on which Potatoes were not grown last year, are not just as much permeated with resting spores now as is the soil in which the Potatoes are planted. The matter is one for actual trial and demonstration, and if "F. B." has ground in which no Potatoes were grown last year planted with the same sorts also, he should presently have conclusive proof that his gardener is either right or wrong.—A. D.

NOTES OF THE WEEK.

ILL-SMELLING FLOWERS.—People should begin to discriminate among flower smells. Even among families supposed to have agreeable odours there are a great many which, in strong doses, are extremely disagreeable and even injurious. At the horticultural meetings at the Linnean Society's rooms the odour was, in some places, almost overpowering owing to the presence of a number of Lilies remarkable for their offensive scent, such as some of the Martagon section.

HORTICULTURAL CLUB.—The monthly meeting and dinner of this club was held on Tuesday last at their rooms, Henrietta Street, Covent Garden, and was numerously attended. The following gentlemen were admitted members: J. H. Mangles, Esq., Valewood, Haslemere; G. Loder, Esq., Floors, Weedon; Dr. Henry Bennet, The Ferns, Weybridge; and Mr. Henry Stevens, Byfleet. It was unanimously voted that a life membership subscription of 10 guineas be given to the Gardeners' Benevolent Institution. Most of those present afterwards attended the meeting of the Royal Horticultural Society at Burlington House.

SCOTTISH PANSY SOCIETY.—The secretary of this Society, Mr. W. Welsh, writes as follows concerning its annual show, which is to be held in the Waverley Market, Edinburgh, on Friday, the 22nd inst. "It is open to anyone to compete, no notice being required. In a late season such as this is English growers ought to be in a better position than those in the north, where the dry season and cold winds have checked the growth of the plants very much. Last year Captain Halford Thompson, from Exeter, came and carried off prizes and certificates, and Miss Owen, from Knockmullen, was also successful; and it would be cheering to see a number of competitors from England."

THE BOTANICAL SOCIETY AND ITS ARRANGEMENTS.—Complaints have come to us of the action of the Royal Botanic Society in altering the date of its evening fête. One lady bought six tickets, and finds them now useless to her, as she has other engagements for the newly-appointed night. Many who come to London at this season are obliged to fix their arrangements beforehand, and arbitrary changes of this sort are a great inconvenience to them. To change the date of the night fête for a personal reason, wholly regardless of the convenience of thousands of other people, whose time and arrangements are equally valuable to them, is unworthy of a public body. The want of backbone is so obvious in the governing bodies of societies, that we wonder naturalists did not take notice of the fact when they classed man as a vertebrate animal. In a circular just issued by the

Society it is stated that "His Serene Highness, the President of the Royal Botanic Society, has, with the consent of the Council, postponed the evening fête from Wednesday, June 27, to Thursday, June 28, to enable himself, Her Royal Highness the Princess Mary, Duchess of Teck, and others to attend the fête." After this it is considerable to add that "tickets issued for the 27th will be available on the 28th."

ENGLISH PLANT NAMES.

SUPERSEDING Latin names for plants has never at any time entered my mind, but I insist on the necessity of an English name for every plant considered worthy of a Latin one. Latin names are current all the world over among gardeners and scientific people generally, and the English names are especially designed to meet the wants of those among us who cannot or will not take the necessary trouble to learn Latin names and their meanings. "T. B." (p. 509) preaches from his old text, "it is all a mistake," and seems quite surprised that his "armour of unassailable facts" was made so little of by me (p. 362). It is quite evident that "T. B." is amongst those who are disappointed because my argument is not "English v. Latin," but "Latin and English" combined, but as all reformers have been more or less misunderstood, I suppose I must not complain because "T. B." is among those who misunderstood the basis of my argument for English names. As I have before said, it is the business of botanists, gardeners, and nurserymen to know Latin names for purposes of trade, international or otherwise, but it is not the business of every amateur, and one can scarcely expect the public generally to acquire them; hence for the masses of the people English names are absolutely essential. "T. B." is as ambiguous as ever (p. 509), making his usual assertions, but giving us no good argument against the auxiliary value of English names. At any rate I begin to know that he is totally opposed to the use of English names, which is so much information gained. But did it ever occur to "T. B." that this question of Latin names is mainly confined to the flower garden, for are not all fruit, and vegetables generally known under English names? Again, in the columns of your contemporary, the *Gardeners' Chronicle*, there is a check which I applied to the naming of varietal Orchids in Latin; indeed, on all hands English names are increasing in use and also in usefulness. I suppose "T. B." belongs to the old gloriosa superbissima school, and so prefers to speak of a Golden Holly under its Latin name of *Ilex Aquifolium aureo-variegata*. Can he tell us the Latin for Dell's Beet or British Queen Strawberry? and if so, does the Latin define the variety more correctly than does the English name? Again, is the flavour of a Pine Apple the better because some of us prefer to call it *Ananas sativa*? or are Lentils more nutritious because called *Ervum lens*? Is it not a suggestive fact that all our British trade in timber, oils, and drugs, indeed in plant products of all kinds, is carried on under English names, the plants themselves which furnish some of these products being absolutely unknown in either Latin or English. And yet the best of all arguments in favour of English names for plants is the fact that such names are now more generally used by educated people than ever they were. F. W. B.

The lectures at the evening meetings of the Royal Horticultural Society are somewhat marred by the gentlemen who do not hesitate to deliver themselves of platitudes and trivialities after each discourse. None of these interjections had the slightest interest to the patient audience. In many cases the points to which they call attention are omitted by the reader of the paper from want of time. The remarks addressed in public to the reader of a paper had better be addressed to him alone. The matters to which we allude did not concern what could be classed as discussion as to any important points raised by the lecturer.

OBITUARY.

MR. ALDERMAN CLAY, hon. sec. to the Bury St. Edmunds and West Suffolk Horticultural Society, died suddenly on the 6th inst. It may be said that Mr. Clay's love of horticulture was hereditary. His father loved and grew flowers before him, and also held the office of secretary of the Bury Horticultural Society. Like many others that have grown into goodly fame and influence, it had small beginnings—meetings in upper or lower rooms, sometimes sinking to one or two, and then again rising into fame and popularity—through all these ups and downs Mr. Clay held on to the Society. His love for horticulture was so thorough and sincere, his zeal so hopeful, and his manners so attractive and genial, that he inspired others with his own spirit, and soon succeeded in rallying others around the Society, till under the fostering influence of its late secretary, the Bury Society has achieved a name hardly second to any provincial society in England. The cottage garden branch of the society was also developed to great perfection under the late secretary, who never appeared to higher advantage than pleading the cause of the cottagers or dwelling upon their merits in gardening. The fame of the Bury Society reached its climax when it succeeded in bringing the Royal Horticultural Society of London down to Bury to hold its first provincial show in connection with the Agricultural Society of England. For his labours in connection with this great achievement he received the gold Banksian medal of that Society, the highest award it can make, and was made a 40-guinea life fellow in conjunction with Mr. Fish, of Hardwick. Nor did Mr. Clay's devotion to horticulture hinder his devotion to public business. With the care of a large private business on his hands he was also engaged in various public offices, serving with much credit to himself and satisfaction to all others on most committees relating to town matters, being a member of the Town Council, director of the gas works, a borough magistrate, an alderman, and filling the office of mayor of his native borough four times. The Mayor and the Corporation, representatives of the public bodies and of the horticultural society followed him to the grave, which was strewn with flowers.

D. T. F.

New nursery firm.—We learn that Mr. F. Horsman, who for the past nine years has been manager for the New Plant and Bulb Company, Colchester, has started a new firm under the title of F. Horsman & Co., Plant and Bulb Merchants, Colchester, and at Mark's Tey.

Odontoglossum vexillarium.—Dr. Paterson, Fernfield, Bridge of Allan, sends us two beautiful spikes of this Orchid, showing the extremes of colour that occur in this species. One has flowers of a deep rose, the other blossoms almost white, except a dash of rose-pink in the upper sepals, which gives the flowers a pretty appearance.

Insects (C. C. G.).—See an article on this subject in another column (p. 533).

Transplanting machines (J. St. Y.).—Apply to Mr. Burrows, Pluckley, Kent, or to Mr. Barron, Elvaston Nurseries, Borrowash, Derbyshire.

White Pink (T. Bush).—A very good variety with large, full, pure white flowers, and highly perfumed; quite worth propagating.

Names of plants.—A. B.—*Ornus europæa* (tree); we cannot name the variety of Clematis.—C. N. H.—Double Poet's Narcissus (*N. poeticus* fl. pl.)—J. G. K.—1, *Phyl. lanthus nivosus*; 2, *Iresine Lindenii*; 3, *Begonia ascotensis*; 4, *Oncidium flexuosum*; 5, *Dendrobium suavisissimum*; 6, *Scilla nutans alba*; 7, *Euphorbia corollaria*; 8, *Verbascum phlomoides*. Please bear in mind our limit is four plants at a time.—J. Walker.—*Aubrieta deltoidea*.—M. C.—1, *Athyrium Filix-femina cristata*; 2, *Platyloma rotundifolium*.—E. C.—*Chlorophytum orchidastrium*; *Jasminum revolutum*; *Clematis Lucie Lemoine*; *Cereus flagelliformis*.—C. T.—*Hemerocallis flava*; *Lilium pyrenaicum*.—W. J. Watts.—*Pittosporum Tobira*.—M. S.—*Muscari monstrosum*.—*Donna Serafina*.—*Schizostylis coccinea* (a mixture of loam and peat soil).—W. Forrester.—1, *Lycastris aromatica*; 2, *Oncidium pulvinatum*; 3, *Stylidium graminifolium*; 5, *Gesneria fulgens*; 4, *Oncidium sphacelatum*.—W. B.—*Epidendrum* species.

No. 665. SATURDAY, JUNE 28, 1893. Vol. XXIII.

"This is an Art
Which does mend Nature: change it rather but
THE ART ITSELF IS NATURE."—*Shakespeare*.

A GARDENING DISTRICT.

A FRIEND, travelling in search of the picturesque, writes to us from Evesham as follows: Have you ever investigated this neighbourhood? There is a great deal here that interests one; the valley of the Avon is full of beauties, and the country round Evesham is one big market garden, acres of Strawberries, early Peas, Cabbages, and Asparagus growing under Plum, Cherry, and Pear trees. It must be paying them well, for I see that they are taking in more fields and planting lots of young Asparagus beds. I saw a field with lines of Plum trees, pale green Peas covered with white blossoms, and lines of purple Cabbages growing between them that almost converted me to ribbon bedding, and suggested an essay on the beauty of the useful in gardening. The cottage gardens are very rich in old-fashioned flowers, and I notice a great abundance of yellow Briers all in full blossom. The soil is rich and kindly, and it might be worth a gardener's while to keep an eye to the district. There is a village at the foot of the Cotswolds called Broadway that is noted for its salubrious air and good water and for the number of fine old houses that are left in it; it is only 5 miles from Evesham. A. P.

IVY UNDER TREES.

It is often found difficult to find a suitable plant to grow and cover the ground under trees in pleasure grounds where Grass does not succeed. But Ivy, if skilfully planted, and care be taken to train it properly over the ground the first season or two, will be found to give satisfaction in most cases. Although it may be considered to be a very curious kind of underwood, seeing that it is a climber, it is nevertheless one of the best possible carpets for ground under large trees. Planters should bear in mind that close to the stems of these there can be no moisture for nourishment. Notwithstanding this, however, pits are dug close to the trees, when, as a matter of course, the plants fail. The only way to make a good carpet under large trees, standing singly or in groups, is to make the pits for the plants outside the drip of the spreading branches, and, if possible, clear of the extreme points of the branches; thus situated, the Ivy roots will have the benefit of sun and rain and moisture. Care must, however, be taken to keep the roots free from drip from the points of the branches, for Ivy, like most other plants, is very impatient of drip falling upon its roots. To procure a quick and satisfactory carpet, the Ivy must be planted from 3 feet to 5 feet apart. Make the pits large enough to hold about one or two bushels of fresh loamy soil, enriched with a little rotten manure. After planting and firming the soil well, give each plant a good soaking with water. It will be found more profitable to plant strong, well-rooted plants than weak ones, and plants growing in pots, if required to be planted during the summer months, should be selected. The points of the shoots must be directed inwards, pegging them down until they reach the bole of the tree. In this way a smooth, green carpet will be speedily formed. No matter how barren the ground under the trees, the Ivy will grow and progress rapidly if the roots are provided for in the way just described. Another good effect is, it will kill all weeds as soon as it assumes the lead. When thoroughly established, the points of the young growths will need cutting in to keep it close and compact. Sometimes Barberries are planted at intervals in the Ivy carpet, and with good effect, the yellow flowers contrasting well with the green Ivy leaves underneath the spreading branches of a large deciduous Oak or specimen Cedar. St. John's Wort, when planted close to the edge of the Ivy, forms a good companion to it,

growing dwarf and flowering freely. Butcher's Broom may also be planted with good effect near the edge of the Ivy carpet. It grows in any soil, and in almost any position. W. CHRISTISON.

NOTES.

EDELWEISS, OR BRIDAL EVERLASTING.—Now that the tourist season has commenced, so surely again comes the news of inexperienced mountain climbers falling from rocks up which they have climbed to gather the silvery flower-heads of this alpine weed. Yesterday I read a paragraph relating to a serious accident of this kind, and lamented that people presumably well to do should risk their lives for the sake of a plant as easily grown in gardens as Mignonette or Canterbury Bells. Now is a good time to sow its woolly seeds in a pan of light sandy earth. When the plants are large enough pot them singly in 3-inch pots, using a compost of fibrous loam and broken limestone. Plunge the pots in ashes in a sunny position in the open air, and water when necessary. The strongest of these seedlings will flower the following year, but still stronger and better the year afterwards.

It is interesting to note that while the tourist is anxious to eradicate the plant in the Swiss Alps, the Bohemian Government are trying to acclimatise it on their mountains.

The acclimatisation of Edelweiss (*Leontopodium alpinum*) in the Bohemian mountains is to be tried, and a special nursery for this precious alpine plant has been established in the Grand Ducal Gardens at Schlackenwerth, in North-Western Bohemia. When sufficiently strong, the young plants will be taken to the Keilberg, one of the peaks of the Erz-Gebirge range which divides Bohemia from Saxony.

In Killarney, we are told, *Trichomanes radicans* is all but as extinct as the Irish elk, thanks to the uprooting energy of the tourist, and now we hear that it is imported from Madeira and the Canary Islands, and "discovered" in Killarney, for all who care to pay for a specimen of "the raal Fur-rn."

THE BIG SCARLET POPPIES.—As raised from seed, it is quite astonishing to note the individuality of these fashionable flowers. From a packet of seed sown two years ago we have now in flower several varieties varying in colour from reddish amber to deep crimson-scarlet, with a black blotch at the base of each petal. All who were so fortunate as to see Miss Jekyll's arrangement of hardy blossoms the other night at the Linnean Society's rooms were delighted with the gorgeous beauty of these noble flowers. But it is for outdoor garden effects that they are most valuable grouped with golden and glaucous leaved Funkias, dwarf shrubby plants of *Quercus concordia* (Golden Oak), or planted in bold groups among clumps of *Lastrea Filix-mas*, or other strong growing hardy Ferns and Grasses for contrast. Another way of propagating them is to dig up old-established clumps, break their fleshy roots into pieces, and replant these in good prepared soil.

A NOBLE TOWN TREE.—The Plane tree does so well in most of the London squares, that gardeners and others are not a little surprised to hear that there are towns in England, Scotland, and Ireland where no amount of coaxing will enable it to thrive. What I now wish to say, however, is that a hardier tree with even finer foliage often thrives and forms a noble town tree in positions where the Plane can scarcely be induced to exist. This tree is the large-leaved Maple, *Acer macrophyllum*, long ago introduced from North America, but rarely seen even in the best of town gardens. Everyone fond of deciduous trees should make a note of this one, if they already have it not. There are also two or three "golden Sycamores" well worth attention for gardens, whether in town or country; contrasted with the purple-leaved Hazel or the purple Beech, these golden Sycamores produce effects in the spring quite unattainable by any other tree growth whatever. Acers

generally are far too often neglected by modern tree planters.

ANTHURIUM ANDREANUM.—This plant seems quite as variable in its habit, size, and in the colour of its spathes as is Schotzer's species, and those who are disappointed with it must have obtained pale or crumpled forms. A good variety has bright scarlet spathes, and the spadix is pure waxy white with a yellow tip only, while the spadices of the inferior kinds are wholly yellow. It will be remembered that when this plant was introduced Mr. Brown thought he detected some little differences in the specimens which came under his notice, and we now see that this variety really does exist. Well-grown specimens of the best variety are just now most effective, and the plant contrasts well with Ferns, Palms, Dracenas, and other fine foliaged plants.

THE DARGLE ROSE.—An unknown friend sent me two years ago a wild Rose bush under this name. It grows rapidly and bears large glaucous leaves and single rose-tinted flowers. The most remarkable characteristic of the plant, however, is its large oblong hairy "hips" or fruit, which, being freely produced, render the bush quite ornamental during the autumn months. I never saw the plant before, but I have no doubt it is the kind described by Parkinson at p. 418 of his "Paradisus" as *Rosa pomifera major*, or the Great Apple Rose. If not actually wild, it is here and there naturalised in woods and copses near to where houses formerly stood, and so it is possibly an escape from gardens. Its fruits are so bright and showy, that such a distinct plant must exist here and there in gardens, and I would gladly hear more of its history.

COOL ORCHIDS.—If we are to believe a circular just to hand, a natural check seems to have arisen which promises to stop in some measure the exportation of cool Orchids from abroad. Speaking of *Odontoglossum Pescatorei* and *O. Alexandræ*, we are informed that vast quantities have been thrown into the market of late, and the price is now so reduced that the importers are not making any adequate return. We do not think they will ever be so cheap again, as it cannot pay to get them over. The auction prices are now said to range from 8s. per dozen and upwards according to size. So much for imported scraps, but I remember half a plant of *O. Alexandræ* in flower being sold by auction the other day for something like £40.

HARDY FLOWERS.—The glorious collection of Iris blossoms and of other hardy flowers recently exhibited at London exhibitions by Mr. Barr must have done an incalculable amount of good, thus opening the eyes of country amateurs, and even of professional gardeners, to the wealth of colour and the beauty of form which it is possible to possess wherever there is a garden. Exhibiting hardy plants and cut flowers of them is one way—some think it the best way—of "spreading the light." No Orchids grown at great cost for coal and labour could be more lovely than Mr Barr's bank of Iris flowers, or "cottager's Cattleyas," as a waggish friend persists in calling them.

AN APOLOGY FOR ORCHIDS.—Visitors to the evening meeting at Burlington House the other night must have had a great treat. The main attractions seem to have been the collections of Orchids from Mr. Lee and Sir Trevor Lawrence, and the hardy flowers and plants arranged by Miss Jekyll. Here is an account of the effect from a contemporary: "Most interesting was the contrast between the Orchids in the one room and that of hardy flowers in the other. There was not much attempt at grouping the Orchids, and they were shown by themselves without the aid of Ferns and Palms and other subjects, which, had the object been merely a decorative one, might appropriately have been introduced. Although there was no designed contrast between the two groups of hardy flowers and of Orchids respectively, yet it was apparent that

where bold effects on a large scale with large surroundings are required the hardy plants would carry the day. On the other hand, where beautiful objects are to be seen as it were isolated, there the exquisitely pure colours and delicate gradations of tint of the Orchids would carry all before them, to say nothing of their surpassing scientific interest." Are, then, the colours of the Orchids better than those of the plants of the northern world? I say, decidedly not. There is a range of colour in the Primrose and Auricula a mine in itself. Do we want pure simple colour? What, then, can equal Cardinal Flowers, Evening Primroses, Poppies, Gentians, Pæonies, Daffodils, Phloxes? Where are the wonderful and iridescent blues? Where are the delicate gradations of tint like those among the wondrous Delphiniums? If we come to delicate colour, what in the world surpasses the great Iris family, from the gold and purple companion of the Snowdrop, *I. reticulata*, to the wondrous Japanese Iris in its many coloured large flowers? VERONICA.

TREES AND SHRUBS.

FORMATION OF YOUNG PLANTATIONS.

THERE is perhaps no question at the present time fraught with more importance to the landed proprietor than that of how to make large areas of bare Heather moor and barren peat bog pay. Owners of Heather moors and rugged glens in the north receive fair rents by letting them as deer forests and for grouse shooting; but there are vast tracts of uncultivated land and peat bogs in Great Britain and Ireland which neither contain deer nor grouse, and from which the owners never receive a single penny; and as such lands are capable of producing crops of valuable timber under proper management, I will give a brief outline of my experience in the formation and management of new plantations under such circumstances. Peat bog is so widely different in chemical composition from that of ordinary soil, that for most crops it requires altogether a different mode of preparation and treatment both before and at the time of planting in order to insure success. Peat moss, or bog, as it is called, is composed principally of the remains of dead aquatic plants in an imperfect state of decomposition, rendered so by the quantity of water which it contains, and until such time as this excess of moisture is drained off it is incapable of supporting trees or crops of any kind. The first step to be taken in its improvement, therefore, is to have it thoroughly drained. In forming

MAIN DRAINS, care should be taken to carry them along the margin of the proposed plantation, as in this way they answer the double purpose of a fence and an outlet for the water discharged from the smaller drains within the plantation. If possible, large arterial drains should never be cut within the plantation, as they prove a source of trouble and expense in the formation of roads and the removal of timber. These drains may be cut about 8 feet wide at top, 5 feet deep, and 2 feet wide at bottom. In ordinary workable bog I have had them cut to the above dimensions at the rate of 1s. 10d. and 2s. per perch of 5½ lineal yards. In places where the bog forms a quagmire, and where extra work is required, the cost will be a little more according to the circumstances of the case. The next step to be taken is the

FORMATION OF ROADS. These should be laid off so as not only to be convenient for the removal of timber from the different quarters of the plantation, but also to answer the purpose of shooting roads when the cover is let for game. It is also a matter of importance for their stability, as well as saving expense, that they be laid off in such a way as not to come in contact with any cross drains over which it would be necessary to build bridges, always a difficult and expensive undertaking on boggy ground. As, however, most bogs are tolerably level, I have never found much difficulty in directing the small drains from the interior of the plantation in such a way that they could empty themselves into the main drains without crossing

the roads, thus obviating the use of bridges except at the places of ingress and egress. Suppose, for example, a road has to be formed, 24 feet broad, right through a plantation, say from north to south, and that drains have to be cut on both sides of the road, 3 feet wide at top, 30 inches deep, and 15 inches wide at the bottom, the material excavated must be spread upon the road in such a way as to raise its centre and give it a uniform slope towards the drains. Small drains should then be cut at right angles from the roadside drains on both sides, so that one half would discharge their water into the main drain on the east, and the other into the drain on the west side. In all ordinary cases these small drains may be cut at a distance of about 5 yards asunder, or say about 160 perches per acre, which at 3d. per perch would amount to 40s. per acre for cutting. This work should always be executed at least one year before planting operations are commenced, in order to give the bog time to subside and get firm. The next step is to provide about twenty cartloads of clay or soil per acre to be mixed with the bog at the time of planting. I have generally used a railway, capable of being worked by manual labour, for bringing forward the soil, but in cases where rails cannot be had, the material will require to be carted, and as bog roads need a series of years to dry and become firm before finishing their formation, spread a thick coat of Heather, tree branches, or both on the surface to form a road for the time being. The average cost of carting twenty loads of clay or soil is about 6d. per load if it can be conveniently obtained, which would be equal to 10s. per acre. Then for wheeling the soil from the road, and leaving it in small convenient heaps over the surface of the bog, say 10s. per acre. The cost for opening 3000 pits for the young trees, the quantity allowed for an acre, and distributing the soil, giving each pit its proper proportion, would be 30s., and that of planting an acre 10s. Putting these sums in tabular form, therefore, the following represents the cost of planting an acre of peat bog:—

Proportion for cutting main drain enclosing a	£	s.	d.
20-acre plantation, 12 perch at 2s.	1	4	0
Cutting 160 lineal perch small drains at 3d. ..	2	0	0
20 loads clay or soil; per load, 6d.	0	10	0
Wheeling soil on to bog	0	10	0
Opening 3000 pits for plants, and supplying them with soil	1	10	0
2000 2-year seedling 1-year transplanted Scotch Firs at 15s.	1	10	0
1000 2-year seedling 1-year transplanted Larch, at 20s.	1	0	0
Expense of planting an acre	0	10	0
Proportion for erecting bridges and making gates ..	0	4	0
Pulling Heather for road	0	2	0
	£9	0	0

The above prices are a fair average of what I have actually paid for the execution of such works by contract, and I have seldom exceeded that price, but often had the work done for less money—a circumstance arising principally from the condition of the bog. In autumn the pits should be opened for the young trees; the clay or soil should be divided equally amongst them, and allowed to lie on the edge of the pits till spring, by which means it will be much improved through the effects of the weather. Young trees should never be planted in cold, deep bog land in autumn or winter, as the peat has a destructive influence on the roots, and often kills the plants altogether before the growing season commences. I have always planted bog lands with most success in April. J. B. WEBSTER.

Magnolia Campbelli.—I have observed in some late numbers of THE GARDEN that it has been asserted that this *Magnolia* has been known to flower in several gardens in the neighbourhood of Pallanza, on the Lago Maggiore. This I believe to be a mistake. I have made inquiry at the Messrs. Robelli, at the Gardens at S. Remigio, and of the gardener at this villa, and learn from all that the *Magnolia* supposed at one time to be *M. Camp-*

belli is in truth *M. Lenné*. I may mention that there is just now in nearly all the gardens around the lake a most glorious *Magnolia* in blossom—*M. macrophylla*. Some of the leaves I have measured were 23 inches long by 8½ inches wide. The blossom, of a creamy white, is as large as that of *M. grandiflora* and nearly as fragrant, having a large blotch of dark reddish purple at the base of each petal, reminding one of the flower of the Gum Cistus on a very gigantic scale.—G. M. N.

GOLDEN CONIFERS.

A FEW of these scattered through the foreground of a shrubbery gives an air of refinement and dressiness, if I may so term it, to a place. They are also useful in every kind of formal gardening. The majority of them are hardier than the common Laurel, and they seldom get too large for their situations. One or two of the *Arbor-vitæ* are rather tender; at least, they die off in a most unaccountable manner sometimes when a cold spring follows a mild winter. I have just been told of the death of a number of handsome plants of *Thuja aurea* which were thirty years old, and consequently highly prized, and they occupied positions in an Italian garden as "match plants"—a circumstance which has rendered their sudden failure more annoying. *Biota elegantissima* is also rather tender. A good many dead sprays have had to be cut from amongst the new growth this spring, which I attribute to the cold winds of March when the sap was rising. *Thuja sempervirens* is an improvement upon *T. aurea*, being brighter in colour and retaining its bright golden hue longer, but otherwise it possesses the same characteristics. Golden Yews, both English and Irish, are very hardy and most useful and telling in a foreground, or occupying conspicuous positions anywhere, their changing tints in spring and summer being very effective. I omitted to mention, when speaking of the *Arbor-vitæ*, that *Thuja Vervaeana* is a valuable plant, retaining its golden tint well into the winter. But some of the best and brightest of golden conifers must be sought among the Cypresses. Several very elegant varieties have been obtained from the Lawson Cypress, *C. L. elegantissima* and *C. L. lutea* being very effective. Quite a number of golden forms have also been found among the Cypresses from Japan, *Retinospora obtusa*, *gracilis aurea*, and *R. plumosa aurea* being good, distinct, and useful varieties. E. H.

BARBERRIES AND CORN MILDEW.

I SEND you branches of a plant known in our district by the name of Pipperidge, which fifty years ago was very common in our hedgerows. But farmers got the idea that this plant was the cause of the blight in Wheat, and so fully were they impressed with this notion, that they had it rooted up from their farms, and now there are but very few remaining in this district. The old women doctors of sixty or seventy years ago used it to cure jaundice, and it was said to be the only remedy for that complaint. You will notice that under the bark it is a bright yellow, and that the taste of the wood is quite bitter, while the leaves are sour, and country boys eat them freely. It would be very interesting to us in this locality to have your opinion as to the former statement or any suggestions bearing upon it. You will observe the thorns on the shoots grow downwards, while the foliage is rather pretty. I would further observe that in the locality where this plant grows, fields of Wheat are always more or less blighted.—JAMES LINGLEY, *Broadway Bacton, near Stowmarket.*

* * It is a curious fact, apparently overlooked by our correspondent, that the Barberry branches sent to us were badly attacked by the orange-coloured Barberry blight (*Ecidium berberidis*), and it would be interesting if our correspondent would tell us whether the Suffolk Corn fields have been freer from Corn mildew since the farmers rooted up the Barberries fifty years ago. The opinion accepted by many botanists is that the fungus of the Barberry is an early condition of

the fungus of Corn mildew, and that when the spores or seeds of the Barberry fungus are blown over young Wheat plants they grow and cause the orange (at length black) fungus pustules of diseased Corn. This idea, however, is not accepted by all observers, and Dr. Cooke, one of our foremost fungologists, has expressed a strong opinion against its probability.—W. G. S.

Pruning over-grown Lilacs.—This is the best season to cut out with the saw any large unwieldy limbs of Lilac which are becoming unsightly. They should be cut back so that the young growth hides the stump. The outline of large overgrown shrubs may be much improved in this way, and by doing the work immediately after flowering there will be no loss of effectiveness, as the young shoots will gather strength enough to flower next year. Charles X. is a good Lilac, and so is the old white.—E. H.

Picea Pinsapo.—There is a special beauty about all trees in spring and early summer; but there is more character about some trees than others, and *Picea Pinsapo* is one of those which attract attention at this season owing to its handsome new growth as well as for its perfect outline and regularity. For a small suburban or country lawn no better tree could be found than this, and it rarely fails to grow in a satisfactory manner on well-drained soils. In its young state sometimes it may require a little help in the way of pruning into proper shape, but once get the plant fairly balanced and its progress is regular and rapid.—E. H.

Lichens on Thorn.—I enclose some Lichens, of which I find a large crop on the wood of various scarlet Thorns. The trees, rather large ones, do not grow or flower well. One of them, a double red, seems to be very much affected. Is there anything that will check the growth of this Lichen? I fear it may be the same as that which is destroying many trees at a place in this neighbourhood where the Lichen is hanging in clusters on Oaks and Firs. The soil there is near a river and clayey, whereas the soil here is limestone.—M. L. V., *Curragh Chase*.

. We refer you to the answers given in THE GARDEN (pp. 149 and 190) concerning Lichens on trees, but perhaps some readers who have been troubled in the same way may throw further light on the subject.—ED.

"Weigela rosea var. amabilis as a lawn shrub.—As usually seen, cribbed, cabined, confined, and 'knived' in the shrubby border, the *Weigela* fails to show what it is capable of, or anything approaching its floral beauty and fine effect at this season when grown singly on grass and allowed to develop itself freely and assume its natural habit. An admirable exemplification of what is here advanced is afforded by a specimen on grass at the College Botanic Garden, Ball's Bridge, which could not fail to challenge the admiration of even the most indifferent. The symmetrical aspect of the mass and its wealth of rosy tinted and gracefully curving wreaths, in contrast with the greensward which forms the setting, made this the summer gem of the garden's outdoor beauties."—*Irish Farmers' Gazette*.

. We recently saw the specimen in question, which is about 8 feet in height by 12 feet to 15 feet in diameter, its graceful wreaths of deep rosy flowers being a yard or more in length, the lowermost quite sweeping the turf. Mr. Balfe's note fully bears out what we have ever urged against the "choke-muddle" shrubby border.—ED.

Aster alpinus (the alpine Aster).—"This plant (see p. 533) is very easily grown in any soil." I wish it were so, for it is not only the earliest, but perhaps the handsomest of perennial Asters. I have, however, tried every position I can command and every combination of soil, and have got the plant, both the purple and the white form, from several sources, and yet it is a total failure. It lives, but it never flowers at all. It is not the climate, for it does well a few miles off at

Chester, and, as I said, I have done all I can to please it by modifications of loam, peat, leaf-mould, sand, lime, &c., but it continues to be one of those unaccountable failures in hardy plant cultivation which all gardeners meet with.—C. WOLLEY DOD, *Edge Hall, Malpas*.

THE STANSTEAD PARK BEGONIAS.

THERE is perhaps no class of plants in which such rapid improvement has been made as in the tuberous-rooted Begonias now so popular as garden plants. It seems but yesterday, so to speak, since the parents of the race, viz., *B. boliviensis*, *Veitchi*, *Pearci*, and *roaeflora*, were introduced, and yet the descendants of these species are almost innumerable and so altered in character, that the pure and simple types from which they originally sprang seem to have become lost in obscurity. A visit to Messrs. Laing's Stanstead Park Nursery, Forest Hill, the head-quarters of Begonias in this country, shows how fast the march of improvement is progressing. Here the great speciality at this season is Begonias, which may be seen in enormous quantities—in houses, pits, and frames, as well as in the open ground in thousands. The chief bulk, however, of the flowering specimens, some of which are nearly a yard through, are in one capacious show house, a new span-roofed structure 100 feet long by 20 feet in width, having a broad central stage for the large specimens, and narrower marginal stages for smaller plants. Just now this house presents a brilliant appearance, for each of the hundreds of plants contained therein is profusely furnished with bloom, varying in colour from the purest whites to the deepest crimsons with well-nigh every intermediate shade, besides various tints of yellow. The effect of the crowded stages, too, is considerably enhanced by the long lines of plants in baskets suspended beneath the ridge of the house. These show how suitable some varieties of tuberous Begonias are for hanging in conservatories and greenhouses, or for growing as vase and pedestal plants. The collection here numbers some 200 named varieties, all of which are more or less distinct, either in size of flower, habit of growth, or shade of colour. Every year, however, there is a weeding out of the inferior varieties as new ones are raised to supplant them. For the past two or three years one would have thought that the climax of perfection had been attained as regards these Begonias, but every season seems to bring with it novelties in abundance, surpassing the older varieties in some point or other. This year the novelties in this collection number about half a hundred, and, singularly enough, about two-thirds of these are double-flowered sorts, a fact which seems to indicate that raisers are turning their attention specially to doubles now that such a high degree of perfection has been attained amongst single kinds. Several of these

NEW DOUBLE varieties have been exhibited in London this season, and besides being much admired have been awarded certificates of merit. Of the new doubles in flower we made notes of the following: One of the very finest is Prince of Wales, which has a vigorous constitution and bears enormous flowers, perfectly double, making a compact rosette some 3 inches or 4 inches across, of a vivid crimson colour. A fitting companion to this excellent sort is a double white named Princess of Wales. This is considered to be the best double white yet raised, and unlike the others possesses a strong constitution and is a free flowerer. Canary Bird, with rosetted blooms of a soft canary-yellow, is one of the gems among the doubles, and is unquestionably the best of the very few double yellows yet produced. This was much admired at the first summer show at the Regent's Park. Mrs. Foster is a splendid double of a bright scarlet, and another, called Dr. Duke, is a dangerous rival to the Prince of Wales as regards size and vividness of tint, and, like the Prince, too, it has a fine constitution. The variety named Queen of the Doubles we so much admired last year, and of which we gave a woodcut illustration, is in great beauty,

and though it is surrounded by a crowd of newer kinds, it stands unique as regards the rosebud-like form of the half-expanded blooms, the colour of which is a bright cherry-red. It is also a freer flowerer than many of the doubles. Robin Adair has Camellia-shaped flowers of a glowing carmine-crimson. Achilles, one of the Marie Bouchet type, with saw-edged petals, is a fine acquisition, the flowers being very large and of a bright crimson-red. Davisi fl.-pl. superba is the long name of perhaps the finest of the dwarf growing class, the flowers being very large and of the richest crimson imaginable. It has, moreover, a free-flowering tendency, but does not possess the vigour of the other class. The original double Davisi is a fine variety, a fair substitute for the choicer and rarer form. Other new double varieties of great promise are Sir Garnet, Hercules, Robert Burns, John T. Poë, Diana, Ada, Clarinda, Mrs. Macfarlane, Rosina, Mrs. Ludlam, Lord Beaconsfield, and Agnes Sorrel. These are a few of the newer kinds in the collection, but in praising these there is no need to speak disparagingly of the finest of the older sorts, which are now established favourites, and will probably not be eclipsed. Among these are such as William Bealby, scarlet; Glory of Stanstead, rose, whitish centre; Fulgurant, with distinct deep crimson flowers; Duchesse de Cambaceres, excellent for basket culture; Comtesse Horace de Choiseul, Madame Comesse, Marie Bouchet, and several others of Messrs. Laing's collection of doubles, which numbers upwards of sixty varieties. There is also a large number of unnamed seedlings which daily unfold their new blossoms; and on the day of our visit the advent of an orange-red double seemed a surprise to all.

THE SINGLE VARIETIES show a corresponding improvement, though the number of this season's novelties is not so high as usual. Among pure whites Mrs. Laing has been supplanted by a novelty named Snowflake, now the finest white, though probably it will only maintain that position for a short season from what we learn from Messrs. Laing, whose great aim is to improve the white and yellow sorts. Snowflake has large, bold flowers, fully a third larger than those of Mrs. Laing, and are of purer whiteness and of better form, the petals being rounded and of firm, wax-like texture. It has also an excellent style of growth. Reine Blanche, one of the older whites, is still a favourite on account of its dwarf habit of growth. Alba floribunda, also, is still a good white. Among yellows the greatest acquisition has been Golden Gem, considered to be the finest of its colour yet raised. It is remarkable for its large rounded flowers, which are of a clear chrome-yellow, also for its erect sturdy growth and handsomely mottled foliage. Sulphur Queen is a pretty sort, but the yellow is not of a decided tone. The scarlets, reds, and vermillions predominate among new singles, though there are some admirable pink and rose sorts, notably Marchioness of Bute, which has been so much admired this year at the shows, and so captivated the judges as to induce them to distinguish it by a certificate of merit. If not "magnificent and with immense blooms," as the catalogue has it, it is certainly extremely pretty, and the flowers surpass other sorts of the same colour; in fact, it may be regarded as the best of its colour. Madame Stella is similar, but deeper in tone, and also first-rate; and so is Nymph, which is of a delicate rosy pink, or rather white edged with pink. Lady Brooke is justly classed as extra fine; its colour is somewhat novel, being of a sort of violet-magenta, while the flowers are large and of excellent form. Madame Laing, apparently of Continental origin, is a fine acquisition, the flowers being of bright vermillion and perfect in other points. As regards perfection of habit of growth, Novelty is second to none. It is of dwarf, sturdy growth, and the flowers are very large and of a resplendent orange-scarlet. It was one of the most admired in the fine group of twelve shown at the Regent's Park last week by Messrs. Laing. H. Walter was another splendid sort in the group, and like Novelty, Marchioness of Bute and Mrs. Anson were considered worthy of certificates of merit. Crimson Perfection was finely in bloom, so that we

could well judge of its excellent qualities. It is certainly the perfection of all the bright crimsons, eclipsing even such sorts as Stanstead Rival and Consul Darlington, which have hitherto been considered the best in their colours. Arthur Soames has for a long time been ranked as the finest deep crimson, but this even is surpassed now by Black Douglas, which has very large fine-shaped blooms of an intensely deep crimson. A splendid sort, named in compliment to Mr. Boscawen, is a great favourite wherever it has been exhibited. It has a fine habit of growth, and carries very large flowers of a vivid scarlet. The Czar is remarkable for its rich deep crimson flowers, which, moreover, possess unusual size and good shape. The orange colours, very limited among these Begonias, is best represented by the new Orange Boven, which is a great improvement on any other of the same colour, the flowers being large and round and the colour bright and decided. Among the other kinds in fine flowering condition we made note of the following as being uncommonly fine: Lady Hume Campbell, delicate rose, excellent for growing in hanging baskets or in vases or for pedestals; Magenta Queen, Mrs. Robert Whyte, J. H. Laing, Exoniensis (very fine), Edith Box, Royal Standard, Stanstead Rival, Sir Trevor Lawrence, and Maude Churchill. Among the dwarf Davis race Commodore Foot is one of the finest, and is an exquisite little plant for many purposes for which the larger varieties are not suitable.

OPEN-AIR PLANTS.—There is no better season than the present to see this grand collection of Begonias so far as regards the plants under glass, but in the course of a few weeks there will be a fine display of Begonias in the open air, for, as has been stated, there are several thousands planted out in open borders, chiefly seedling plants for trial. Open-air culture is generally very successful here. Some of the beds, especially those for the choice named varieties, are raised above the level, so as to ensure perfect drainage, and also to enable the soil to become warmed. The soil is rich and friable, and a mulching is usually given in summer. A partially exposed position is selected, usually one which affords the best shelter against high winds from the south-west. These beds present a bright appearance during July, August, and September. For the bulk of the seedlings, which are planted out on a large scale, drills are made in light, rich soil, and the plants placed about a foot asunder, and so left to flower, care being taken, of course, to secure any that give promise of developing into superior varieties. W. G.

NOTES FROM ST. GEORGE'S HILL.

STANDARD RHODODENDRONS.—Some large, handsome specimens bearing hundreds of trusses of bloom, and which stand in conspicuous positions on the Grass in Admiral Egerton's garden, afford ample proof of the value of this showy plant when grown as a standard. There is much variety of form as well as of colour amongst Rhododendrons, scarcely two kinds being identical as regards habit of growth, shape, and hue of foliage, and in no way are these differences so well shown as when the plants are on clear stems and in isolated positions. Crowded together in beds or in shrubberies, this fine evergreen loses much of its individualism, but placed alone, where its outline is fully displayed, and where it has ample breathing space, it forms one of the noblest and most striking ornaments of our gardens. The gardener (Mr. Rose) informs me that the trees above alluded to have been planted about 13 years, and that no special preparation of the soil was made for them, the natural staple being light and poor, a fact which shows that the Rhododendron is of a more accommodating character than is generally supposed.

LITHOSPERMUM PROSTRATUM.—Many of our most beautiful hardy flowers demand much cultural care to bring them to anything like perfection, but here we have one of exceptional beauty whose needs are certainly of the most meagre description. Give it a free soil and an open, sunny situation, and it will increase yearly

in luxuriance and beauty. Growing here in the shrubby borders in light sandy soil are specimens covering a square yard or more of ground and laden with flowers, which in their deep rich tint rival those of the Gentian. The true worth of this hardy flower can only be properly estimated when it counts its existence by years; small specimens do not convey a fair idea of its beauty and decorative value.

WALL ROSES.—Blooming finely on the south front of the house are large specimens of Gloire de Dijon and Céline Forestier, and which for some weeks past, in spite of cold nights and drying winds, have yielded abundance of good flowers. The good qualities of the Gloire de Dijon are too well known to need recapitulation, but those of Céline Forestier have never, I think, been so prominently brought before the notice of your readers as they should be. It is a vigorous, free-flowering Rose, thriving well either as a standard, on a wall, for which, owing to its semi-evergreen character, it is especially well fitted, or under glass. Grown in good rich soil or well fed during the summer, one may always cut a bud from it, and such Roses as these are just what should be cherished, especially by those who have not much space to devote to the queen of flowers. It is not the quantity at one time, but a succession of bloom all through the summer and autumn that is desired by many, and this under liberal culture both Gloire de Dijon and Céline Forestier will give.

CAPE PONDWEED.—This fragrant little aquatic flourishes in a basin in the open air. The plants are grown in pots, which are about a foot under the water; but there is no doubt that where convenience for so doing exists it will grow more strongly planted out. I do not think it requires any great depth of soil, but the roots should be enabled to extend laterally. In any case anyone having a tank, pond, or fountain in the open air may, even at this early season, enjoy the delightful, though powerful, odour of what has been appropriately named the Water Hawthorn.

ORIENTAL POPPIES.—Scattered amongst thinly-planted Rhododendrons are large plants of this gorgeous scarlet Poppy, which, raising its flower-heads above the evergreen foliage, affords a most striking and welcome contrast. They are mostly on a sloping bank, and are thus seen to the greatest advantage; moreover, the position ensures vigour and longevity, for this Poppy certainly likes good drainage; drought it seems to fear but little. Therefore it is a good plant for sandy parching soil, mounds, or banks, associating well with the Wallflower and the Antirrhinum, both them plants which dread cold in combination with stagnant moisture, but which rejoice in the full glare of the summer sun.

EUONYMUS RADICANS.—I am sure your readers would be pleased with the manner in which Mr. Rose has employed this little variegated shrub in the flower garden here. All the flower beds on the lawn are edged with it, and as these edgings have been planted some years they have now developed into miniature walls of foliage, charming by their constant and clear variegation, and the contrast they afford to the green turf and the summer occupants of the parterre. Even the most prejudiced against variegated plants would find a delight in the Euonymus thus employed, and I advise all who wish for variety in the flower garden to make a note of it. Winter and summer it is bright and cheerful looking, perhaps most so when colour and beauty in the pleasure garden are at their lowest ebb—at any rate, relieved from the "embarrassment of riches" which prevails more or less in the summer time, one notes its brightness better when there is little but the varying hues of evergreen foliage to adorn our gardens and attract attention.

COLUMBINES.—Few things have the power to impart informality to a border of hardy flowers better than Columbines, and when, as here, they sow themselves naturally, they add thereto an element of picturesque confusion which must please all who love to see Nature's arrangements imitated in the garden. I always think the time of the Columbines marks, like that of the Daffodils,

a distinct epoch in the season of hardy flowers, and when they die away nothing which comes after can quite take their place. Four long borders running the whole length of the kitchen garden are alive with Columbines just now—a pretty sight, varying as they do so much in colour and even in form. J. C. B.

OBSERVATIONS ON SEED SOWING.*

ALL who have been occupied with plant raising, and especially from exotic seeds, as I have been for about thirty years, must have had their experience often previously tried, and their patience in the end worn out altogether by utter failure. Certain tribes have earned a worse reputation than others in this respect; of these the Ranunculaceæ, as first in botanical arrangement, must have the precedence. So early as the year 1850 I had seeds presented to me by a friend from a lofty mountain range in New Zealand, and therefore certain to prove hardy here; the only name then given me was

THE SHEPHERD'S LILY, which Sir Joseph (then Dr.) Hooker, on being applied to, informed me was Ranunculus Lyalli, one of the finest things in New Zealand. Of course the seeds were sown, and all care bestowed upon them. I gave them ample time, as I thought, to vegetate; but the result was a total failure. Years afterwards I had repeated transmissions of these seeds, and had ultimately the good fortune to receive from a correspondent in Dunedin two living plants, sent, with all care, packed up in a Wardian case; but, like many other rare things so transmitted, the finer fibrous roots had given way from the tubers, no fresh ones were emitted, and after a time both roots died. Subsequently to this I received and repeatedly sowed imported seed, and from these I two or three years ago raised plants, of which I have now two that have stood in the open border for two winters. I have no record of the exact time they took to vegetate; so far as I remember, it was about two years. I was much more precise with the following. On receipt from New Zealand of a fresh supply of very ripe and fresh seeds, I sowed them on February 16, 1878, and they vegetated in April, 1881, after lying upwards of three years. My next successful experiment in this tribe—and that, too, after failures stretching over more than a dozen years—was with a not less rare and striking species, viz.:—

RANUNCULUS GUZMANNI, a species which, so far as I am aware, was never before introduced into this country, or even into Europe. I may therefore be pardoned if I give a short account of it from Weddell's "Chloris Andina." "This Ranunculus," he says, "is as remarkable for its port as for the enormous development of its flower. The flower as shown in my specimen—but I cannot say whether it may not be from the pressure in effecting dessication—was of the exact size of 10½ centimetres in diameter." And in the account he goes on to assert that another flower had been found, which, with its appendages, was of a diameter of 15 centimetres. There appear to be two forms of this R. Guzmanni, one having blooms, yellow streaked with red, and the other with greenish yellow flowers. The seeds from which I raised my plant (for I have only one) is the latter variety. It is found growing in the Cordillera of the Andes of the equator, at the verge and "sometimes in the midst of snow." The seeds of both forms were collected and sent to me by Professor Padre Sodiro, of Quito, in March, 1877; the species from which I have raised the plant being labelled R. Guzmanni, sp. floribus late flavis magnis var. valde rara, mihi reperta. The seeds were sown by me on March 2, 1877, and vegetated in September, 1881, thus taking four years and six months to vegetate. The plant has grown rapidly, and now shows a diameter of 10 inches over the pot it grows in. It is somewhat singular to remark that, while the R. Lyalli found growing in New Zealand at a height of 6000 feet or 7000 feet should take three and a-half years to vegetate,

* A paper read before the Scottish Horticultural Association by Mr. Isaac Anderson-Henry.

this species of *R. Guzmanii*, found on the Andes at 13,000 feet, should take four and a half years to vegetate. Can the elevations and severity of the climate from which they respectively come account for the differences in the periods of their vegetation? I have still another instance of obstinate vegetation in this genus to offer. I had from Dr. Curl, of Wellington, Northern Island of New Zealand, seeds of a species got, I believe, from the mountain ranges, which I sowed on January 29, 1878. It vegetated in September, 1881, thus having lain dormant for three and a half years. Having got it without name, I can say nothing about its character, but the foliage is distinct and peculiar. The seeds were small, but the seeds of *R. Guzmanii* were not large. On looking at authorities, I find that several species are found at above 13,000 feet on the same Cordillera, *eg.*, *R. nubigenus*, *R. premorsus*, *R. Raimondi*, some of which it resembles in the descriptions given, though I cannot vouch for it being either. After the *Ranunculaceæ* some, not all, of

THE *PRIMULACEÆ* claim attention for their slowness to vegetate. Many gardeners are now familiar with the obduracy of the seeds of *Primula japonica*, which rarely stir till they have lain for a whole year. This, it will be remembered, is a species having a whorled scape. It is a crimson flowered plant, but I have a white variety with a pink eye, by far the handsomer of the two. I have just got seeds through a friend in Germany from "the Orient," with the name of *Primula Teaskeana*, said to be one of the finest of the tribe, also a whorled species which likewise takes a year to come up. Whether *Primula purpurea* of Royle, also a whorl-stemmed species, takes the same time to germinate, I am not aware. It is for the ingenious inquirer to find out the cause or *rationale* of this peculiarity in this verticillate form. It looks, then, as if the plants having whorled stems in the *Primulaceæ* are slow to vegetate. May it not be worth enquiry whether this habit so manifests itself in other genera having whorled stems?

THE *GENTIANACEÆ* are also proverbially slow—at least such has been my experience among imported species, of which many years ago I had seeds of some of the finest kinds of the genus from the Andes. And among these I had seeds of one lovely species, which I was most anxious to succeed with. This was *Gentiana Jamesoni*, named in compliment to my correspondent, Professor Jameson, of Quito; and it, too, was a verticillate species with an umbel of scarlet bells at the top. There is another species which I never possessed, by name *Gentiana verticillata*, whose seeds might form a good test. I can speak no further from my own experience, but I would earnestly suggest to those willing to make the experiment to make trial of seeds of any verticillated plants they may possess to find how far the same characteristic holds. It may be further tested by sowing the ripe seeds of the several whorls separately, for some of these may take longer and some a shorter period to germinate. I might here go into a long list of exotic things, especially of those sent to me from

THE ANDES OF QUITO, in raising which I wholly failed, greatly owing to their intractability in vegetating, of which I may particularise the following as yet well worth collecting and transmitting to this country: (1) Various *Castillejas*; (2) various *Thibaudias*, including the allied *Macleanias*; (3) many *Calceolarias*, which, with fresh seeds, are manageable, but with not a few of which I did succeed; (4) *Chuquiraga insignis*; (5) many *Gentians*, especially *G. Jamesoni*, already referred to; *G. sedifolia*, one of the gems of the genus; *G. rupicola*, &c., to which may be added *G. cernua*, having yellow flowers, striated with red; and *G. gracilis*, having a white corolla streaked with violet lines. Another gem, of which I had seeds sent me repeatedly from the same lofty Andes, was (6) *Ecceomocarpus longiflorus*. The seeds were not unlike those of *Calampelis scaber*; but though I kept them sown for years I did not raise one. It is a beautiful flower, and from its great elevation of 12,000 feet it cannot fail to be hardy. The

flower is tubular, about 3 inches long, half-inch thick, and orange coloured; (7) *Sidapichinchensis*, which, from its dwarf habit, its lovely blue flowers, and its station at a height of from 14,000 feet to 15,000 feet on the Cordillera, is one of the most desirable of alpine. I got and sowed it repeatedly, and the same with *Sida phyllanthus*, another beauty; but I also failed with it. But I must pass over numerous failures with seeds of rare plants which I had from the same favoured ranges of the Andes, to notice two of the grandest things remaining yet to be recovered from that region, namely,

TACSONIA JAMESONI and *Tacsonia Mariæ*. About the first I had some correspondence with Dr. Masters, who urged me to inquire after it, with a view, if possible, to recover it. After some correspondence, I did succeed in finding out the only locality where it ever had been found. It has a bold and a very grand flower, unlike any other ever known in the genus. Dr. Masters sent me a sketch of it from a dried specimen, which showed that it amply deserved the high encomium he paid it. But my correspondent, who went to the forest, found only one plant, and failed to get a sound seed from it, the seed having been destroyed by insects. *Tacsonia Mariæ* is a not less notable species, and perhaps in its native state the loveliest of its tribe, the flowers, unlike any yet shown in this country, specific or hybrid, being large and of the intensest blue. I have before me a Latin description, one page and a-half of print, drawn up by my correspondent, for some time professor of botany in Quito, who being also a priest, dedicated the plant to the Virgin Mary, whose name it bears. Of neither of these plants did I ever receive seeds. A revolution breaking out in the State, my correspondent, Padre Sodiro, was obliged to quit his professorship and pursuit after plants, and confine himself to his religious avocations. All these Andean plants, above enumerated, being of interesting character, beautiful in species, and for the most part hardy, are well worth being yet sought after and introduced into this country, which none of them, so far as I know, have yet reached alive. I have yet said nothing on

HOW TO SOW THE SEED, though this is a very important thing. A third of fine loam, a third of peat, and a third of silver sand, with a little of pulverised leaf-mould, make a good compost. Drain and fill your pot, and when full to a quarter of an inch press down with a flat-bottomed tin to make a smooth surface; then if your seeds be small, say of *Begonias*, *Heaths*, or the like, sift with a fine wire sieve a little sandy compost, on which sow your fine seeds, and then, without covering them, press down with your smooth-bottomed tin; you will find by the pressure they will be sufficiently covered. Larger seeds, such as *Delphiniums*, *Columbines*, or the like, may be covered by the wire sieve, as before, then smoothed by the tin. In watering I would recommend you to use only boiled water, for if you use such water as we are supplied with in Edinburgh, or even run water from roofs, you will find that if your seeds be long before they grow the pots will be covered with *Liverwort* before six months are run, which the growth of small seeds, or even pretty large ones, cannot penetrate. For my own part most seeds come better away under a higher temperature than that in which they subsequently grow, but once sprung, remove temperate things to more temperate quarters, and in genial summer weather an open frame, exposed to the rains and dews of heaven, is the best place for them; indeed, I have had hopeless things housed and so exposed for summer after summer. Some of the things above noticed, which took years to vegetate, were so exposed. There is yet a class of plants I have frequently had no little trouble and sometimes total failure to raise from seeds, namely, hybrids among various tribes. Among these I have had large experience, and over many years, especially in the case of

RHODODENDRONS, *Gentians*, *Campanulas*, *Silenes*, *Aquilegias*, &c. Many years ago I was especially induced to cross *Rhododendrons* with

Indian *Azaleas*, at all times a difficult cross. However, when the grand species of *Rhododendron*, *R. Aucklandi*, became known, I attempted and did succeed in crossing an Indian *Azalea* with its pollen, and though I allowed ample time, as I believed, to ripen, I found, to my disgust, when I had pulled the seed capsules, the seeds, though plump, were still green; yet hopeful, after drying them, that some would come, not one seed ever did. This taught experience, and experience hope, and I ever after gave all hybrid things more than the usual time for ripening normal seeds. But we must not stop here, but liberally extend the time for hybrid seeds when fully ripe for coming up. I found this especially necessary among the *Campanulaceæ*, which, among crosses of the smaller forms, such as *Waldsteini*, *pulla*, and the like, would take very frequently two years and more.

PLANTS IN FLOWER.

CYTISUS DECUMBENS.—This very small alpine species comes to us in flower from the York Nurseries. It is an interesting plant, but possesses no charm of form or colour which would make it valuable for gardeners. The colour is a poor lemon-yellow, and yet it may have a certain beauty trailing over rocks. It is a native of North Italy.

A WHITE-FLOWERED *CEREUS* has been sent to us by Messrs. Dicksons & Co., from their Pilrig Park Nurseries, Edinburgh, and is said to be a seedling. It has very large flowers, with numerous narrow creamy white petals, and very handsome. It much resembles *Phyllocactus crenatus*, and indeed may be a seedling form of that species.

SOLANUM CRISPUM.—Some flowering sprays of this beautiful old half-hardy Chilean plant have been sent to us by Mr. Fuller, Meadfoot Lodge, Torquay, who states that they were gathered from a fine specimen some 20 feet in height, now full of blossom. The flowers, which are produced in dense clusters, are purple, with a yellow tuft of stamens in the centre. Their perfume is similar to that of Violet blossoms. This *Solanum* is an admirable plant for wall culture in the warmer parts of the country, and is even worth a place in a greenhouse.

PINK NAPOLEON III. is one of the best mule varieties that has yet been raised. It is hardy and an abundant flowerer, the colour, a glowing rich crimson, being very effective when seen *en masse*, as in the Pilrig Park Nursery, Edinburgh, from which we have received some excellent flowers of it, as well as of another of a pleasing pale pink colour, also said to be a hardy free growing sort.

ELEOCARPUS DENTATUS.—A flowering twig of this pretty greenhouse shrub, sent to us by Mr. Bedford, the gardener at Straffan, shows how finely it grows under glass in Kildare; we have never seen such densely flowered specimens. The small, white, bell-like flowers, exquisitely fringed at the rims, are very elegant, and they hang in graceful profusion in axillary racemes about 3 inches in length. The leaves are of leathery texture, lance shaped, and obscurely toothed at the edges. We shall shortly give a plate of this shrub in THE GARDEN.

THE WHITE RAMANAS ROSE of Japan is again in bloom, flowers of it having been sent to us from Edinburgh by Messrs. Dicksons & Co., who grow it successfully in the open air in their Pilrig Park Nursery. The pure white cup-like blossoms, with their tufts of yellow stamens in the centre, together with the handsome wrinkled foliage, combine to make it a charming garden plant. This white form of *Rosa rugosa* seems far less common than the typical purplish pink flowered sort.

ORIENTAL POPPIES.—Among some flowers sent by Mr. Green from Sir George Macleay's garden at Pendell Court, Bletchingley, are some distinct varieties of *Papaver orientale*, which are used with fine effect in the pleasure grounds there. In one part there is now a group some 10 yards square, and as the plants are all in bloom, the effect of

such a brilliant mass of colour may be better imagined than described. A variety with enormous flowers sent by Mr. Green as *P. involucratum maximum* is apparently synonymous with that known at Kew as *P. orientale majus*. The variety bracteatum may be distinguished at a glance by the cherry-red, not orange-scarlet, colour of the blossoms. Mr. Green also sends a double or rather semi-double variety of *P. orientale*, which is quite new to us. It is a highly effective sort, as the flowers are more massive and do not fall to pieces so soon as those of the type.

THE DOUBLE WHITE SCOTCH ROCKET, when well grown, is truly a handsome hardy plant. Finely developed specimens bear tall branching stems densely furnished with pure white rosetted blossoms emitting a strong perfume. Examples of this Rocket have been sent to us from the Pilrig Park Nurseries, Edinburgh, where it is evidently grown to perfection. Those who do not possess the true double white Scotch Rocket should by all means make its acquaintance.

THE ALPINE ROSES, as the dwarf European Rhododendrons are called, are pretty plants in large rock gardens just now. Their dwarf dense growth admirably fits them for planting amidst bold masses of rock, and all the better if placed so that they may fall over the ledges, thus showing off to good advantage their charming flowers. Messrs. Dicksons & Co. send us from their Edinburgh Nurseries some excellent specimens of the Myrtle-leaved kind (*R. myrtifolium*) and of *R. lancifolium*, both with clusters of deep rosy blossoms.

LILIUM SZOVITZIANUM.—One of the finest of all the early summer Lilies is now beautifully in flower about London, and we are reminded of its beauty by some fine specimens of it received from the New Plant and Bulb Company, Colchester, by whom Lilies have so long been made a speciality. This Lily differs from its near neighbour *L. colchicum* in having the inside of the turban-shaped blooms copiously spotted with black on a canary-yellow ground. Though so handsome in the garden, when cut these Lilies are unfit for indoor decoration on account of their strong and disagreeable odour.

PANSIES FROM HAWICK.—Scotch grown Pansies are proverbially finer than those of southern growth, a fact fully borne out by an extremely fine gathering of blooms from Mr. Forbes' nursery, at Hawick, in which the Pansy seems to flourish to perfection; never have we seen such beautiful Pansies in the south in the middle of June as those to which we now allude. Mr. Forbes seems to possess an endless number of named sorts, representing an infinite variety of colour. All are large and of what florists call fine form, some of the selfs and margined flowers being particularly noteworthy.

SAXIFRAGA PROPAGENA, though not a showy, is an interesting plant, on account of its peculiar mode of reproduction, which is by means of little buds borne on the slender branching stems seemingly in lieu of flowers. These buds are tiny rosettes of leaves, which, when detached from the plant, take root at their bases, and in this way the plant is propagated. The flowers, which are small, somewhat resemble those of the common London Pride (*Saxifraga umbrosa*). Messrs. Dicksons, of the Pilrig Park Nurseries, send us specimens of this interesting little plant.

THE ROSE ACACIA (*Robinia hispida*) is now the most beautiful of all hardy trees in flower; indeed, there is no other known to us which possesses such a combination of elegant growth and profusion of lovely blossoms; yet, for all that, it is seldom that we meet with good specimens of it in private gardens. It forms a low spreading tree with pendulous branches, at this season laden with long racemes of blossoms which hang gracefully from the undersides of the shoots. The flowers are about the size and shape of those of the garden Pea and are of a lovely rose-pink colour, which, in harmony with the fresh green foliage, has a pretty effect. It would be difficult to name a more valuable dwarf tree than this to

adorn a lawn or open shrubbery. It is perfectly hardy, but often being grafted on stocks of the common Locust Tree (*R. Pseudacacia*), it is liable to be damaged by high winds, the stem being frequently snapped asunder at the point of union. It forms at the present time quite a picture in Mr. Stevens' garden at Byfleet, and in the arboretum at Kew there are some very fine specimens of it, notably one on a rising knoll not far from the flagstaff.

TROPEOLUM POLYPHYLLUM is a plant particularly well suited for clothing a sunny bank of sandy, loamy soil, in which it thrives to perfection, and in such a position its long wreaths of golden blossoms intermingled with glaucous grey foliage are shown off to good advantage. It is now in full flower in London gardens, notably in the Hale Farm Nurseries, Tottenham, where it has taken up its position on an open bank and become thoroughly established, fearing neither heat nor cold, wet nor drought. Some long flower-stems of it are sent by the New Plant and Bulb Company, Colchester, which show well its usefulness when cut for vase decoration.

LONICERA SEMPERVIRENS MINOR, one of the North American Honeysuckles, is one of the prettiest twiners one can have in a cool greenhouse, and it is not only bright in colour, but almost a perpetual flowerer. For cutting, too, its slender twigs are invaluable, as each bears a cluster of bright orange-scarlet flowers, which have a pretty effect in vases. It is, moreover, an easy plant to manage, and is rarely so subject to insect pests as most other greenhouse climbers are. Some excellent sprays of it have been sent to us by Messrs. Dicksons & Co., Waterloo Place, Edinburgh, who state that it succeeds admirably in their nurseries under the protection of a cold pit.

THE OLD DOUBLE WHITE ROCKET when grown in such perfection as it is by Mr. John Gray, of Eglinton Castle, is indeed a most valuable hardy plant; a plentiful gathering of its flower-spikes testify to his skilful treatment of it, being much finer than any we have seen elsewhere this season. They are widely branched at their bases, and the main shoots are as massive and densely set with white rosette-like blossoms as those of a Hyacinth. Their perfume, too, is delicious, though perhaps rather too overpowering in a room. We sometimes hear that the true old double Rocket has nearly dropped out of cultivation, but it is evident that it still flourishes in northern gardens.

THE WHITE WEIGELA (*W. hortensis nivea*) is the most chastely beautiful of the host of varieties of Chinese Weigelas in gardens, and we are forcibly reminded of its beauty by a branch of it which has been brought to us by Mr. Joseph Stevens from his garden at Byfleet. It is nearly a yard in length, and the whole branch is profusely hung with snow-white blossoms, making a charming wreath. It is among the loveliest of all shrubs now in flower, but it is only to be met with in good collections. It is a robust grower, and soon makes a large specimen in good soil and with plenty of room to develop. It is distinct from any of the other varieties of Weigela, the leaves being of a paler green, broader, and more wrinkled. There is no chance of mistaking it even when out of flower.

VERBASCUM OLYMPICUM.—A gigantic candelabrum-like spike of the Olympian Mullein, from Professor Foster's garden at Shelford, Cambridge, has been brought to us by Mr. Peter Barr. The length of the stem is $5\frac{1}{2}$ feet, and from two-thirds of this length numerous branches are given off, varying in length from 1 foot to $1\frac{1}{2}$ feet. These, like the main shoot, are densely covered with blossoms and buds, the former an inch or more across, and clear bright yellow. The large leaves which clothe the lower part of the stem are coated on their upper surfaces with a white, mealy substance as in *V. pulverulentum*. These tall-growing Mulleins well placed in a garden are noble objects in early summer, being not only bright in colour, but stately in growth—quite pyramids of bloom. Most of them are, however, unfortunately only of biennial duration, and require to be raised yearly

from seed in order to keep up a stock of flowering specimens.

LITHOSPERMUM PETRÆUM is a neat little bush, having narrow hoary foliage and small clusters of deep blue blossoms, with just a faint tinge of reddish purple upon them. It is a pretty plant for the rock garden, and we have never seen a finer example of it than that in the new rock garden at Kew, where it is grown admirably in an exposed position.

A WHITE PANSY OR VIOLA from Mr. Gray, of Eglinton Castle, Scotland, is one of the prettiest flowers we have turned out of a box for some time. Its soft white blossoms are so delicate in tone, and the form of the flower so elegant, that we are inclined to think it the finest light Pansy we have ever seen. It measures over 2 inches across the flower, and though the outline will not fit in the florist's circle, its form is what an artist would call good. Of its effect in the open air in beds or groups we cannot speak, but as a cut flower it is indeed a gain, a simple delf basket of it alone excellent.

BOMAREA CALDASIANA.—This beautiful greenhouse plant—best compared with a climbing Alstroemeria—is one of the most noteworthy plants in flower at Kew. A large plant of it covering a large space of one of the ends of the Cactus house—the coolest end—is carrying several of its large dense drooping clusters of orange and red spotted flowers, which are highly attractive. Planted out in a bed of good soil, these greenhouse Bomareas are of easy culture, and Caldasiana never fails to yield a good crop of bloom every summer. It was figured in THE GARDEN, Vol. XX., p. 138.

ROBINIA PSEUDACACIA DECAISNEANA is the prettiest variety of the the False Acacia, or Locust Tree, we have in gardens. Instead of being white, as in the type, the dense drooping clusters of flowers are of a pleasing rosy pink colour. At Kew there is a finely grown specimen of it near the No. 1 Museum, and viewed against a background of dense foliage, its prettily tinted racemes, which hang in profusion from top to bottom of the tree, have an extremely pretty effect. Some excellent flowering branches of it, too, have been brought to us by Mr. Stevens in company with some other forms of the False Acacia.

A NEW ARROWHEAD from Chili named Sagittaria montevidensis may now be seen in flower in the Water Lily house (opposite the Palm house) at Kew. Its growth resembles that of our native species, and the leaves are of the same characteristic Arrowhead shape, but larger. The flower-spikes, which are erect, overtop the foliage, and bear whorls of large cup-shaped flowers, the petals of which are creamy white with a blotch of purple at the base of each, and edged with a ring of rich yellow. It is a pretty aquatic plant, and possibly may be hardy. It was, we understand, sent by Mr. Ball from Chili.

HYBRID VIOLAS.—From Dr. Stuart, Hillside Cottage, Chirnside, we have received some uncommonly pretty hybrid Violas of the cornuta race. There are four varieties, all of which are distinct and beautiful, and all have flowers about the size of small Pansies. Their names are Cream of the Valley, sulphur-yellow with an orange centre; Eyebright, the prettiest of all, the colour being rich velvety purple with a creamy white centre; Marmorata, prettily mottled and flaked with white on a violet-purple ground. There is also another of a soft white, with an orange centre pencilled with black in ray-like streaks. The Almond-like perfume of these Violas is not their least desirable quality. Though we have no means at hand of comparing Dr. Stuart's productions with older sorts, we are satisfied that he possesses some really beautiful seedlings.

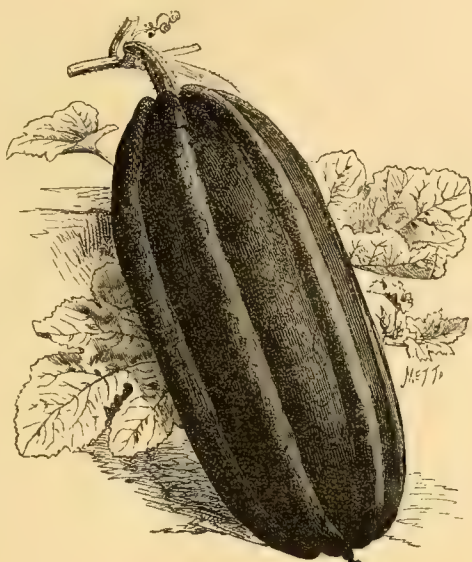
Dear Strawberries.—In Covent Garden last week (June 14) was witnessed what is seldom seen in this country—a sale of Strawberries from the open air at 12s. a pound! We believe there has been no other example of open-air fruit selling at so high a price.

GOURDS AND THEIR CULTURE.

THE first record we have of any of the Gourd tribe being grown in this country occurs in 1370, when the coarsest form of the Pompion or Pump-

sent it would appear as if there was no country in which they are so little valued as they are in this. In America, France, and in fact all over the Continent, they are extensively cultivated as articles

ing collection of grafted Gourds in which fruits of diverse colours and forms were grown on the same plant. At one time scooped-out Gourds were used in the East as jugs and pitchers, and also as vessels



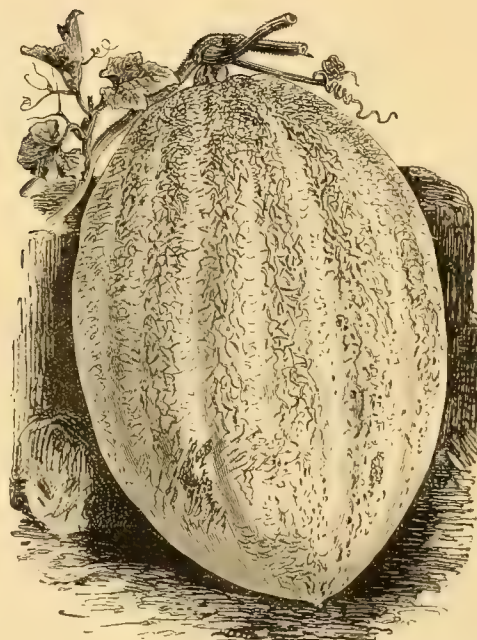
Patagonian Squash.



Bonneuil large white Cucumber.



Honfleur Melon.



Valparaíso Gourd.

kin was introduced from the Levant. In Gerard's "Herbal" (1636) it is stated, "There be divers sorts of Gourds, some wild, others tame for the garden; some bearing fruit like unto a bottle, others longer and bigger at the end, keeping no certain fashion." This is still their character, and the interest which was taken in the family so long ago might well be renewed now; but at the pre-

of food and objects of interest. Annually, in autumn, there is an ancient and imposing ceremony in the Paris vegetable markets, when all the largest Pumpkins obtainable compete for the honour of being chosen king, and the biggest is decorated with a paper crown and carried round the markets. Some years ago M. Gaillard exhibited before the Central Horticultural Society of France an interest-

for holding wine. In his natural history of Barbadoes, the Rev. Mr. Griffith states that some of the Pumpkins grown there were large enough to contain 22 gallons of liquor. In English gardens some of the largest have weighed 200 pounds. Many more interesting facts might be recorded in connection with these plants, but probably a few practical notes bearing on their culture will be

more acceptable to your readers. The varieties of Gourds are very numerous, and may be included under three headings, viz., the Pumpkin (*Cucurbita Pepo*), the Squash (*C. Meloepo*), and the Vegetable Marrow (*C. succada*). The Vegetable Marrow was introduced into this country from Persia about the year 1700, and is the best known and most extensively grown of the whole family. As in the case of many other subjects, the original type has been greatly improved by hybridisers, and there are now some very choice sorts obtainable. The Squash finds more favour in America than in this country. A general collection of the whole should be grown by all who can find accommodation for them. Both ornamental and useful varieties should be included, and those here named and illustrated are types of the most valuable.

All seedsmen do not keep a full collection of Gourds, some only giving prominence to such as the Hundredweight, but others offer selected varieties, and it is these we would advise beginners to purchase and grow. Packets of seed, containing a mixture of many kinds, are generally cheap, and some curiosities may result from them, but mixed packets are never so satisfactory as small packets of distinct sorts.

PROPAGATION.—The plants are raised from seed. This may be sown at any time from February until May. Sometimes we have sown single seeds in small pots, and in other instances six or eight seeds have been put into a 6-inch pot. The first plan is the best, as the plants can then be potted on and shifted forward without disturbing the roots. The soil most suitable for sowing the seed in consists of loam and leaf-mould mixed in equal parts, with a little sand added. A few leaves put at the bottom of the pots answer as well as crocks for drainage at first. All the pots should be filled up, and then a small hole may be made in the centre of each with the forefinger, and into this drop the seed and cover up moderately firm. The pots should then be placed in a frame or pit where the temperature is about 60° or 65°, and here the young plants will speedily appear. When they first come up, the stems and roots are very tender, and a superabundance of water or a cold draught will often cause them to perish, and until the first rough leaves have been well formed, these injurious conditions must be avoided. A gentle bottom-heat makes the seeds germinate sooner, especially early in the season, but good plants may be raised without the aid of this. In the seed pot they should be grown as dwarf and stubby as possible, and in order that this condition may be secured they should be kept very near the glass, and on all favourable opportunities fresh air should be admitted. Although it is generally advisable to raise the seedlings in a house or Cucumber pit if they are wanted early in the season, yet, during April and May, a frame is one of the most suitable places in which young plants can be prepared for turning out in the open air. As soon as a few rough leaves have been formed, and the small pots are filled with roots, the plants should be transferred to larger pots. As a rule, 6-inch pots are large enough to grow them in until they are planted out. The pots should be well drained, and decayed manure may take the place of the leaf-soil. By the time the plants are large enough to be attended to in this way the stems will be of some length, and each of them should have the support of a stake. They are rather brittle, and if allowed to bend over may be broken off or severely checked in growth.

POSITIONS.—Gourds are sun-loving subjects, and luxuriate in warm spots. Cold, damp soils are unsuitable for their roots, and shade and cold windy draughts check the development of leaves and fruit; but there are situations in most gardens in which they may be grown to the highest state of perfection. Their squatty or scandent habits adapt them for adorning ugly mounds, or draping bare trellises, arbours, verandahs, or any place which it is desired to embellish with luxuriant leaves and diversified forms of grotesque fruits. The more varieties which can be grown the better, as

they differ so much from each other, especially in the shape of the fruits, and a good collection of them possesses a large amount of interest. It is too frequently the case that Gourds, like Vegetable Marrows, are grown in odd corners or on the tops of manure heaps, where their attractions are hidden and their crops lost. It is often necessary to conceal places of this kind, but this might be done with something less ornamental than the Gourd, and if a few of those who have opportunities of growing them would only give them a place in their dressed grounds and let them be seen in connection with the choicest forms of vegetation, the value of Gourds as decorative subjects would soon be generally recognised. Pleasure-grounds and not kitchen gardens are the right places for them. In planting them anywhere stiff soils and wet spots must be avoided. Where the soil is not naturally light and rich stations should be prepared for them, and in doing this we would always put a barrow-load or two of rough stones at the bottom of the mounds on which they are to be grown, as this insures the roots being kept in a sweet, healthy state. Each plant should have at least two barrow-loads of soil to grow in, and this should consist of three parts light loam and one of half-decayed manure. The smaller fruited varieties might have less soil than this, but where space will admit of it, they need not be too much restricted, as their greatest attractions only develop themselves under liberal treatment. When they are turned out of the pots to be planted, the balls of soil and roots which are attached to each should not be disturbed, and after planting they should be thoroughly watered. As soon as they begin to grow they must be looked at frequently to tie the shoots to some kind of support, and when the fruits form, should the larger-sized ones be those of the climbing kinds, the fruit must be tied in nets or have something put under them to prevent them from falling off. During warm weather large quantities of water must be given them, and any plants bearing very heavy crops of fruit will be benefited by liquid manure. Where the main object is to secure big fruits, a large mound of rich soil may be given them, and plenty of liquid is necessary to mature those monstrous fruits which we sometimes see in seedsmen's windows. Some of those we have known to attain a weight of 200 lbs, but while such are astonishing, they are not so interesting as the smaller varied and richly coloured fruits. Occasionally the fruits of some varieties are shy in forming, and when this is observed they can generally be fixed by fertilising the female flowers with the male blossoms. Besides being ornamental in leaf and fruit, many of the Gourds are valuable and delicious vegetables, but their uses in this way appear to be but little understood. According to many authorities in bygone days, they must have been looked on as a staple article of food, and they might still be utilised in this way. If used when young and tender they are equally good as any Vegetable Marrow, and all of them may be cooked in the same way. When the fruits are allowed to ripen, they may be gathered before frost has injured them, and preserved for use throughout the winter. We have frequently kept them in the fruit room throughout the winter, but when they are kept until the new crop comes in they require to be stored in a dry place, suspended in a net. In some seasons, when fruit for preserving has been scarce, Vegetable Marrows have been recommended as a substitute for making jam, and Gourds may also be used for this purpose, especially the Sicilian or Citron variety.—J. MUIR, *Margam, Taibach*.

The following descriptive account and illustrations are taken from *Les Plantes Potagères*:—

WAX GOURD (*Benincasa cerifera*).—Native of India and China. Annual.—A creeping plant which spreads over the ground like a Cucumber plant, with slender sharply 5-angled stems from 4½ feet to 6 feet in length; leaves large, slightly hairy, rounded heart-shaped, and sometimes with three or five faintly marked lobes. Flowers, axillary, yellow, with five divisions, which reach almost to

the base of the corolla, broadly cup-shaped, 2 inches or more in diameter. Calyx reflexed, pretty large, often petaloid. Fruit oblong, cylindrical, very hairy up to about the time of ripening, when it attains the length of from 14 inches to 16 inches, with a diameter of 4 inches or 5 inches. It is then covered with a kind of whitish flower or bloom, like that which occurs on Plums, but much whiter and more abundant, and constituting a true vegetable wax. Seeds, flat, grayish, truncated, numbering about 21 to the gramme (15 grains), and 300 to the litre (about 1½ pints). Its germinating power lasts for ten years.

Culture.—Similar to that employed in the case of other Gourds.

Uses.—The fruit is used like other Gourds. The flesh of it is extremely light, slightly floury, and intermediate between that of the Gourd and the Cucumber. It will keep pretty far into the winter.

VALPARAISO GOURD.—A plant with trailing stems 15 feet to 18 feet long. Leaves entire, slightly elongated, toothed, spiny on the edges, of a clear green colour, sometimes greyish, white on the upper surface. Fruit oblong, narrower at the two ends, from 16 inches to 20 inches long, with a diameter of 12 inches to 14 inches in its thickest part, somewhat lemon-shaped, ribs absent or hardly indicated, skin of a slightly greyish white, furrowed when ripe with a very large number of small cracks like fine tracery. Flesh yellowish orange, sweet and tender. A plant, unless it is an exceptionally strong one, should not be allowed to carry more than two fruit, as these often weigh from twenty-seven pounds to thirty-four pounds each, and even more. The fruit does not keep well.

CANADA CROOK-NECK GOURD.—This pretty little Gourd is closely allied to the early Carpet-bag Gourd, but differs from it chiefly in having the portion of the fruit which is next the stalk completely filled with flesh, as in the Naples Carpet-bag, and usually curved like the neck of a swan, in which respect it resembles the Siphon Gourd. It possesses the good qualities of earliness and excellent flavour, and also keeps well. The plant is of small size, the stems seldom exceeding 5 feet or 6 feet in length; it is therefore well adapted for gardens of moderate extent.

PATAGONIAN SQUASH.—A plant with very long running stems, and large, lobed, deep green leaves. Fruit from 12 inches to 20 inches long, and from 6 inches to 8 inches across, traversed from end to end by five very regular ribs, which form a kind of prominent rounded fluting; skin smooth, of an extremely dark green, almost black, a colour which it retains after ripening. Flesh yellow, of medium quality. This variety is remarkable for its hardness and productiveness.

EARLY BUSH OR SUMMER CROOK-NECK GOURD.—This plant is not a climber or trailer, but forms a tuft like the Elector's Cap Gourd. Leaves of a clear green, large, toothed at the edges, and more or less divided into three or five rather pointed lobes. Fruit of a very bright orange colour, elongated, covered with numerous rounded excrescences, narrowed, and most usually curved in the part next the stalk, and swollen at the other extremity, which, however, always terminates in a point. This variety is not a good one for table use; it is chiefly grown for ornament, like the fancy Gourds. From the hardness of its skin, the fruit is easily kept through the whole winter, and never loses the fine orange colour which distinguishes it.

BONNEUIL LARGE WHITE CUCUMBER.—This Cucumber, which is almost always grown in the open air, is quite distinct from all other varieties. The fruit, instead of being almost regularly cylindrical, is ovoid in shape, swollen about the middle, and, moreover, very perceptibly flattened from end to end in three or four places, producing the same number of angles more or less rounded. It is very large, readily attaining the weight of 4½ pounds. Like the fruit of the Early White Cucumber, it is at first of a pale green colour, and whitens gradually as it increases in size. This

is the Cucumber which is most generally grown about Paris for the perfumers, who use large quantities of it in their manufactures.

SMALL RUSSIAN CUCUMBER.—A truly miniature Cucumber, with a slender stem from 20 inches to 24 inches long, and small bright green leaves. It is readily grown in a frame, each plant producing from six to eight fruit, which are short, ovoid,



Small Russian Cucumber.

yellow, smooth, and a little larger than a hen's egg. This kind, which is the earliest of all, ripens fully in less than three months, and does not require any stopping. The flesh of the fruit has little density and is slightly bitter, but its remarkable earliness makes some amends for these trifling defects. In Russia there are many varieties of it, the earliest of which, generally producing but one fruit to each plant, is said to complete its entire growth in ten or eleven weeks.

GREEN-FLESHED SUGAR MELON.—A vigorous plant, with long branching stems, and very large, flat leaves, which are hardly ever toothed. Fruit oblong, contracted at the two ends, of a pale green colour, finely netted when ripe, and also bearing a number of excrescences of a pointed shape, ribs well marked, but not very prominent. Flesh pale green, extremely melting and sweet. The length of the fruit varies from about 8 inches to 10 inches, with a diameter of 4 inches to 6 inches. It usually weighs from about 4½ lbs. to nearly 7 lbs. Two or even three fruit may be grown on each plant. This is especially a summer Melon, and only attains its full quality in very warm weather. It should therefore be grown in such a manner that the fruit may ripen during the month of August or early in September.

FLAT CORSICAN GOURD.—A remarkably distinct variety, with rounded and very flat fruit, like that



Flat Corsican Gourd.

of the Yokohama Gourd, but quite smooth and without ribs. It is from 6 inches to 8 inches in diameter and 3 inches or 4 inches thick.

YELLOW DUTCH CUCUMBER.—A usually branching plant with very slender stems and clear green

leaves with well marked angles. Fruit slender, longer in shape and later in ripening than that of the Russian Cucumber, but, nevertheless, well adapted for forcing. The colour is at first a yellowish green, but changes to pale orange-yellow when the fruit is quite ripe. There are seldom more than two or three fruit to each plant.

LARGE NETTED HONFLEUR MELON.—A very vigorous plant, with very branching, long, and remarkably slender stems. Leaves large, undulated at the margin, of a very light green colour, usually distinctly lobed, toothed on the entire circumference, and particularly so towards the extremity. The flowering is very continuous, and is prolonged on the branches even until after the fruit which were first set have reached their full size. Fruit very large, elongated, with well-marked ribs, and finely netted over the entire surface, taking when ripe a yellowish colour with a slight salmon tinge. It is often 14 inches to 16 inches long, and 8 inches to 10 inches across. When well grown the quality is excellent; it is latish in ripening. This and the Black Portugal Cantaloupe are the largest of all cultivated Melons. The variety is equally remarkable for its very great hardness.

BOTTLE GOURD.—Fruit contracted towards the middle, and presenting two unequal divisions, of which the lower one is larger and broader than the other, and often flattened at the base so as to allow the fruit to rest firmly upon it; the upper di-



Bottle Gourd.

vision, next the stalk, is almost spherical. There are some varieties of this Gourd, all of which bear fruit of nearly the same shape, but of extremely variable dimensions, some of them being nearly 20 inches long, and capable of containing at least 2 gallons, while others are hardly more than 5 inches or 6 inches in length, with a capacity of less than a pint, and they are found of all sizes between these extremes.

YOKOHAMA GOURD.—A Japanese variety of *Cucurbita moschata*, of very rampant habit, and somewhat late in ripening. Fruit flattened in shape, especially at the portion surrounding the eye, generally twice as broad as long, sometimes even more so; of a very dark green, with irregularly formed ribs, and the surface indented and wrinkled like that of the Prescott Cantaloupe Melon. It is identical with the *Cucurbita meloniformis* of M. Carrière, described in the *Revue Horticole* for April 1, 1880, and November 16, 1880.

In addition to the above, the following varieties of Gourds include some of the best in cultivation: Grand Mogul, Sicilian, Pasha of Egypt, Elector's Cap, Giant's Punch-bowl, Cork Oak-skinned, Mammoth, Bishop's Hat, Marble Head, Cricket-ball, Turban, Bordeaux Melon, Plover's Egg, Pear, and Bottle.

Lawn mowers.—I will have no more to do with Mr. W. J. May's challenge until he unreservedly accepts the conditions offered by me in THE GARDEN of May 12, which he now virtually declines to do, and breaks his own original conditions further by reducing the distance from Lon-

don from 250 miles to 20 miles. I leave it to your readers to judge who it is who is "afraid of results." Mr. May first declines my reasonable stipulations and next narrows the range of his challenge down to a fraction of its original compass. I see he states in the *Bazaar* that a little girl of eight years used a 14-in. machine, and cut grass with it that was both "long and wet and uphill!" —AN OLD LAWN MOWER.

NOTES FROM THE SOUTHERN ALPS.

(Continued from p. 536.)

AMONG the crags which lay piled one on another above this path grows

THE WARATAH, a plant of which I have heard for years as the chiefest glory of New South Wales and Tasmanian flowers. And there at last was the Waratah (put the accent on the first syllable), and I think on the whole I was disappointed. I must say, however, that the bushes I met with had not many flowers. A bush with a large number of flowers must be a very magnificent sight. On my second ascent of the mountain I should have made my way to the headquarters of this shrub, but unfortunately a steady downpour of rain set in, and I was obliged to fill my vasculum as quickly as possible and descend. Once a year the Hobart people grow Waratah mad—men, women, and children, natives and visitors are all touched with the Waratah disease. The very larrikins (this is the colonial term for the Mohocks of the spectator) make up parties to go to the mountain on a Saturday evening, where they encamp all night, sallying forth at daylight on Sunday to gather the Waratah blossoms. The first question asked of the people at the Springs is "Where does the Waratah grow?" and when you return from your first ascent of the mountain, whoever meets you—the landlord, or his wife, or his daughter, or his man-servant, or his maid-servant, or the stranger that is within his gates—the question still is, "And have you seen the Waratah?" This Waratah is the *Teloepa truncata*, the "flower seen from afar," a woody shrub ranging from 6 feet to 10 feet high, bearing corymbs of crimson flowers at the points of the twigs after the manner of a *Rhododendron*. Imagine a corymb of rich crimson Honeysuckle set in a ring of small leathery leaves, and you will have a tolerable idea of what this flower is like. The heads of bloom vary from 2 inches to 3 inches across. They consist of single florets, each set on a long peduncle, the petals curling outwards and concealing the stamens, the pistil arched above the petals like an index finger, and in each floret, like a brilliant, glistens a drop of honey. But there is yet another feature of the Waratah which probably goes far to make it such a favourite. It may be kept in water for days; indeed, if you cut an undeveloped flower, for weeks. Some of the less expanded flowers which I found I kept in a glass in my hotel during my whole stay in Hobart, and had considerable pleasure in watching them unfold new beauties every day. I do not know any summer flower of the same staying powers. It is, however, a difficult subject to grow. Six small plants which I brought from Mount Wellington are looking worse than doubtful. Although I was fortunate enough to find one or two Waratah plants in flower, the place where it abounds lies about three miles in the opposite direction—almost under the "Organ Pipes." Another noteworthy plant which I met with in my aberration from the proper mountain path, and which I thought a more beautiful object than even the Waratah, was

THE GRASS PLANT (*Richea dracophylla*). The Grass plant is singular as well as beautiful. The bare woody stem rises to a height of perhaps 10 feet or 12 feet, and at this height there springs out a crown of flexuous Grass-like leaves of a light glossy green, bearing a panicle of flowers sometimes as much as a foot in length. The colour is a good substantial white, and the whole bloom has much the appearance of an elongated white *Tritoma*. Along this part of the mountain the wreaths of *Clematis* were very rich. On the lower ground, the pastures around Hobart, this

Clematis assumes a very curious form, so different from the normal, that it has appeared to many to be a true species, and has received the name of *Clematis gentianoides*. It has quite lost its climbing propensities, and is dwarf in habit, ranging from 6 inches to 18 inches in height. It bears a solitary white flower, and growing in the meadows has much the appearance of a white *Anemone*. For anyone who finds only the extreme forms of this plant it is difficult to believe that they are not well defined species. But Baron von Mueller, who has had better opportunities of observing this genus in Australia than any other botanist, tells me that he believes it to be only a form of *aristata*. After having gone about two miles and finding that I made little, if any, ascent, I concluded it would be better to retrace my steps and make anew for the top from the Springs. At this return point the mountain makes a sublime picture of desolation. Away towards the crest the further side, bounded by

A FOREST OF BLASTED EUCALYPTI, rolls a sea of boulders, swept bare even of Lichens by the wind which rushes over them from the southern ocean. Strewn over this dreadful surface, like the colossal spars of a wrecked armada, lie thousands of dead and dying Gums bleached by the weather to the lifeless grey of the rocks themselves. Here and there a whitened trunk lies stretching "many a rood" from rock to rock, whilst in other places chaotic masses of shattered branches, black with the mark of fire, lie huddled in grotesque confusion. And look at your foot; such is the grim irony of Nature, you find growing in a crevice of those merciless boulders the fairest, frailest of ground Orchids, *Caladenia carnea*—so fragile that it shrivels at a touch; "slight, to be crushed with a tap of your finger nail"—graceful and exquisitely coloured like a shell, and a step further, behind the rough stone shelter, is the quaint, delicately veined *Pterostylis*, hooded like a Capuchin of the olden time. The proper path to the mountain top lies behind the Springs hut. Several interesting plants grow along this path. Amongst the stones which pave the path itself creeps *Rubus Gunnianus*, most diminutive of the Bramble family, growing not more than an inch high, and bearing little yellow flowers nestling amongst the leaves. The fruit is large in proportion to the plant, and is said to have an excellent flavour, somewhat like that of the Cranberry. Two *Veronicas* grow here. One with much divided leaves, *Veronica nivalis*, would make a good border plant, and ought to be hardy even in England. The other, with lilac flowers, a shrubby variety, I have not been able to identify. A large number of composite flowers grow on either hand, belonging chiefly to the genera *Aster* (*Eurybia*) and *Helichrysum*—genera of which the species are not always easy to distinguish. Mueller, in his "Census of Tasmanian Plants," enumerates seventeen *Asters* and twenty-four *Helichrysums*. The *Asters* and *Helichrysums* on Mount Wellington are mostly shrubs. One *Aster* (*stellulatus*) forms a large ingredient of the underscrub, making whole slopes gleam with its white Daisy flowers. Some bear heads of silky white; others vary to sulphur-yellow and even pink. The species I collected were, of *Asters*, *viscosus*, *stellulatus*, *florulentus*, and *Celmisia*; and of *Helichrysums*, *ledifolium*, *rosmarinifolium*, *antennarium*, *obcordatum*, and *baccharoides*. On this part of the mountain, too, grows the pretty silky *Pimelea sericea*. A short distance from the top, growing amongst the loose detritus of disintegrated rock, are whole beds of the prostrate shrub

BAUERA RUBROIDES, at this time bending with its long sprays of white blossom. Sometimes the blossom is flushed with pink, but these were of untinted white. This plant seemed to me the very perfection of an alpine shrub. Patches of seedlings grow all around in great abundance, and I must have sent home six or seven clumps, of which a very small fragment of one seems to be growing. Near the *Bauera*, but higher up, are sheets of the lustrous waxy white of *Epacris serpyllifolia*, one of the finest of *Epacrids*. It must be very hardy to stand the winter climate of Mount

Wellington. Sometimes it is an erect shrub, sometimes it follows the outline of the boulder against which it grows like a climbing plant. This style of growth is no doubt caused by the force of the wind at the top, and is characteristic of other shrubs, such as *Leptospermum scoparium*, which sometimes forms quite a network over the stones, the force of the wind really preventing it from lifting its head above the support. On emerging from the belt of stunted trees that fringe

THE BALD TOP OF THE MOUNTAIN, one comes out on what is called the "Ploughed Field." This is a large area of enormous boulders of all shapes, leaning one on the other at all angles, a field unbroken even by the stump of a fallen tree. Amongst geological phenomena this field is a thing of its kind, and the suggestion of the enormous power that must have hurled those fragments of an earlier world into their places gives them a wonderful impressiveness. Skirting a corner of the "Ploughed Field," you at length, by a series of steps consisting of large boulders, reach the table-land that crowns the top; and then you make your way for what seemed to me about two miles along this rocky plateau to the highest point, behind the "Organ Pipes." As I got out on the top, the south-west wind blew with a force and a cutting keenness, which made me, after my warm ascent, fain to crouch for shelter behind the rocks; but the distance before me, and still more the distance behind, and the erratic skirmishing of threatening clouds overhead advised a steady push forward. The route still ran between large boulders, lying singly or in groups and leaving spaces of level ground between, covered with their appropriate alpine vegetation. Specimens of the pretty *Bellendena montana* with its spatulate lobed leaves, of the *Hakea*-like *Orites revoluta*, of the dwarf and prickly crimson *Richea Gunni*, and of *Richea sprengeloides*, with compact balls of peat, soon found their way into my vasculum. Here and there in hollows between the rocks were small pools and bogs, in or around which grew such things as *Euphrasia collina*, covered at this time with white *Mimulus*-like flowers, *Droseras*, and *Wahlenbergias*. Arrived at the very top, I did not fail to find an old friend who is invariably ready to welcome one to the tops of mountains on this side the world. Down in the holes between the boulders, a drop of 6 feet or so, in cosy nooks which must be warm and snug even when the snellest winds are whistling amongst the Organ Pipes, you are sure to find the ubiquitous little *Lomaria alpina*. Unfortunately time did not permit of my paying much attention to the Gums that grow on Mount Wellington, beyond remarking their size and general appearance. From the Springs upwards the glaucous cider Gum (*Eucalyptus Gunni*) is common, and the smallest of the whole genus, *Eucalyptus vernicosa*, is said to grow at the top. I am curious to know to what extent the plants I have described or enumerated are grown in England; perhaps some of the readers of THE GARDEN would be good enough to state their experience of some of them.

PAKEHA.

Transplanting *Ampelopsis Veitchi*.—

It may interest some of your readers to know that old plants of this beautiful wall coverer may be easily transplanted. I have at times tried, and partially succeeded, in transferring Ivy in sheets from a wall to a position against another wall, but the *Ampelopsis* is more easily dealt with. By beginning at the bottom and pulling the branches away steadily the whole plant will come away without the loss of a twig, notwithstanding the very firm manner the shoots adhere to the bricks. I have during the past few years moved plants 12 feet high and 8 feet or 10 feet across. When planted the shoots are temporarily nailed to the wall till the young growth has made some progress and taken hold, when the nails are removed. The old wood never regains its hold of the wall, but the young growths are so plentiful that they are quite able to support the weight of the plant however large. This *Ampelopsis* does well in our cool climate. Plants put out of 3-inch pots about

eight years ago are now at the top of a wall 20 feet high or more, and clasping the parapet pillars above them and invading the roof beyond.—J. S.

ROSE GARDEN.

THE FIRST ROSES OF THE SEASON.

So far as I am aware, the first Roses on the boards this season were those shown at Lexden Park, near Colchester, Essex, on the 13th and 14th inst. The Colchester and East Essex Horticultural Society held their show in connection with that of the Essex Agricultural Society. The two have run abreast for some years. Both shows were highly creditable to the societies represented. But my business now is with the Roses. The first thing that strikes one in regard to these is their fewness in the middle of June, thus giving the strongest confirmation to what I have stated concerning the

ABNORMAL LATENESS OF THE SEASON. Though prizes of five, three, and two pounds were given for thirty-six Roses, only one stand was exhibited. Prizes of equal value, with the exception of £1 10s. for the third best twenty-fours, only succeeded in drawing one collection. Prizes of three guineas, two guineas, and one guinea for twelve only brought out three collections, and in the six Teas and six Roses there were but three of each. A dozen *Gloire de Dijon* and six *Maréchal Niel* made up the first Rose show of the season. The next point was the preponderance of Tea to other Roses. This was only to be expected. Teas are indeed invaluable for early work, especially if grown in warm nooks and corners, or on walls or fences. Some of these, too, such as *Marie Van Houtte*, *Niphetos*, *Rubens*, *Souvenir d'un Ami*, and *Devoniensis* were in very excellent form. Perhaps few Tea or other Roses can equal *Marie Van Houtte*, as seen at the Colchester show and elsewhere this season, so large and full, of perfect form, and the softest colour yellowish white blushing into a deeper shade in the centre of the flower, the outside of the petals slightly or deeply stained with bright rose colour. *Cheshunt Hybrid* was also in great force, and is rapidly establishing its character as one of the most useful and beautiful of all the early blooming Roses. Among

OTHER ROSES seldom seen so early, or indeed at any season on winning stands, were *Souvenir de la Malmaison*, *Bougère*, and *Belle de Bordeaux*. The first is a Rose of exceptionally fine form, without any hard or malformed centres this year, and the two second are seldom found on winning stands; *Bougère* is, however, still one of the best, most useful, and floriferous of all our pink Roses. The following lists will, it is hoped, have a general interest in indicating those Roses that are likely to bloom first, a matter of considerable importance to exhibitors and the general public. Mr. Benjamin Cant, of Colchester, had a capital thirty-six, quite strong enough to have held their own against a good many competitors. His Hybrid Perpetuals were *Abel Grand*, *Alfred K. Williams*, *Charles Lefebvre*, *Dr. Andry*, *Dupuy Jamain*, *Duke of Wellington*, *Exposition de Brie*, *John Hopper*, *Jules Margottin*, *Madame Lacharme*, *Maurice Bernardin*, *Miss Hassard*. Bourbon: *Souvenir de la Malmaison*. Teas: *Anna Olivier*, *Catherine Mérimet*, *Comtesse de Nadaillac*, *Devoniensis*, *Etoile de Lyon*, *Gloire de Dijon*, *Goubault*, *Jules Finger*, *La Boule d'Or*, *Madame Angèle Jacquier*, *Madame Lambard*, *Madame Welch*, *Madame Willermoz*, *Marie Van Houtte*, *Moiret*, *Niphetos*, *Rubens*, *Souvenir de Madame Pernet*, *Souvenir d'Elise*, *Souvenir d'un Ami*. Noisette Roses: *Lamarque*, *Maréchal Niel*. Hybrid: *Cheshunt Hybrid*. Mr. Rushmore, the well-known successful rosarian of Tendring Hall, was first with twenty-fours and twelves with the following: Twenty-fours—*A. K. Williams*, *Gloire de Dijon*, *Duke of Edinburgh*, *Céline Forestier*, *Bougère*, *Dupuy Jamain*, *Countess of Rosebery* (this is a newish Rose of fine form and reddish colour with a dash of salmon in it that also promises to be among the ear-

liet), Madame Caillat (an oldish, large and full, salmon-rose-coloured Rose seldom seen at exhibitions), Princess Mary of Cambridge, John Hopper, Souvenir d'un Ami, Charles Lefebvre, Niphetos, Jules Margottin, La France, Cheshunt Hybrid, Maréchal Niel, La Boule d'Or, Miss Hassard, Abel Grand, Marguerite de St. Amand. Twelves: Adam, Perle de Lyon, Charles Lawson (it was quite refreshing to find this most useful old favourite in a winning stand), Rubens, General Jacqueminot, Maréchal Niel, A. K. Williams, Niphetos, Cheshunt Hybrid, Bougère, Catherine Mermet, and Mdme. Caroline Kuster. Among

THE WINNING STANDS of six Teas the following were the more conspicuous flowers in addition to those already named: Madame Bravy, Alba rosea, Reine d'Or, and Comtesse de Nadaillac. Reports of Rose prospects were of the rosiest hue, and the general consensus of opinion seemed to be that what this Rose season had lost in regard to time it might yet more than regain in brilliancy. Can it be another and a last legacy of the frosts of March that the Roses are closer to the old wood than usual? Hardly had the shoots fairly started into growth till the brilliant sur-shine and long drought forced them into flower, leaving but short supplies of wood for the furnishing of buds, or the support of fine Roses in vases or other floral decorations. The late pruner, or those that deferred pruning till the end of March, have fared best this season. D. T. FISH.

THE ROSE BLOOM.

I AM glad that as a lover of Roses I do not live in East Anglia if Mr. D. T. Fish's experience at Hardwick is that of the whole district. It would be a sorry look-out for Rose lovers this year if things were in the woeful plight which he seems to think they are, but this is not an unusual style of prophecy with him, for I look back on past years and find that hardly ever were Rose seasons likely to be to his liking; he wrote to me some time ago, after that severe blast of weather in March, to say that all the wood is so injured as to be worthless. I went out into my garden and cut some pieces of both Teas and Hybrid Perpetuals and sent them to him. The wood was perfectly sound, although, of course, the young shoots, an inch or two in length, were killed, but the wood itself was untouched, and now, close as we are on the Rose season, with all its excitements, expectations, hopes, and fears, he still writes of the general weakness of Roses everywhere this year. Now, not only is such not the case, as far as my knowledge goes, but I have not for years seen so good a prospect of a fine Rose season as at present. I have had the privilege of visiting the gardens of some of our most successful growers in our southern counties. I have also had numerous letters from correspondents in various parts of the country, and the universal feeling is that, unless the unforeseen happens, we shall have such a season as will heartily rejoice all lovers of the Rose. We are now in June; the first Rose show will, I believe, be that at Cardiff on the 27th inst., and I may say, as an encouragement, that I have not in all the gardens I have visited, or in my own, as yet detected a single aphid. This is to me a most unusual circumstance, especially as we have had lately a good deal of easterly winds and hot sun, which are considered conditions generally favourable to their development. They may come yet, but they can be much more easily attacked now than earlier. The same absence of vermin, as the Hop growers call them, is observable in the Hop gardens, which look clean and bright. Then, again, there has been very little maggot. I was going through the garden of one of our most experienced Rose growers the other day, when he observed the same thing; in fact he said so little has there been, that I have hardly looked after them, and consequently in one or two cases they have taken advantage of this and so escaped detection. I notice on most things the same absence of insect pests; cuckoo spittle, as it is popularly called, is very scarce, so that these drawbacks to a good Rose season are removed.

There can be no greater mistake in the cultivation of Roses, if you want good flowers, than not to disbud. If you do not do so, and smaller buds surround the large central bud, you cannot cut it without them, or else cut it with so short a stalk as to deprive it of a good deal of its beauty; nor can you cut foliage with it, and whether for the exhibition table or the specimen glass this is undesirable. Moreover, if you give each shoot only one Rose to develop, you have the better chance of a second blooming time. When the one Rose is cut, the buds which are at the end have a better chance of shooting off afresh and giving you a later bloom. Like all operations of the kind, it requires some courage to do it, but you gain your reward by the greater excellence of the flowers and the greater vigour of the plants.

There is one point in Rose growing which I should like to be well noted this season, if Rose growers would kindly take the trouble, and that is the manner in which different stocks are suited to different Roses. I do not mean the general question as to whether the Manetti or Brier (be it seedling Brier or Brier cutting) is suited for Roses, but as to the different varieties. Let me instance as an example that grand Rose, A. K. Williams. I have myself a very strong opinion that the Manetti stock is not suited for it; my soil is not a Rose soil, it being too rich and light for Roses, and it is only by the addition of turfy loam that I can make it grow them at all. I have planted a small bed of A. K. Williams, half on Manetti and half on seedling Brier and Brier cuttings. They were from the same nursery and treated exactly in the same way. Of these, one half on the Manetti are dead and none on the Brier, while in looking through my other beds I find the same thing—those on the Manetti have disappeared, those on the seedling Brier flourish. This may account for the different opinions that have been expressed as to the constitution of the Rose, some contending that it is weakly, others that it is vigorous. It is clear that if those in my own garden are a fair sample of others, we might easily overrule both statements. There are other Roses which may be in a similar condition, and I think it would be a matter well worthy of study by those who have time at their disposal to make experiments in this direction. I hope that I may prove the truer prophet, and that we may look forward to a good Rose season. All will depend on the character of the weather of the next three weeks. DELTA.

Rose fixtures.—There is no doubt it would be a very desirable thing if these could be so arranged as not to clash. But what can be done? There is not more than three weeks in which they can take place, *i.e.*, when the Rose season is at its height. Now, as there are some twenty or thirty Rose shows to be held in that time, it is evident that they must clash sometimes, and all the plans Mr. Fish suggests would not hinder them doing so. Then, again, there are local circumstances which regulate the days on which exhibitions are held. More especially do market days influence them. It is in order to get as large a company as possible to have them on those days which are not movable feasts, and hence, for example, Farningham must be held on the same day as the great show at Bath, and Shrewsbury also claims the same day for the same reason. The Crystal Palace Company must have their show on a Saturday, and so must Brockham and Reigate. The best is done under these circumstances that can be done; and as the days of the exhibitions of the National Rose Society are fixed early in the year, all other societies do, as a rule, keep clear of them. The result of all is that Rose growers cannot exhibit at all shows, and have to make their choice.—DELTA

Rose leaf-eating grub (*R. Connell*).—The insect forwarded to me is a caterpillar belonging to the family commonly known as loopers, from the peculiar manner in which they hunch up their backs when moving about. This particular kind will eventually become a moth, belonging to the genus *Biston* one of the *Geometridæ*.—G. S. S.

FRUIT GARDEN.

STRAWBERRIES IN PITS AND FRAMES.

As the time is at hand when Strawberries should be prepared for planting, allow me to direct attention to a plan whereby ripe Strawberries may be obtained in advance of those from the open ground, simply by planting in pits and frames. The plan will be found useful by those who have not the convenience of growing Strawberries in pots, and placing them in a suitable structure to ripen their fruit. All that is wanted is a bed of good soil and a cold pit or frame to secure a fine crop of large fruit without the aid of fire heat or any other expensive appliances. The first step is to select a suitable variety for the purpose. My choice would be between Keen's Seedling and President, both of which are known to be excellent croppers and good in flavour, but as Keen's Seedling is a little the earliest, it may be desirable to select an equal number of each, when under the same treatment one would form a succession to the other. The number of plants required will, of course, depend upon the space to be devoted to them. A light 6 feet long and 4 feet wide will require eighteen plants, that is, three rows with six plants in each under one light. One has therefore only to decide how many lights will be occupied to find out the number of plants needed, but I may remark that less than two lights of the size just mentioned would furnish but a limited supply.

THE PREPARATION of the plants is not a difficult matter; for this purpose runners should be selected as early as they can be got. The best way to get them rooted quickly is to peg them down on the soil, first stirring up the surface with a trowel and breaking to pieces any hard lumps; then with a peg fix the runner down firmly. In order to obtain the best results it is essential that strong plants with plump crowns be secured early in autumn, and to enable one to get these the runners must receive attention in the way of watering, so as to induce them to form roots quickly. In hard ungenial ground it will help the runners wonderfully if a couple of handfuls of fine rich soil is placed on the surface for them to root into, which they will freely, and, what is equally important, they will lift better. In fact, any extra attention at this stage will increase the prospects of a crop in a way that no care as regards after management can possibly do. In three weeks the plants will be sufficiently rooted to bear removal. The next step is preparing a piece of ground for them, which should be an open, sunny spot, and made both rich and fine, and if a couple of barrowloads of road grit or coarse river sand can be strewn on the surface and lightly raked in, it will induce the plants to root better than they otherwise would do. When the ground is ready, cut the runners off close to the crown, and then the plants should be carefully lifted and conveyed on a hand-barrow to where they are to be planted. They should be put in 12 inches apart each way, and if the ground is dry a good watering should be given, and continued at intervals of every two or three days if the weather remains dry. A light shading for the first few days if the weather should be very bright would also be beneficial. This may consist of a few Evergreen branches stuck in between the plants, which, with the exception of keeping them free from weeds, will be no further trouble until it is required to take them to the pits in which they are to fruit. In these bottom heat is not a necessity; in fact, a strong bottom heat would be injurious, but a little warmth below the roots might stimulate them to make an earlier growth; further than that, however, it would be of no service. A brick pit is to be preferred, especially if ripe fruit is wanted as early as it can be had, as it affords greater warmth and shelter than a wooden frame; but, with the exception that there would be a slight difference in the time of ripening, one is as good as the other, whichever is used. A bed of good rich soil not less than 8 inches or 10 inches in depth is necessary for the reception of the plants, and the surface should not be more than 9 inches from the

glass. If the pit or frame should be a deep one, the space below the soil may be filled with any ordinary soil, or any refuse that comes to hand that is not likely to sink. If ripe fruit is wanted as early as it is possible to get it, the first plantation should be made about the middle of February, but if the planting is done on the 1st of March it will be soon enough for all ordinary purposes. As a matter of course, the plants must be lifted carefully in order to preserve all the roots possible. The soil must be pressed firmly about them and kept regularly moist by watering. For the first three weeks after planting very little air will suffice, but as the leaves advance in growth more air at the back of the pit must be given, and the lights should be protected every night with mats. When the fruit begins to form, a surface covering of Cocoa-nut fibre refuse will keep it clean and help to keep the soil moist. I am of opinion that if it were generally known what excellent crops of Strawberries may be thus obtained, many would prefer to grow them for late crops in the way just described instead of cultivating so many in pots. J. C. C.

VINES AND TOP-HEATING.

"A. D." (p. 507), in referring to this subject, complains that discussions invariably run off into side issues, and forthwith invites this by speaking of an imaginary "opposition of hot-water doctors" to Mr. Cannell's system, which is not used for Grape growing. As I do not think there is a vinery in the kingdom with a system of top-heating such as "A. D." implies is wanted, a discussion thereon can only be theoretical, or so far practical by comparison with houses used for other purposes.

Personally, and as a hot-water doctor, I believe in the arrangement as most beneficial and economical, and for many, many years have been trying to get gardeners and others to see the benefit and economy of it, but in vain. Over fifteen years ago several trellises for Vines were so arranged that the frames of small tubes could be filled with hot water and give a little warmth at intervals of 4 feet or 5 feet up the roof. Though the trellises were so fixed, the idea was considered too fanciful to be put to the actual test, and I do not believe the connections with hot-water mains were ever made.

The low houses where pipes are only 18 inches to 2 feet from the Vines are really plentiful, as the hundreds of Paxton roofs used for Vines, including the first one erected by the patentee, of which a photograph is before me, will testify. The reasons why the lower bunches of Grapes in cases named are the finest may be various (that is open to discussion), but in many instances I do not doubt that the lack of good bunches above is due to a want of warmth at critical times, which a small pipe half way up the roof would have supplied better than two or more large ones placed near the path or centre of the house, as is often done now-a-days. If the system adopted by Mr. Cannell is useful for houses devoted to low-growing plants, how much more should it be in vineries, where the plants are placed in the coldest part of the house, that is, near the glass. Even the training of Vines at 18 inches instead of 12 inches from glass is an advantage, because the night temperature will be more agreeable at that little extra distance.

I wonder that some of our great Grape growers have not tested their temperatures in different portions of the same roof, and placed their observations on record with their own deductions therefrom for others' guidance or discussion. A certain average temperature is spoken of as necessary, and now and then one reads of the opposite practices of certain growers in this respect, both being equally successful with a difference of 10° to 15° possibly. The real cause has been missed, I fancy, in each case. Take the common instance of a vinery with 16 feet rafter, 13 feet width and 13 feet height, length immaterial, with two 4-inch pipes near the front and two more at 5 feet from the back wall. A thermometer placed on the back wall or probably suspended at 4 feet above the border next the path, indicates a minimum of 50° or 55°, and though there

may have been some degrees of frost outside during the night, all is supposed to be well. However if three instruments had been placed at 6 inches below the glass, one near the bottom, another in the centre, and the third one at 3 feet from the top, I will undertake to say there would be found some such figures as 60° to 50° over the front pipes, and from 50° down to 35° in the other positions, or a variation of 15° in the length of Vine rod, owing to the frosty air penetrating the glass and laps. The two pipes near the path only serve to mislead the gardener, by keeping up a fictitious average temperature at the point where the thermometer is, and where the Vines are not. Abolish these two 4-inch pipes and place two small ones at one-third and two-thirds of the space between front pipes and top of the back wall, and I will guarantee that the atmosphere in which the Vines are actually growing will be more uniform from foot to top than is possible with any ordinary method of heating, even where six pipes are in use. Another method of obtaining a more equable temperature so desirable for good Grapes is to have a double roof with a space of 6 inches between the glasses, at the bottom of which space one hot-water pipe should be placed. In this way better results will be obtained with 4 pipes than is now got from 6 pipes, thus saving first cost of pipes and much fuel, which saving would soon cover the cost of extra glass. Neither would there be such a rapid rise of temperature with sudden sunshine, and much anxiety as to the admission of cold air or ventilation on this account would be saved. By the arrangement of small upper tubes, either as part of the wire framework or separately, the dampness (so much dreaded) could often be driven out, and a movement of air secured without actually heating the house below. I trust I have stuck to the point, and that some more practical men will take the matter up.

B. W. WARHURST.

5004.—**Air roots on Vines.**—So far as my observations have extended, these are in no way injurious; at the same time I would rather not see them; and it is this studying of appearances that has led me to make repeated trials to prevent their growth, but hitherto without avail. Like most other practitioners, I believe that their formation and extension arise from inequality of temperature between root and branch, a theory that to some extent is confirmed by the fact that their growth is much more general in early vineries than in others, and this being the case, the way of prevention is obvious, viz., more warmth to the roots and less moisture, and more air internally. But from my point of view, the application of such remedies would be worse than the disease, that is, if it can be called a disease—certainly, it is a very harmless one, so that personally I am content to let the Vines have their own way in this matter.—W. W. H.

Summer pruning Currant bushes.

After trying the summer pruning of Currant bushes for several seasons, I can recommend it as labour well spent; not only is the crop of the current year improved by the removal of what would become a mass of superfluous growth, but the buds that are to produce next year's crop are strengthened by the exposure to light and air to which they are thus subjected, and above all by the leaves at the base of the shoots being retained fresh and green until the end of the season, instead of becoming blanched and dropping off early, as is the case when all the shoots are allowed to grow unchecked, thereby forming a dense shade. The best time to remove the points of all the erect growing shoots is while they are soft and green, i.e., about the middle or end of May. They can then be readily nipped off. If any want to test the merits of this practice, let them pinch half their bushes of Red and White Currants (Black sorts must not be so treated), and leave the other half to grow at will; they will then soon be convinced of the benefits arising from summer pinching. On walls devoted to Currants this

practice is especially necessary, and the fruit being thoroughly ripened by the timely removal of the points of the shoots will prove invaluable for late dessert purposes. It is worse than useless to leave the shoots intact until the fruit is ripening and then remove them, as the leaves at the base of the shoots will then be either wholly or partly inert by being long shaded.—JAMES GROOM, Gosport.

GARDEN FLORA.

PLATE CCCXCIII.

THE CHRYSANTHEMUM.

(THREE NEW VARIETIES.)

WHEN all outside blossoms have faded or are cut down by frost, when the time of Roses is past and the fogs of November embrace us against our will, then a gleam of floral sunshine comes from the Celestial empire, and we welcome it under the homely name of Gold Flower, or Chrysanthemum. The Chrysanthemum is, or may be, everybody's flower, since all may grow it in windows, in gardens, or by sunny walls, but it is as a winter-blooming conservatory plant and as a florist's flower that we now more especially wish to speak of it. If you wish to see the Chrysanthemum of the "fancy" you may find it portrayed by the late Mr. Andrews in the pages of the *Florist*, or in the *Floral Magazine* in the form of a cricket ball, perhaps larger, and with its rounded florets arranged as symmetrically as slates on a roof. This regularity seems to me the keystone of the florist's faith—this one word, "symmetry," and the harm it has wrought in our gardens, is far more than I or anyone else can ever hope to tell. And so the Chrysanthemum of the florist was ever symmetrical, as were his Tulips and Dahlias, and all other of Nature's flowers with which he dealt. It is nearly half a century since seedling Chrysanthemums were first raised in English gardens, and I am not aware that a solitary seedling having what we call single flowers was saved during the whole of that time. It was much the same with Dahlias; only double-flowered varieties were saved from the holocaust of the florist's fancy. No Herod was ever so frantic a slayer of the first-born as has been the raiser of new florists' flowers. No man could, I feel sure, have helped botany and physiological research more than the florist had he so willed it, and I will venture to say no class of men has given it less real aid. Who shall tell us how long the florist blundered along "the Primrose path," saving the symmetrical thrum-eyed flowers and throwing away the long-styled forms, and yet he never, never even guessed the secret, that Darwin discovered, as to the sexual relation of these long and short-styled forms. The Arabs have a proverb, "He that hath great knowledge binds it as a napkin on his eyelids; but to the humble and reverent are all things revealed;" and so of a truth has the knowledge of the florist been as a mote to him in the development of the Chrysanthemum. As a proof of this, the Dahlia has been taken out of his hands by the public, who insist on having single forms, not to the exclusion, be it noted, of double kinds, but as an addition to them. And now the public insist upon having single or Daisy-flowered Chrysanthemums, single Pyrethrums, single Camellias, single Ranunculuses, and single Anemones. I do not say that the florist has been altogether wrong, but that his "criteria" were too narrow and his sympathies too restricted is generally admitted. Let us hope the day of globes and circles, the cart-wheel type of beauty, is over, and that



we may grow the Chrysanthemum in all its forms untrammelled by the globular theory of beauty. An old friend said to me the other day, "I have often wondered why florists always favoured double Chrysanthemums and double Dahlias, while they repudiated double Tulips or double Auriculas." He did not blame them for growing their flowers in such forms as gave them greatest pleasure, but he blamed them as false prophets, who denounced all that floral beauty which, as a class, they could not themselves enjoy. We grant the florist his flowers, but we refuse his gospel of globe and circle, feeling that flowers of all kinds have a higher purpose than to be made artificial.

I have said so much because no other flower with which I am acquainted has suffered from the florist's labours as has this our favourite Chrysanthemum. Now, however, it is pleasant to know that we have growers who, as just stated, are most anxious to secure single or Daisy-flowered kinds bright and rich in colour. This is quite a new field, and a most fertile one, nor need it lead to the exclusion of the more plethoric varieties, whether of the Chinese or Japanese races. Speaking to a large grower of single-flowered Dahlias the other day, he told me that the advent of the single varieties, so far from supplanting the double kinds, had actually increased their sale, and we have no doubt that single Chrysanthemums will, instead of superseding the double kinds, only help to make them even more popular than at present, just as foreign imports of fruit and vegetables lead to a greater home production of the same products.

Our plate represents three new varieties, none of which we believe come under the florist's standard, but which are sufficiently distinct and effective to merit the attention of ordinary cultivators. No. 1, *Tisiphone*, is perhaps the first single Chrysanthemum ever honoured with a coloured portrait, and may be taken as an example of the Daisy bloomed Japanese section which is likely to become as popular as single Dahlias themselves. I have often wondered whether specimens of the typical or wild Chrysanthemums of China, Japan, and Corea are preserved in the herbarium at Kew, or whether cultivated varieties of this popular flower only are known. At any rate the variety which first bloomed in Colville's nursery in the King's Road, Chelsea, in 1795, and which is figured in the *Botanical Magazine* for February 1, 1796, t. 327, is a fairly good double variety of a reddish purple or claret colour; indeed not at all unlike the modern variety grown under the name of Dr. Sharpe.

No. 2 of our plate, *Ringleader*, belongs to the hybrid or large-flowered Pomponé class with reflexed florets of a deep rosy hue. No. 3, *Orange Beauty*, is a soft yellow bloom with a conspicuous greenish eye. It is floriferous and distinct enough to merit general culture, but none of the forms figured will, as we imagine, be claimed by the florist fraternity as belonging to their standards of perfection, and yet the Chrysanthemum is capable of far greater diversity of formation and colour than is here shown. Amongst a batch raised last year from seed we had some remarkable single varieties—one not unlike *Senecio pulcher*, with purple florets and gold disc, and another not unlike this *Tisiphone*, but of a more bronzy hue, which was much admired. These three new varieties were raised by Mr. Alfred Salter, our drawing having been made in Messrs. Veitch's nursery, Chelsea, during the past

season. We must ask Major Carey and Mr. Downton, the raiser of *Elaine*, to save us some of their brightest and best Daisy-flowered seedlings, and so inaugurate a new departure in the history of the Chrysanthemum.

The summer-blooming race is especially valuable for open-air culture, blooming, as they do, long before frosts come to destroy their beauty. From this early race great things may be expected, and every year brings forth better varieties. I shall not soon forget the effect produced in Ware's nursery last October by *Adrastus* (rose or lilac-purple) *La Petite Marie* or *Little Mary*, with button-shaped white blooms; and last, but most beautiful of all, *Madame des Grange*, a large, soft, white flower with sulphur centre—a flower not inaptly described as a summer blooming or hardy *Elaine*. Maize is another soft white flower of this race, larger than usual and most useful for early autumnal blooming indoors.

By special culture alone much may be done to extend the winter season of the Chrysanthemum, and growers are now on the alert to select the kinds best suited for late blooming, January being perhaps the month in all the year when flowers are most scarce, and so most valuable. *Ethel*, *Fleur de Marie*, *Mrs. Charles Carey*, *Meg Merrilees*, and *Peach Venus* are all good late blooming kinds; indeed, of the last named really good, well-coloured blooms were sent to THE GARDEN office as late as May during the current year. The especial points to which improvement may be best directed, however, seem to be as follows: 1, good single flowered kinds of rich distinct colours; 2, late blooming kinds which will give a supply of flowers during January and February; 3, early or summer blooming varieties, with large blooms of the single Chinese or Japanese type.

Seeing that the Chrysanthemum is every year becoming more popular, it is to be hoped the secretaries of societies will do their best to foster its improvement, and more especially by holding out inducements for the exhibition of distinct new seedlings, even although they may not quite agree with the hard and fast rules long ago laid down by Mr. Glenny and other florists of the old school.

F. W. B.

SEASONABLE WORK.

FLOWER GARDEN.

GOLDEN MONEYWORT.—This is a yellow-leaved sort, obtained from the common Moneywort which grows wild in British meadows; hence it may justly be classed as a weed, but it is also an excellent plant for moist and shady places in the rock garden, and for carpeting the ground beneath the taller plants, the appearance of which is improved by an undergrowth of deep golden yellow, a colour which this plant retains throughout the season. We have used it for edgings and groundwork in the open flower garden, but, being a shade-loving plant, it gets rusty in bright, sunny weather, and is therefore not to be relied upon for such positions—at least not in the southern counties; northwards it would no doubt prove as useful for this purpose as it does in the south for undergrowth and rockwork. It is readily propagated by division at any season of the year.

SHRUBBERIES.—Owing to the multiplicity of operations that at this season demand attention, shrubberies are apt to get neglected, and Nettles, Thistles, Dandelions, and other weeds allowed to run to seed. Of course, this only happens in places where labour is restricted, and where something must be left undone; though, taking into consideration the after consequences, such weeds as these should not be overlooked, for even if time

for hoeing or hand-weeding cannot be spared, they may very quickly be prevented from seeding by roughly going over them with a rip-hook till such time as proper attention can be devoted to the work; then the plants should be cleared of all seed vessels and dead branches, irregular growths shortened back, and suckers removed. Clematises and other climbers should be secured to their supports. Ordinary Pea sticks, placed in a slightly leaning triangular form, make excellent supports for shrubby climbers. Lately moved plants should be re-mulched, and if necessary soaked with water. Turf verges should be closely cut, and any vacant spaces near the front planted with such biennials as Snapdragons, Canterbury Bells, and Sweet Williams.

MIXED FLOWER BORDERS.—The most showy and most useful flowers on our borders at the present time for vase furnishing are Pyrethrums and Columbines, the yellow and bronze coloured flowers of the latter being the most novel and pleasing. The Pyrethrums, both single and double, range in colour from deep crimson to pure white, and in a cut state keep fresh for a longer period than any other flowers with which we are acquainted; their merits are such as to justify their extended culture. These and many others now need staking and tying, but it should be done as loosely as the safety of the flower-stems and plants will admit of. Weeds should be kept down and the surface-soil broken, particularly about Dahlias, Hollyhocks, and sub-tropical plants lately planted for autumn effect. Old-established plants do not need these details of culture; indeed, many thrive best when left for years in an undisturbed state, or with only such attention as to curtailment of growth as shall prevent their injuring adjoining plants. As is the case with many plants this year, Asters, Stocks, and Phlox Drummondii are suffering from the attacks of aphides; they should therefore be syringed with soap-suds two or three evenings in succession, and then well washed with clear water. Owing to the dripping weather, slugs are also extra active, especially amongst annuals; the best bait for them is bran, to which they go readily, and may be caught in the act of feeding any time after dusk or very early in the morning. Plenty of soot and lime thrown about does much to keep them at bay, but rain soon renders both inoperative, hence my partiality for the bran baits.

GENERAL WORK.—This consists in pegging down bedding plants and freeing them from useless flowers, mulching with Cocoa fibre the smaller plants, and keeping the ground about the larger kinds open by frequent stirring. Calceolarias, Violas, and Verbenas enjoy a rich mulching of cow manure or horse droppings; such coverings keep them in vigorous growth and bloom during the hottest weather. Clipping edgings and groundwork of Sedums, *Herniaria*, *Mentha*, and the like will also now be engaging attention, also turf edgings and verges, mowing, weeding, and after rain rolling walks.

INDOOR PLANTS.

CLIMBING ROSES.—Where Roses are trained on the roofs or back walls of conservatories or greenhouses they are often found to thrive well for a few years and then to get into a stunted, weak condition, making little growth, and equally unsatisfactory in flowering; frequently the cause of this is an insufficiency of manure regularly applied as the roots exhaust it. When Roses are grown under glass, the extra warmth they receive, and the consequently much longer period in each year they are kept on in a growing state, tend to tax the roots proportionately more, and unless the soil is kept constantly supplied with the requisite enriching materials the growth necessarily becomes weak, rendering the plants an easy prey to insects that invariably attack weak growth. Another cause of insufficient bloom is the want of enough thinning out of the weak shoots, whereby the energies of the plants, instead of being directed to the support of a moderate number of shoots that would grow to a size able

to produce a crop of flowers, are spent in the production of weak, useless wood unable to bloom. Roses when grown indoors, as they are in the open air, are gross feeding plants, that, moreover, generally are subjected to a free use of the knife, and to avoid their getting into the condition described must have very much more manure given them than would be sufficient for almost any other kind of plants cultivated under glass, and after the principal flowering is over they should have all the useless wood cut out and a considerable portion of the old strong shoots annually well shortened back; in this way they make through the summer new wood that will not fail to flower the ensuing season. With that favourite climber *Maréchal Niel* it is more necessary to follow this treatment yearly than in the case of most others. One of the most successful growers of this variety, who has the roof of a very large house completely covered with several plants, cuts them all back each spring after blooming almost as close as Vines in winter after they are pruned. As regards this splendid Rose, under all conditions, either where grafted, budded, or on its own roots, it is so short-lived, that it becomes necessary to put in young plants at intervals of three or four years, so that they may take the place of those that go off. In winter, before growth begins, is the best time to add new soil and manure, but where the plants are at all weak they should now at once be assisted by heavy top dressings of manure, over which for appearance sake 1 inch of fine soil may be spread; this will be washed down to the roots in the process of watering, which, with diligent attention as regards keeping them clear from insects, will maintain the requisite strength.

PELARGONIUMS.—Zonal varieties wanted for flowering in winter should be so treated as to insure the pots getting well filled with roots, and the whole growth thoroughly matured before autumn; this is of much more consequence than studying to get the plants large, as if at all in a soft, over-vigorous condition they will run off to leaf-growth as soon as subjected to warmth in place of flowering. To avoid this, all young stock for winter blooming should be at once moved to the pots they are intended to occupy and free growth encouraged, after which they ought to be placed out-of-doors in an open situation under the full influence of the sun, and kept there until there is danger from frost. The earliest flowered portion of the stock, such as the London market growers cultivate, should as soon as they have bloomed be fully exposed out-of-doors, so as to ripen up the growth previous to heading them back; if this be done in good time they will break into growth, and can be repotted sufficiently early to admit of their gaining the needful strength before autumn.

SALVIA.—These, if grown in pots, ought to be moved into those they are to flower in; the size the plants are required to grow to will determine the amount of root room they should have. The pots ought to be plunged in ashes, choosing a position where they will be sheltered from rough winds, but still where plenty of light will reach them; stop the shoots as often as may be found necessary, and never allow the plants to want for water, otherwise the foliage is sure to be injured.

AZALEAS.—The growth of these must now be regulated. If those that flowered first are wanted to bloom next season earlier than hitherto, and the buds are not yet prominent, they must be kept for some time longer in a house or pit in which a close atmosphere can be secured in the after part of the day by closing the ventilators early. Such plants as bloomed later should now be encouraged to make growth by placing them where a sufficient temperature can be kept up. Syringe freely every day when the house is closed to keep down thrips, and if these or red spider cannot be kept under by syringing with clean water alone, the plants should be dipped or syringed with Tobacco water, which, although taking more time than fumigating, is nevertheless much preferable, as we have never been able to use as much Tobacco smoke as would destroy the thrips without injuring

the leaves. All that have bloomed late and are in want of more root room should now have a shift. Azaleas do not begin to make root until after they have pushed a good amount of shoot growth, and just after this has commenced is much the best time to pot them. They do with considerably less root space than most hard-wooded stock, but like to be encouraged either with manure water or some of the concentrated manures now so much used.

OLEANDERS.—The individual blooms of these easily-grown plants much resemble those of perpetual-flowering Carnations, and are little inferior to them for cutting, a purpose for which they are in every way adapted. Their erect habit of growth is somewhat against them, but where large, well-furnished specimens exist with suitable treatment they can be turned to good account. Large examples of this description should now be placed out-of-doors in a sunny position, where their further growth will be somewhat checked. If treated in this way and supplied with water enough to enable their bloom-buds to set, shoots taken off with about half-a-dozen joints will strike readily and make nice flowering stock in 5-inch or 6-inch pots. Young plants propagated from small shoots and grown on in little pots should now also be fully exposed to the sun in the open air. Unless Oleanders are so managed there is no way of insuring their blooming satisfactorily, as they keep on growing and do not get their growth properly ripened. Medium-sized examples that have bloomed late and that are required to be kept low and bushy may now be well shortened back, and as soon as they have broken afresh should, if necessary, receive a shift. They will thrive in any kind of soil, but moderately strong loam seems to encourage a disposition to flower.

CAMELLIAS.—The earliest flowering plants are best grown in pots, as thus treated they can be moved about as occasion requires in order to accelerate or retard their blooming. Any that have already got their buds as far advanced as may be desirable should be placed in cooler quarters, but until in this condition they must not be moved out of warmth, as when once the excitement consequent on their being in heat is stopped they will not bear forcing subsequently; therefore, it is well to note their condition. All that had their growth retarded by late flowering should have sufficient shade to protect their young tender leaves from sunshine. Syringe freely once a day, and see that the roots are kept well moistened, a matter to which it is necessary to pay particular attention.

TABLE PLANTS.—Plants naturally fit for use in this way are by no means plentiful. As a rule those disposed to keep to a single stem, such as the smaller leaved *Aralias*, *Palms*, *Dracenas*, and others of a like character, are the most suitable, and when too large for this purpose there should always be sufficient successional stock to take their place. Amongst *Pandanus*, *P. Veitchi* is most liked; where plants of it are nicely variegated and not too large it is very effective, but, owing to its being unable to live out of heat except in summer, it is not so useful as others more hardy. It is, however, easily increased, as it produces suckers freely when it has attained a moderate size. It is not well to allow the suckers to get too large before taking them off from the old plants, as if their leaves have got long and erect they never make such good examples as when struck small. Suckers will root freely treated in the way in which Pines are managed; slip them off from the parent plants, strip a few of the bottom leaves off, and insert them in small pots filled with ordinary loam, with or without bottom heat. There are one or two other species that answer well for this kind of decoration whilst in a small state, of which *P. javanicus* variegatus and *P. Vandermeerschii* are the best; they require similar treatment to *P. Veitchi*.

CUTTING BACK HARD-WOODED PLANTS.—There are some hard-wooded plants that require a free use of the knife every season immediately after they have done flowering, otherwise they

soon get into such a loose straggling state as to be worthless. Amongst these are *Polygalas*, *Pimeleas*, *Dracophyllum gracile*, *Epacris*, *Tetratheca verticillata*, *Diosmas*, *Correas*, *Acacias*, and others possessing a similar habit—plants, in short, that annually make shoots of considerable length, and which if a good part is not well cut back, cannot be kept within bounds. From one-half to two-thirds the length of shoots made last summer should be removed, after which the plants ought to be encouraged to make growth by placing them in a house or pit where they can be kept closer than in an ordinary greenhouse, and be syringed overhead in the evenings.

SOLANUMS.—The berry-bearing kinds of these are most useful when managed so as to induce them to come on in succession. If a portion of the stock has been treated as already directed, they will now be furnished with fruit that will have sufficient time to become fully coloured by the end of September, from which time to the close of the year they are most serviceable for associating with the comparatively few flowering plants that can then be had in bloom. Those later in flowering will follow the first, and if well attended to, will colour their berries towards the close of the year. To have these *Solanums* in presentable condition, their leaves must be in a healthy green state, as if at all deficient in this respect they are uninviting in appearance; to insure this, as the pots are now full of roots, they must have unremitting attention in the way of supplying water, and they should also have liquid manure once a fortnight.

KITCHEN GARDEN.

The cutting of *Asparagus* must soon be stopped, and the beds will be much benefited by a good soaking of manure water. Beds that have been much cut should now be encouraged by every means to make good growth, for on this depends their ability to keep up in years to come their producing powers, both as regards quantity and quality. *Asparagus* often gets worn out much sooner than it otherwise would do through suffering neglect after cutting has ceased. Advancing crops of Carrots should be again looked over to see that they are not left too thick, especially the main sowing. Turnips also will require attention in this respect; there are few crops suffer so much as this if allowed to stand too close together, as when in this state they run to leaf, forming bulbs that are not only small, but very poor in quality. Thin the main crop of Beetroot before the plants get so large as to interfere with the growth. Some Colewort seed should now be sown; these will be useful for planting thickly late in the season after other crops are cleared off. Where dwarf French Beans are held in particular estimation a few more may at once be sown; these should occupy a south border, under the shelter of a wall, where, by a slight additional protection from September frosts, they will frequently go on bearing longer than those grown on more open situations. Autumn-planted Cabbages that have been cut and the stools left to produce a crop of Sprouts should, where the land is at all poor or of a light character, have a good soaking with manure water, by which, in addition to thinning out the shoots to some two or three to each stool, they will make small useful heads, that will come in through the autumn. Keep the hoe going on all favourable occasions amongst advancing crops of every kind.

FRUIT.

VINES.—When all the Grapes have been cut from the early Vines, examine the inside borders, add a little fresh mulching if they have suffered from the weight of the crop, and keep the roots moderately supplied with diluted liquid to start a flush of laterals, but guard against carrying feeding to an excess that will force a vigorous growth, and so exhaust the Vines after the wood is ripe. Keep the strongest laterals pinched to balance the flow of sap, and preserve all the old foliage by good

syrring every evening, or as often as the state of the weather may render atmospheric moisture necessary.

SUCCESSION HOUSES in which the Grapes are ripening may have more air by night and by day, with just sufficient fire-heat to keep the minimum temperature at 60°, and when the berries have attained their full size, the afternoon closing may be discontinued, particularly where the colouring process is not going on satisfactorily. If this house contains Madresfield Court Muscats, see that the borders are moist, but not wet, mulch well with some loose non-conducting material, and allow all the laterals and leaders to grow until after the Grapes are cut. The biting north and east winds having kept the external temperature so low as to necessitate sharp firing, spider has become more plentiful than agreeable, and so rapidly does it spread under the bright and now powerful sun that vigorous measures must be taken for keeping it in check. As almost every one dreads the use of sulphur, timely sponging with soapy water, the application of clean soft water through a good syringe every night where it can be applied without touching the Grapes, and generous culture, separately or combined, while helping the crop will tell most decidedly against the enemy.

LATE HOUSES.—Muscats, Lady Downes, and other kinds which frequently scald during the stoning process must be closely watched until they are considered safe. Up to the present time the weather has not been too warm, and constant firing to maintain a medium temperature has been favourable to the Grapes, as we have not had sudden fluctuations; but any rapid change or disturbance of the atmosphere may bring on the usual fermentation of the pulp surrounding the kernels, in which case it will be well to continue a high night temperature, with diminished atmospheric moisture to prevent the berries from getting cold, and to maintain a steady heat of from 76° to 80° through the day, by keeping the pipes warm, and by increasing or decreasing the ventilation.

MELONS.—A few seeds of favourite kinds may still be sown and grown on in pots for filling up the different compartments in which fruit is now swelling off and ripening. All the green-fleshed kinds do best when plunged in fermenting material placed over the bottom-heat pipes, as the roots are then entirely under control, and a flush of fire-heat when they are in flower will always insure a good set, and a continuous circulation when the fruit is ripening will greatly enhance the flavour. For standing on kerbs in Pine-stoves, or where it is inconvenient to plunge, we always give preference to scarlet-fleshed kinds, as they can stand more dry heat and are less subject to red spider. They, however, require more feeding from the first, and to counteract the drying influence of hot-water pipes over which they are often placed, shallow trays made of wood and about 2 inches deep are placed under the pots for the reception of a few handfuls of rich compost and the partial retention of liquid manure as it passes away from them. We mention trays advisedly, as roots ramify and feed better in them than they do in saucers in which the liquid remains and soon becomes stagnant. An old Melon grower has said that all Melons are good when properly grown, and he might have added three-fourths of the Melons now sent to our shows are so thoroughly changed in colour and character, that they cannot be recognised by their raisers. Change of colour is, of course, due to the presence of two or more kinds—perhaps not in the same house, but in the same garden—and deficiency in flavour may generally be traced to an excess of cold water about the roots through the swelling stage and want of bottom-heat when the fruit is ripening. If the grower of Melons would guarantee a true stock he must not grow more than one kind. If he would have his fruit always good he must hold the elements of heat, air, and water entirely under his command, and the latter condition is in no other way so certainly and easily secured as by the adoption of the pot system.

CUCUMBERS.—Where the bottom-heat is obtained from hot-water pipes and fermenting material combined, the latter should be renovated with fresh fermenting leaves when the plunging thermometer denotes a fall to 80°, and the night temperature of the house cannot be maintained without having recourse to sharp firing, at all times injurious to a moisture-loving plant like the Cucumber; but never more so than when the powerful midsummer sun strikes suddenly upon the roof before the pipes have had time to get cool. If the pots or beds are well drained it is hardly possible to over-water, or to give the foliage too much atmospheric moisture, provided the liquid for the one and the pure water for the other is applied at or a few degrees above the mean temperature of the house. As the plants will now be producing fruit at every joint, overcropping must be carefully avoided, at least if they are to be kept on bearing throughout the summer; but where they are shortly to be removed for Melons a flush of fruit may be taken before they are destroyed. Where manure is plentiful, and frames which have been used for forced vegetables are now at liberty, a few lights under good management will give an abundant supply of excellent fruit until the early autumn-sown plants come into bearing. Instead of pulling down and rebuilding the beds, we dig out a trench 2 feet in width, the whole length of the frame a little nearer to the front than to the back, fill in with a few barrow-loads of the best fermenting material we have at hand, and turn the plants out on small mounds of maiden loam. A new lining is placed to the front; we cover early every night, and adopt the market grower's system of shutting up about 3 p.m. with sun heat and plenty of moisture. If straight fruit is required, glasses may be used.

FLOWER GARDEN.

SOME USEFUL HARDY BORDER PLANTS.

ONE has only to take a walk in the garden in May to see of what use hardy plants are and what a wealth of floral beauty they afford at that early period, but many as there were in bloom then, their numbers are probably more than double now, a fact which shows of what great value they are either for making borders gay or for cutting. Among the more noteworthy the following deserve special mention:—

DAPHNE CNEORUM, although old, is still unrivalled among prostrate growing shrubs, forming dense masses of colour, as every shoot is terminated with clusters of rosy pink blossoms, exhaling a most delicious perfume. Where this Daphne seems most at home is trailing over rockwork, depending from banks, or other elevated positions, where, if the soil is suitable, it is sure to succeed remarkably well. Some have much difficulty in getting it to grow and in effecting an increase, but here it spreads freely and roots readily from layers. All we do when we wish to augment the stock is to partly bury a plant by covering the branches with sharp sandy earth; they then root in about a year, and in spring may be severed, lifted with good balls, and transplanted. Plants may also be obtained from cuttings, but that is a much slower process, as the pieces taken off must necessarily be small, and it is some time before they get to any great size. *Phlox Nelsoni* forms a capital companion plant, and being of a trailing nature is well adapted for the same kinds of situation, where its profusion of starry flowers are shown off to the greatest advantage. To plant near the *Phlox*,

LITHOSPERMUM PROSTRATUM should not be forgotten, as blooming at the same time, which it does, and having flowers of as rich and deep a blue as a Gentian, the effect is most charming. As its specific name implies, it is of prostrate or procumbent habit, and only lifts its slender branches a few inches from the ground, which, where the soil suits it, it covers with a thick carpet and blooms profusely from all the young

growths. The way to propagate it is to take cuttings from the half mature shoots and insert them in sharp sandy peat pressed firm, when they should be covered with a bell-glass or handlight, and kept shaded in a cold frame or north border till rooted.

ALSTROMERIAS are now opening and will soon be at their best, and, taking into consideration how exceedingly showy and lasting they are, the wonder is that they are not more cultivated, but this may be through people having failed with them, owing to planting them where the position was not warm enough, or the soil sufficiently light and well drained. To be successful with them and grow them well they must have a sunny border sloping to the south, and if close under a high wall or fence so much the better, as not only are *Alstromerias* apt to be injured by frosts in winter, but they are very liable to have their young tops cut by cold winds in the spring, as they are out of the ground early and rather tender when they first make their appearance. The way to prepare for them is to trench the ground deeply and add plenty of leaf-mould and sand, when the plants should be planted, if dormant, 6 inches beneath the surface, and if growing as much below as the tops will allow, which enables the tubers to strike down and keep out of the grip of hard frost. A good plan of starting with *Alstromerias* is to sow seed scattered thinly, and covered about an inch deep, which should be done where the plants are to remain, as they cannot well be transplanted. One of the most striking subjects in herbaceous borders at this time is

ANTHERICUM LILIAGO, which has very strong, tall branching spikes of white flowers with dark stripes up the petals. Anyone wanting a plant for naturalising in the wild garden, or planting in the foreground of shrubs, or by the side of water in conspicuous places will find this just the thing, and, being a strong grower, it is quite able there to take care of itself. The mode of increase is by division, which may be effected any time during the winter or spring, when it may be cut through and pieces removed by the aid of a spade. Another plant that lends itself to be treated in the same way and suitable for similar positions is *Solomon's Seal*, which, from its gracefully arching stems, laden with silver coloured bell-shaped blooms and covered with delicately tinted pea-green foliage, is always a striking and pleasing object wherever placed.

THE DAY LILIES, too, especially *Hemerocallis flava*, which has heads of showy yellow flowers almost as large as *Amaryllises*, are remarkably fine, and should be in every garden of any size and pretension, as they make a grand show. *H. Kwanso* is a very strong growing variety, having rich brownish coloured blooms, and there is also a beautifully variegated form of the same kind that has much white in the long broad leaves, which in a young state are very nice looking, and plants of it are quite worth growing in pots. Where these Day Lilies do best is near water or in damp soil, where they soon attain a large size, and have a striking appearance.

PLANTAIN LILIES (*Funkias*) are also plants of noble aspect, the most remarkable among them being *F. Sieboldi*, a kind that has magnificent foliage, as not only is it large and Palm-like, but the colour is quite unique, being of a bluish tint of green and the surface glaucous. The beauty of this *Funkia* does not end here, as it sends up stout flower-stems which bear blooms in shape like those of Lilies, and the smaller sorts, like those of *F. ovata*, are very useful for cutting. To see *F. Sieboldi* at its best it must be planted in deep rich soil, where it can have partial shade and plenty of moisture, which bring out the peculiarities of its fine leaves, and enable them to attain their fullest development. *F. ovata* is best for borders, where, in early summer, the variegated section, of which there are many, have a choice and distinct appearance.

PEONIES, both tree and herbaceous kinds, are simply grand, their large, full flowers so richly coloured being gorgeously beautiful, and producing a striking effect when seen in borders backed

up by low-growing shrubs, a position for which they are specially adapted, and the tree varieties also look well standing as single specimens on lawns. The way to propagate these latter is to graft them on pieces of roots of the herbaceous sorts, which should be done in the spring, when, if the grafted plants are placed in close gentle heat they soon start and unite, and may then be planted out in the open. All the herbaceous varieties admit of ready increase by division, the time for effecting which is just as they are beginning to grow, as then any wounds made by severing the parts quickly heal over instead of rotting, as they are apt to do if the plants are interfered with when they are dormant.

COLUMBINES are quite a host in themselves, there being now so many kinds, and most lovely some of them are, my favourites being the soft canary coloured *A. chrysantha* and the large and distinct *A. cœrulea*, which, being of a beautiful shade of blue, contrasts well with the other. Unfortunately, the last named is not a very good grower, and many lose it through the soil not being light and suitable, and not sowing sufficiently often; to make sure of good flowering plants, it is necessary to treat it as a biennial, but *A. chrysantha* will stand for years and get strong. What affects this variety injuriously is the cold winds in spring and late frosts, to avoid which it should be planted in sheltered spots and somewhat dry elevated positions. *A. glandulosa* is a fine robust sort, as are likewise most of the hybrids, and many of these and the original *vulgaris* may be easily naturalised by the sides of woodland walks or other semi-wild places, which they help much to enliven, and where they look quite at home. The way to start with them is to clear patches of ground here and there and plant strong plants, which will then seed about and continue to spread, as they are well able to hold their own with the weeds and Grasses around.

GENTIANA ACAULIS is, and has been, most charming, lines of it being thickly studded with its upturned blossoms of blue, which open and close as the sun shines and sets. Patches of this Gentian are all very well, but to see it in its glory a long row of it is wanted, and the place for that is along the side of a walk as an edging or a margin to a border, where if the soil is tolerably deep and cool it grows well, especially if planted between, partly buried, large flint or other stones, which hold the moisture and entice the roots round them. With care in watering, and by shading a little after their removal, Gentians may be divided and planted now, as under such favourable conditions they soon get fresh hold and start off again.

PYRETHRUMS are at present the gayest of the gay, the colours being rich and varied, and the flowers of the double sorts as large and full and well formed as those of French Asters. The single kinds are also likely to come into great favour, as they are light and elegant in outline, and the ray florets exceedingly bright and effective. To grow Pyrethrums well they must have good soil where they can send their roots down, and find plenty to feed on.

ANEMONE FULGENS and coronaria have been superb, beds of the latter being a mass of blooms, which have gone to seed, and this, if not picked when ripe, is soon scattered broadcast by the wind and distributed all over the garden. Those who have not these Anemones should sow at once on a light, sunny border, for though this would have been better done sooner, the plants raised will bloom in the spring and afford plenty of flowers for cutting.

CAMPANULAS of various kinds are just opening, the most showy being the biennial species *C. calycanthema media*, plants of which make a splendid display, as they are full of big bell-shaped, variously coloured blossoms from base to summit. To have them strong and good next season seed should be sown now, and when up the plants pricked or planted out in rows to grow on for removal early in autumn.

DELPHINIUMS are fast sending up their spikes, and one or two are already open, the first to show

being the good old *D. formosum*, which will be quickly followed by the charming *D. Belladonna*, one of the best of the family.

IBERIS GIBALTARICA HYBRIDA is a mass of pure white, and the Irises, both bulbous rooted and common, are all aglow with their multitudinous spikes of grey blossoms, so curiously formed and marked, and so rich and lovely in colour, as almost to rival some of the choicest of Orchids, which they greatly resemble. It is only in light warm soils that the bulbous species do well, but the English Irises will flourish anywhere if they can find plenty of moisture.

S. D.

CATANANCHE CÆRULEA.

IN most gardens this plant is of annual or at most biennial duration only, but on warm sandy soils it



Catananche cœrulea.

now and then becomes truly perennial and of great beauty as a late summer-blooming plant of distinct habit and ornate character. The plant has long been known in English gardens, since we find a good figure of it in the *Botanical Magazine*, t. 293, and we are there told that it comes naturally from the south of France, "where it grows in hilly situations that are stony. It is a perennial herbaceous plant, moderately hardy, and has long been cultivated in our gardens, Mr. Aiton says, by Parkinson in 1840." Miller treats of it in his dictionary, and yet it is by no means a common plant in cultivation. Another species, *C. lutea*, is interesting as a botanical curiosity, but it is by no means so showy as is the plant under notice. *C. cœrulea* is easily increased from seed sown during the spring or summer months. The plants soon become strong enough to be planted out in the borders where they may remain until they bloom. Here in Dublin this plant is perfectly hardy, the only precaution we take for its safety being to put a little heap of coal ashes or sand around the collar of the plant ere it dies down

for its winter's rest. Large plants afford a good supply of mauve-blue flower-heads for cutting, and as an ordinary hardy plant for the outdoor decoration of bare ground it deserves more attention than it at present receives. F. W. B.

STOCKS FOR SPRING FLOWERING.

FOR the last three years we have had Stocks in bloom in April, May, and June, and they are so very useful then that their culture for blooming at that time is well worth general attention. In most places cut flowers are constantly in demand, and when Stocks are in bloom thus early they certainly rank amongst the most valued flowers one can get from open-air borders. Their bright and varied colours, and above all their sweet scent, delight everybody. They might be used in many spring flower gardens, and where there is no place for them in such positions they might be grown in the borders of the kitchen garden or in shrubberies; indeed, when in bloom they can hardly be out of place anywhere. The varieties most suited for spring and early summer blooming are the Emperor, Brompton, and the Giant Cape. Seed of these should be sown about the end of July in a bed or row anywhere. It should be sown thinly and covered over with about an inch of soil. The young plants will soon come up and grow fast in August and September, and in October or November they should be transferred to their flowering quarters. If sown and grown thinly in the seed bed they will not become too crowded before planting, and they may be drawn up on a wet day and dibbled in where they are to grow. Previous to planting the ground should have been dug up, and in doing this if the soil is poor it should have a good coating of manure added to it, and soils of all kinds should always have a dressing of soot worked into them before the Stocks are planted. This prevents them from being destroyed by maggots at the root—a common occurrence, and troublesome in many parts where precautions of this kind are not taken. When planted they will take care of themselves through frost or snow and all weathers, but if a few have been left in the seed bed, they may be used to make up blanks in March. In that month the plants will begin to grow, and then the Dutch hoe should be run between them. After this growth will go on rapidly and flowers will soon make their appearance. In all Stock beds there will be single and double flowering plants; the single flowering kinds some dislike and pull them up, but this is a mistake, as single sorts are just as pretty as the double ones, and in a mixed bed or border they are equally effective; besides, it is an easy matter to save seed in autumn from spring-blooming stocks, and in many instances it would pay to allow the single ones to remain in order to secure this object. One thing is certain: nothing can be more easily grown than Stocks to flower in spring, as their culture is all in the open air, a circumstance which alone ought to secure for them the attention of all who have a garden and who love bright-coloured fragrant flowers.

J. MUIR.

Exhibiting alpine flowers.—My reply to "Peregrine" (p. 529) shall be very brief, as I decline controversy with people who do not sign their names, and yet profess to know a great deal more than those who do. I have shown that the *Auricula* is not forced. It blooms naturally at the time fixed for the shows; and, to prevent forcing, the rules are enforced that there shall be no artificial supports. It should be practically the same in exhibiting alpine and hardy plants. If a show is fixed for May the plants should be selected accordingly, and there are quite plenty of suitable ones to be had which require no forcing. If a show was to be in August, you would select autumn plants. I have had a pretty large experience, and know that it is perfectly practicable to make a good display of plants in proper character. I should be sorry to show a plant otherwise. If, however, a fashion obtains, and is encouraged by the judges, of showing plants in May,

taken from the whole range of the seasons, and you have to force plants such as *Pæonies*, *Phloxes*, *Campanulas*, *Pentstemons*, and other midsummer and autumn bloomers, and crowd huge lanky specimens out of all character and merely true to name into your thirty or forty plants, I say such an exhibition does harm, and is unworthy of any society whatever which has the real good of floriculture at heart.—WM. BROCKBANK, *Brockhurst*.

5008.—Violets in September.—Violets would be rather unseasonable in September, but we have had the Neapolitan producing a few stray blooms at that period. During my experience of their culture I have found them extremely capricious. One time I considered myself foremost as a Violet cultivator, and I believe I was the first to exhibit them in London, and was highly congratulated on having produced what had not often been seen before. The past two years, in a different locality, has convinced me that I owed much of my success to local circumstances. My stock of the Neapolitan and Marie Louise consisted of a dozen of each two years ago, and they number about the same now. The Czar we manage satisfactorily in frames. It would be interesting to know where in Lancashire one could see three or four kinds of Violets well grown. Perhaps some one will kindly supply the information.—W. P. R.

Hairbell and Bluebell.—Concerning this subject there seems to be two almost insuperable difficulties: 1, whether *Hair-* or *Harebell* is the correct orthography of the word; and 2, that being satisfactorily settled, to which of the two plants, *Campanula rotundifolia* or *Scilla nutans*, is the name to be applied. The subject was pretty fully ventilated in "Science Gossip" during 1881, with the result that we were left at the conclusion about as wise as we were at the beginning. If *Hairbell* be the proper mode of spelling, then evidently it can only suit the *Campanula*, as it would require a very vivid imagination to see any resemblance to hair in the *Scilla*. If, on the other hand, *Hare* be the way in which it should be spelt, then the difficulty as regards settling the matter is greatly increased. "*A. H.*" (p. 523) seems to have settled it satisfactorily to himself, but I fear that others will scarcely be so easily satisfied. He is probably right in regard to the *Hairbell*, but when he speaks of *Agraphis nutans* being the *Bluebell* of Scotland, and *Hyacinthus non-scriptus* the English *Bluebell*, one is amazed at the easy way in which he disposes of the subject. These two names are (according to Hooker's "Student's Flora") synonyms for the same plant, *Scilla nutans*, so that "*A. H.*" makes the Scottish and English *Bluebell* exactly the same. This may be desirable for the sake of simplicity, but it is scarcely according to fact. In Scotland the *Campanula* is almost universally called the *Bluebell*, while if the name be applied at all to the wild *Hyacinth*, it is always distinguished as the English *Bluebell*. The white variety of both species, although not plentiful, is found occasionally in this locality. Only last week I saw about a dozen white *Scillas* growing among a quantity of their blue-flowered companions.—W. McL. B., *Carlisle, N.B.*

Lilies of the Valley for market.—Allusion has been several times made in THE GARDEN to the excellent way in which Messrs. Hawkins & Bennett, of Twickenham, grow Lilies of the Valley for market. Under their culture the spikes of bloom of the Victoria variety, the kind which they grow, reach a height of from 12 inches to 14 inches, the bells being very large and handsome, and of the purest white; the leafage is also wonderfully robust; in fact, in this variety, under this firm's cultivation, Lilies of the Valley are seen in the finest possible form and in the highest development of beauty. None of the roots are subjected to forcing, but are grown in huge beds in the open, and in defiance of the assumed need for shade on the part of this Lily. All the earliest are obtained from plants growing on a broad south border, the warmest position in the place. Early in the year these beds are edged with boards, and over them lights are laid, to protect them from the weather and induce earlier growth. The latest beds are found behind the plant houses, and these

get no covering, but throw up bloom naturally. In this way the season of bloom lasts for some two months, and during that time immense quantities of spikes are gathered and sent to market. It is a peculiar property of the Victoria kind that, owing to its stout stiff habit, the spikes of bloom keep fresh and erect after being cut for a long period, and are readily purchased by bouquetists and floral decorators, because of their many good qualities. The beds seldom remain longer than six years untouched; they are then broken up, the finest crowns selected for new blooming beds, and the smaller ones make nursery beds; but so robust is the average character of the crowns throughout, that very small indeed is the percentage of them that are unfit for the blooming beds. The soil, when new beds are formed, is well prepared, and there is no stint of manure. Still farther, each bed gets in the autumn a top-dressing of rotten manure, and through this in the spring the crowns burst, full of strength and vigour.—A. D.

KITCHEN GARDEN.

CARDOONS AND THEIR CULTURE.

CARDOONS, though grown only in great gardens, are well worth a trial wherever a piece of ground can be spared for them. The blanched stalks of the inner leaves are put into soup, and when cut up fine they may also be used in salads during autumn and winter. On the Continent Cardoons are grown more extensively than with us.

THE SEED for the earliest crop should be sown in March, either in pots or boxes filled with light, rich soil; sow thinly and cover with some of the same soil as that in the pots; then place them in a warm house or pit. After the young plants appear they must be kept as close to the glass as possible. When furnished with two or three leaves place them in a cold pit or upon the shelf of a cold greenhouse until large enough to handle, when they may be pricked into boxes or into a prepared bed in a cold frame, where they may remain until they have become large enough to be planted into a prepared bed of rich soil; there they may be left until ready to plant in the trenches in May. The general or main crop sowing may be made the third week in April; choose a warm, sunny border, and enrich it with rotten manure or decayed leaf-mould. Sow either broadcast upon beds or in drills 6 inches apart and 1 inch deep, thinning the young seedlings out to 3 inches apart in the rows. If sown broadcast rake the seeds well into the surface with an iron rake. When the seedlings are large enough to handle, thin them out to 4 inches apart, when they will grow short and stocky. When left thick in the beds they become drawn, and seldom make good plants when put out into the trenches. They will be large enough to plant out in seven or eight weeks from the time when the seed is sown, provided proper care has been taken of the young plants. Sometimes trenches are made and the seed sown at the same time at distances of from 18 inches to 2 feet apart, thinning out the seedlings singly. The soil most suitable for Cardoons is a light mellow loam not over rich.

THE TRENCHES should be made the same as for Celery, but wider apart, a good distance being 6 feet, and they should be 18 inches deep and the same in width. Dig some rotten manure into the bottom of the trench, the quantity used being according to the richness or otherwise of the soil; if too rich, the plants are apt to grow too soft, and often hollow. The earliest plantation may be made about the middle of May, and the second, or main one, the last week in June or early in July, watering the plants well when planted, treatment under which they will be found to make plenty of young roots and to grow away satisfactorily during the summer, requiring little more attention except keeping down weeds and watering copiously in dry weather. In poor soil a dressing of artificial manure may be given once or twice, putting it in the bottom of the trench and forking it into the soil, watering well at the same time, or liquid manure may be used occasionally when the plants are in a young state.

BLANCHING is effected by earthing up the plants when nearly full grown, which will be from August till October. In performing this operation the leaves should be gathered together carefully and tied with strands of bast, or, what is better, lightly made haybands. When tied, earth up as is done with Celery, pressing the soil firmly round the plants as the work proceeds. If properly done the central stalks will become perfectly white. Continue the earthing up at intervals until the plants are moulded up to the top of the leaves, which should be some time in October. After that the plants will be blanched and ready for use in five or six weeks, and will keep good until spring, *i.e.*, if litter or dry Fern be placed over the crowns in frosty weather, or they may be lifted and stored in a dry shed or cellar free from frost, where they will keep in good condition for a long time. A good method of blanching Cardoons is to dig a pit 4 feet deep and 5 feet wide, and upon some fine day when the leaves are perfectly dry, dig up the plants and cut off the green tops. The plants may then be planted close together, but they should not touch one another. Make the pit any length which will hold the plants and cover it over with planks, over which put a thick coating of straw. In the course of a few weeks the stalks will be found to be finely bleached, and may be used as required. If they blanch faster than they can be used, they may be lifted and laid in a dry shed or cellar perfectly dark and free from frost, where they will keep good for six or eight weeks.

WM. CHRISTISON.

PEA PRODIGES.

ALTHOUGH this heading is very appropriate to the remarks of "J. S. W." (p. 527), it does not apply to anything I have written recently or at any time on Peas. It is well known that early kinds of Peas will grow in ground in which Marrows will rot, and I never knew anyone who said anything to the contrary when speaking of Peas sown in winter and the earliest spring months, but that has nothing to do with late Peas, to which my observations wholly referred. All kinds of Peas will grow freely in July, August, and September, and questions as to what sorts grow best then never crop up; but when it is desired that the pods should fill throughout October the question of hardiness arises, and all my experience and observation go to prove that late sorts are then the best and hardiest. When "J. S. W." affirms that "early Peas will endure the hardest frosts, which late ones are injured by," he gives information which is of no value practically, so far as late Peas are concerned, while had he furnished any proof that early Peas would go on filling their pods during the hardest frosts in autumn when the so-called late kinds were being injured he would have been doing something towards helping some one to secure late Peas. The low night temperatures generally experienced in October do not favour the fruitful development of any Pea, and when hard frost occurs one kind is just as easily injured as another. "J. S. W." is wrong when he says that no Pea has been found to surpass *Ne Plus Ultra* as a main crop or midseason variety. It is years behind many good kinds, and the very last I would think of advising anyone to grow now-a-days. I agree with "J. S. W.'s" suggestion that prodigies should be seen as well as heard of; no doubt many productions represented as prodigies would have been short-lived had this mode of dealing with them been put into practice. "J. S. W." need not, however, come here in August to see Peas, as we have no demand for them in that month, but if he likes to come in July I will be pleased to show him a few varieties of Peas such as he has never seen before, including a tall growing Pea which has podded profusely all over in four weeks less time than William I.

J. MUIR.

Margam, Taibach, Glamorganshire.

5009.—Thrips on Cucumbers.—Successive fumigation and frequent syringing are the most likely means to rid Cucumbers of thrips. The

syringing should be done with a fine rose or distributor, and the operator should aim at those parts where the thrips are most numerous. In this way I have managed to keep the same plants from nine to twelve months tolerably free from spider, and perfectly free from thrips.—W. P. R.

SOWING LETTUCES.

I SELDOM attempt transplanting Lettuces during the summer and early autumn months, as they do

rich and tolerably firm soil, and as our Potatoes do not quite exhaust the quantity of artificial and solid manures they receive, it follows that the Lettuces are also much benefited by them. Should the ground be at all dry at sowing time, the drills are first drawn, then well watered through a coarse rosed watering-pot, and after the seed is sown the soil is levelled. This plan of enclosing moisture with dry soil instead of watering after the seed has been covered is much the best, not merely for Lettuces, but for all other seeds. When the weather

favour of any hardy or so-called hardy green variety. Besides, the Brown Cos does not run to seed so quickly as the green or white varieties. Consequently, it should be sown regularly if only to secure a succession to any of the "superb," "mammoth," "incomparable," or "giant" selections of the Paris White Cos. W. I. M.

Summer Spinach.—One of the most delicious, and at the same time easily cultivated,



Yellow Dutch Cucumber.



Green Flesh Sugar Melon.



Wax Gourd (Benincasa cerifera).



Yokohama Gourd.



Canadian Crook-neck Gourd.



Early Bush or summer Crook-neck Gourd.

VARIETIES OF GOURDS (see p. 559).

not succeed so well as those sown where they are to grow. This is especially the case on poor land. If there is abundance of good semi-rotten manure not deeply buried, but forked into the surface of the soil intended for Lettuces, they may be transplanted during hot weather, and will grow quickly and to perfection; but our garden is not well supplied with manure, and my plan is to make fortnightly sowings in two drills about 30 feet long, but in smaller gardens one quarter that length would be ample. No ground is given up entirely to Lettuces, as early in the season we plant or sow between the rows or intended rows of Brussels Sprouts and autumn Broccoli. Later on, say from the beginning to the end of July, according as the early Potatoes are lifted, and between which are planted Broccolies of various sorts, several rows of Lettuces will be sown. They are not greatly interfered with by the Broccoli, and seldom fail to prove most serviceable for autumn and early winter salads. Lettuces delight in a

is damp and the slugs troublesome, the rows of seedlings are occasionally dusted with soot or slaked lime, early in the morning being selected for the operation. When of good size and where the plants are at all crowded, they are lightly thinned out, and any blanks can a few days later on be made good by transplanting with a trowel. A distance of about 10 inches apart is ample for Lettuces during the early part of the season, but in the autumn 6 inches to 8 inches is sufficient. We generally sow two sorts each time, one always being the Black-seeded Bath Cos, which I consider invaluable, whether for spring, summer, or autumn work. It requires to be tied up to have it properly blanched, but when it is fit for use it is unequalled, whether as regards whiteness, crispness, or flavour. Brown Lettuces do not find favour in the markets, hence the introduction of hardy Green Cos varieties. With gardeners and amateurs the case is very different, and they will make a blunder if they discard the Brown Cos in

vegetables is the Round-seeded or summer Spinach but, singular to say, it is not grown nearly so much as it ought to be. It is regarded by most people as a luxury only to be enjoyed by the rich, but any one who has a garden and can grow Potatoes or Cabbages may have a supply of tender succulent Spinach, the only difference being attention to keeping up successional crops. Little and often should be the rule as regards sowings. We get abundance of it by drawing broad shallow drills between rows of Peas, and as soon as large enough the leaves are cut wholly off, and the crop finished at once, as it soon runs to seed. However, by sowing a little about every alternate week we have no lack of Spinach. During the months of July and August a shaded, cool position should be selected for it, such as a north border on which the sun's rays are not too powerfully felt. For Spinach good rich soil is indispensable at all times, as the quicker it grows the more succulent and delicately flavoured are the leaves. There are

many so-called substitutes for summer Spinach, but when well grown none equals the Round-seeded common summer kind. I find it best at this time of year, after sowing the seed, to give the drills a good soaking of water before covering in the seed. After that it vegetates regularly and rapidly, and is soon ready for use.—J. GROOM, *Seafield, Gosport.*

AMONGST THE CAULIFLOWERS.

ALL who can call to mind the advent of the Walcheren variety must freely admit that Cauliflowers have been greatly improved, and the gain has not been wholly in one direction, for the season of use has also been extended. The old purple and white Cape varieties that twenty-five years ago were standard kinds for autumn use are now seldom seen. They have been superseded by varieties of better quality, and which come into use at the same time.

THE WALCHEREN may be described as an early summer and late autumn kind, but it is best in summer, that is to say, when sown in early spring, it comes into use in July and August. It is, however, not always satisfactory, being liable to produce very deformed heads, but when in good form none beats it. We use it at two distinct seasons, viz., early summer and late in autumn; for the first we sow about the end of August, winter the plants in handlights or frames and plant them out in March. These come into use about the middle of June and last for a fortnight or more. For late autumn and winter use we sow about the middle of June, but are careful to give the young plants every possible chance of growing quickly. We either sow in a temporary frame or on a warm border where the seedlings come frequently under the eye, and can have the requisite attention in the way of watering. About the end of July the plants are large enough to be planted out. They are then put into ground on which early Peas grew and which is always manured in winter for the Peas. It therefore only requires forking over and the hard lumps broken to pieces to make it suitable for the Cauliflowers. Drills are then drawn 3 inches deep. We prefer planting in drills in summer, for when the plants want water it is more concentrated than when applied on a level surface. We place the plants 2 feet apart every way, and, except that they may want an occasional watering when first planted, they give no further trouble, except keeping them free from weeds. As to coming into use, a good deal depends upon the weather. In mild autumns some of them will probably be ready by the middle of October, but we never want them so early as that, as supplies at that time can be had from another variety. Our aim is to get this sowing fit for use in November and December, and it is not often that we are disappointed, but we have to watch the crop during severe frost; a few degrees does it no harm, but when the thermometer reaches 10° or 12°, heads large enough for table are not safe. On the approach of frost we go over the plantation and lift any that are ready for use, and replant them in a bed of soil in a pit or frame where they can be protected.

VEITCH'S AUTUMN GIANT is also a valuable Cauliflower. When sown in September it succeeds the Early London and Walcheren, sown at the same time, thus carrying on the supply until the early spring sowings come into use. It is also a valuable exhibition kind when the heads are obtained from September-sown plants, but with me it is useless as a summer variety when obtained from sowings made early in spring under glass. I find it comes in admirably in July from September-sown seed, and in September and October from sowings in the open ground in April. One great fault of this variety is its tendency to produce blind plants, or rather, I should say, the plants go blind after they are planted out, and the numbers that do this in dry weather is sometimes alarming. For delicacy of flavour and the whiteness of its heads it is unsurpassed.

DWARF ERFURT.—This is a summer variety of great excellence. It is dwarf and compact, and produces fair-sized heads of good colour and

flavour. If the seed is sown on a warm south border where the soil is rich any time between the 1st and 15th of April, and otherwise well cared for, it will come into use in August. Being a dwarf grower, it does not require so much room as other sorts; a distance of 20 inches apart every way is ample space for it. It is not a desirable kind to sow in the autumn to furnish a supply for early summer use, as it is rather tender.

EARLY LONDON.—In what way some of the so-called new kinds differ from this I cannot say. Having tried most of them, I must confess that I cannot see any difference. However, I have no wish to deter anyone from growing new sorts; I can, however, with confidence assert that Early London is not easily beaten. The time for sowing to furnish a supply of plants to stand through the winter under the protection of handlights or in pits or frames will vary according to the locality. In the west of England I find the first week in September to be quite early enough, but farther north probably a fortnight earlier will not be too soon. This variety is a vigorous grower, and in a good rich soil can be grown to a large size. As a summer variety, sown in April, I do not consider it equal to the Dwarf Erfurt.

STADTHOLDER.—Before Veitch's Autumn Giant was introduced this was my favourite sort for use during August and September. In order to secure a supply for the first-named month I used to sow on a gentle bottom heat early in March, and nurse on the plants in boxes until they could be planted out. From these we obtained a fine supply of magnificent heads. A second sowing should be made in the open ground about the middle of April, the produce from which will turn in for use in September. This variety is hardly so self-protecting as some; it is therefore necessary to watch the heads as they expand, or strong sunshine may discolour them. In other respects it is a very desirable kind to cultivate for late summer use. In the way of

CULTIVATION there is little more to be said. It may, however, be of some service to the inexperienced to say that the Cauliflower can only be successfully grown in a rich, deep, well-stirred soil; and it is one of those subjects that do not object to fresh manure if well incorporated with the soil.

J. C. C.

RHUBARB AND ITS CULTURE.

RHUBARB finds a place in every great garden in the country, and no matter how small the cottager's plot may be, it is sure to include one root or more of Rhubarb. Its cultural wants are few, and it is not at all liable to become diseased or injured by insects. As a rule we find it planted in out-of-the-way corners. In such positions six roots will frequently not yield so much produce as one good one would do under more favourable circumstances. Deeply dug, heavily manured soil and a shadeless position are the conditions under which the best Rhubarb is produced. The best way of propagating Rhubarb is by division of the roots, an operation which should be done before growth begins. Surface mulchings both in summer and winter with strong manure are of great assistance to Rhubarb, but all the feeding should not come from the surface, and before planting the ground should be turned up and manured thoroughly. Forced Rhubarb is most valued by many, being very tender, but it should be had equally so out of doors throughout the spring, summer, and on until September. As generally treated it becomes very tough by June, and then its use ceases; but we have had it as tender and beautiful in colour three months after the time just named as ever we were able to get it in April or May; this is done by never allowing any stems to remain on the plants after they have become too old for use. It may often happen that there is much more produce than is required at a particular time, but this should not be taken as a reason for allowing the stems to become old; on the contrary, I would advise them to be pulled off and thrown away, thereby encouraging a regular supply of young growths to be produced. By taking away the old stems, young ones will continue

to come to the very end of the season, and with plenty of feeding, I have proved that their removal will not injure the plant more than does taking them off in spring. A dozen of our plants treated in this way last autumn have been furnishing us with many good gatherings lately, and they will be subjected to the same treatment again. All who wish to grow Rhubarb for exhibition should adopt this plan, especially for autumn shows, as the stalks will then be spring-like as regards tenderness and purity of colour. I have sometimes pulled away every stem visible from our Rhubarb in July, the result being that in August and September we had a young crop, the growth of which was admired both in the garden and on the table. Where roots are wanted for forcing from Christmas onwards a few of them may be allowed to mature their growths as early in the season as possible, but where nothing of this kind has to be provided for I would always encourage them to throw up young growths until September.

CAMBRIAN.

MAGNUM BONUM POTATO.

I AM afraid that this well-known variety of Potato will in this district, at least, be shortly numbered among the "cast-offs." Last season it grew weakly with us and our neighbours, not requiring nearly so much space as was given the sets, and this want of vigour, as might be expected, resulted in a light and, for the variety, a much diseased crop. This season I procured a change of seed from a considerable distance in the hope that our old favourite would again prove profitable, but, judging from present appearance, it will not be so. Scotch Champion, Reading Hero, Regents, and Schoolmaster are all growing splendidly, but the Magnums are anything but vigorous. What is the matter? Has the variety so quickly become worn out? I used to think, though I suppose erroneously, that one of the American varieties, partly, and it may be accidentally, originated Magnum Bonum, but then these are most profitable during a dry season. Nothing could look better than the American varieties do this season; even the old Early Rose, which some of the cottagers still stick to, has made exceptionally rapid and strong growth. The soil in the district is heavy and not well suited to Potatoes, but it seems strange that this apparently most vigorous of growers should be the first to collapse in an unfavourable season. Perhaps my experience is singular. I hope it is, but at any rate unless Magnum Bonum rapidly improves it will next season be wholly instead of, as now, partially replaced by Reading Hero.—GROWER AND EXHIBITOR.

White-seeded Kidney Bean.—As a late Bean this is superior to the Scarlet Runner, although in most respects, except in the colour of the seed and the flowers, it somewhat resembles it. I have planted it as late as the middle of June with good results, but as a rule the first week in June is quite late enough to plant runner Beans of any kind. It often happens that those Beans which are sown early and which have to bear the heat of July get exhausted before autumn, and then late-sown crops become exceedingly useful, as in every garden there should be plenty of Kidney Beans till cut off by frost. The main and also the late crops of Kidney Beans should be planted on good land; the rows should be at least 6 feet apart, and even if wider they will succeed all the better; indeed, all tall crops such as Kidney Beans and Marrow Peas are best isolated with dwarf crops between the rows, and the further the latter are off each other the better, as plants that have plenty of light and air make more sturdy growth and larger, better built-up foliage, and feel to a less extent the vicissitudes of climate to which we are so much exposed than those closer planted. Mulching, if only short Grass from the lawn, should be attended to as soon as the weather becomes hot and dry and the plants appear distressed; in fact, we ought not to wait for the plants to become distressed with heat and drought before we help them in this respect.—E. H.

Cauliflowers and maggots.—I have heard a good many complaints this spring about maggots making sad havoc among early Cauliflowers. The first symptoms of their presence is the wilting of the leaves, and in the course of a few days the plant dies. The maggot, a small, white hard-skinned larva, perforates the stem underground. Sometimes several are found in the stem of one plant, and they are generally more troublesome in dry seasons than in wet ones. They also attack Brussels Sprouts and other members of the *Brassica* family at this season. Fresh lime and soot are very useful both as preventives and also for their destruction. In transplanting Cauliflowers or Broccoli, if any doubt exists as to the condition of the plants, dress their roots with the following mixture: To 6 oz. of soft soap add two wineglassfuls of paraffin oil, and blend the two well together; then mix with two gallons of soft water. When this has been well stirred, thicken it to a puddle with lime and soot, and dip the roots and stems in just before planting. Any less quantity may be made in the same proportions. Any plants too large to be so treated, water with soot and lime water, or strew soot and lime round their stems and water them in.—E. HOBDAY.

Johnstone's St. Martin's Rhubarb.—Messrs. Laird & Sinclair seem to be displeased because I recently published in THE GARDEN the conclusions resulting from a trial of Rhubarbs at Chiswick, sample bundles of which were shown at South Kensington for the inspection of the fruit committee. Looking over these, I noted Johnstone's St. Martin's with both the Linnæus group and the Early Red or popular London market kind, the names of the respective firms who had sent these kinds to Chiswick being given on the labels. To those I made no reference, but it was particularly unfortunate that this so-called new Rhubarb should have been in two distinct forms, inasmuch as it was not possible to say which was the true sort. If the kind is either one or the other, it is not new. If it is neither, then it would seem that the true sort cannot be at Chiswick, and Messrs. Laird and Sinclair will do well to send roots of the true kind there as soon as possible. No doubt the kind in question is a seedling, but Rhubarbs are seldom cross-fertilised, and as a rule reproduce themselves, yielding nothing new. In any case, if Messrs. Laird and Sinclair are dissatisfied with the Chiswick representatives of their Rhubarb, they can soon remedy the defect.—A. D.

—This has long been a favourite with me, but it is probable that inferior varieties are sometimes substituted for it. The description given of it (p. 527) agrees with my experience as regards the variety which I grew as the true St. Martin's. It was excellent in colour, and produced an early crop of medium sized stalks which were very tender and juicy; in fact, we always relied on it for the earliest and latest supply, as in addition to forcing readily, it was naturally at least ten days earlier than the larger coarse growing kinds like Victoria, and for this reason it was usually pulled very hard at first. It was then allowed to grow unmolested until the end of the season, when it again came into request, as the stalks of this kind were tender and juicy when other sorts were hard and stringy. I consider it to be one of the very best varieties to grow for private use. Market growers of course want size, but anyone requiring a few roots for their own use should most assuredly select a variety that produces a quantity of medium sized stalks such as this does. As regards growing Rhubarb, a good kitchen gardener has said, "Always select a site near the manure heap, and do not forget to apply it liberally at the winter dressing."—JAMES GROOM, *Gosport*.

—Would Mr. W. W. Johnstone add to our indebtedness to him for telling us the origin of St. Martin's Rhubarb by giving a description of the true variety, in order to satisfy growers of it that they have the real sort? This is necessary, seeing that it is known that there is much being grown that is not true.—AN OLD RHUBARB GROWER.

Early Peas.—Until this season I always had an idea that William I. was at least as hardy as Ringleader, and perhaps one ought not to draw conclusions from so exceptional a season as the

present one has been. I sowed Ringleader and William I. on a south border on the 11th of last November under exactly similar conditions. Both appeared to do equally well until the March winds blew through them; and now whilst the Ringleader rows are quite full, those in which William I. grows are very thin. However, there is no question that the latter is about three days the earlier. This has been a bad season for autumn-sown Peas, and very little has been gained in point of earliness. We gathered our first dish of autumn-sown William I. on June 13. Autumn-sown Ringleader are now (June 16) just about fit to pick—I mean, of course, the most forward pods. William I., sown on February 26, is also in just about the same condition, and there is not more than a day or two difference between the latter and Kentish Invicta, sown on the same date. Emerald Gem, sown about the middle of March, is running them close, only a few days separating them. The autumn-sown crops have the shelter and warmth reflected from a south wall, whilst the February sowings are growing in rows running north and south across the open quarter. Taking the average of seasons, I find that Peas sown about the third week in February are nearly as early as those sown in autumn, and they are usually more prolific.—E. HOBDAY.

GARDENS AND PARKS ABOUT DUBLIN.

TO THE EDITOR OF THE GARDEN.

SIR,—Permit me to say a few words on this subject, the result of a recent visit to Dublin. Trees and shrub vegetation seem fresher and healthier in that city than in any large town with which I am acquainted. Pink and white Hawthorns and Laburnums look invitingly over the railings in the squares. In the neighbourhood of Trinity College Garden the roads are lined with stately trees, and the garden itself is most interesting. Unlike that at Edinburgh, one does not enter it through a hole in the wall; on the contrary, it is enclosed by fine iron railings, over which Laburnums hang their golden tresses, and through which may be seen under their shade and that of other trees Daffodils, Bluebells, Foxgloves, and other underwood plants. Inside there is a feeling of quietude which is most delightful, and which one would scarcely expect in a garden wholly surrounded by buildings. Its trees, the growth of some eighty years, are in many cases large and healthy, especially some of the *Cratægus*, *Pyruses*, *Beeches*—purple, Fern-leaved, and others, *Elms*, weeping and otherwise, and *Hollies* of different kinds, for which this garden is celebrated. Of Hodgins's Holly and *Ilex balearica*, two kinds a good deal alike, there are some fine specimens; but, singular to say, while the former is clean and healthy, *balearica* is, in all cases, infested with that Holly pest called *Phytomyza aquifolia*, a leaf miner, which causes the foliage to blister, then turn yellow, and eventually to wither and drop off. Last winter, though merciful to Londoners, was a hard one in Dublin. *Euonymuses* were killed outright—a fatality which even Mr. Bain, so long curator of this garden, never remembers to have happened before. On walls various shrubs, such as *Berberis nepalensis*, *Magnolias*, *Benthams*, *Ceanothuses*, *Smilaxes*, *Edwardsia microphylla*, and the *Paulownia*, have suffered severely—not wholly, perhaps, from the effects of last winter, but also from those of its predecessors. Wholly untouched by frost is the Tennessee Yellow-wood (*Virgilia lutea*), here a tree 20 feet high, or the *Weigela*, a bush on the open lawn, 8 feet by 12 feet, spreading and weeping—a good illustration of what shrubs become when freed from crowded shrubberies. On the wall the Potato Tree (*Solanum crispum*) was beautifully in bloom; also *Akebia quinata*—quite a hardy plant here. *Pittosporum undulatum*, too, has stood the winter well, and so has *Garrya elliptica*, a bush, or rather tree, between 15 feet and 20 feet in height.

The different borders are as full of plants as they well can be, Mr. Burbidge having added largely to them since this garden came under his care. Of Daffodils and Christmas Roses he has

unique collections, as well as of Irises, Lilies, and Primroses, some of the last, as, for example, varieties of the Japanese kind, being even now in bloom in a shady nook. The three varieties of *Eulalia*, striped, barred, and green, are also here, as are likewise various crown, alpine, and other *Anemones*. *Spiræa Aruncus astilboides* reaches a height of 6 feet or 7 feet, and when in bloom is as handsome as any of the genus. Of Siebold's Plantain Lily I observed some grand clumps, and also a plant or two in bloom of *Meconopsis nepalensis*, a handsome Himalayan Poppy, very peculiar in colour, owing to the yellow aspect which the whole plant presents. Squills of different kinds grow and bloom well partially shaded by trees, especially those belonging to the campanulate section, and the same remark applies to Plantain Lilies, Pæonies, and the common London Pride, with which a shady walk is thickly edged. The Satin-leaf (*Heuchera Richardsoni*) forms a good hardy border plant, and in a cut state is excellent for indoor decoration, lasting long in water; under sunshine its colours are most beautiful, and they are scarcely less so under artificial light. *Ourisia coccinea*, quite hardy everywhere, promises to be a valuable plant, as are also *Camasia esculenta* and its white variety. The botanical arrangement, beginning, as is usual, with Ranunculaceæ, and ending with Ferns and other Cryptogams, contains some 2000 species planted in beds separated by 4 feet wide Grass walks, and every plant is well and conspicuously labelled, which it should be where, as here, the collection is kept in a quarter by itself wholly for educational purposes. Other parts of the garden are less formal; here a bit of rockery planted with *Aubrietias*, *Saxifrages*, *Iberises*, dwarf mule Pinks, *Alyssums*, the white *Phlox Nelsoni*, and similar plants, and crowned with *Cotoneasters*; there a bit of wall garden on which are the white *Toadflax*, the *Edelweiss*, the pretty little purple-flowered *Erinus alpinus*, *Stonecrops*, and some of the dwarf *Speedwells*. In another step or two one comes upon a pond filled with aquatics and edged with *Kämpfer's Iris*, which seems to like the moisture here afforded it, for it is growing with unwonted vigour. These, the well stocked glasshouses with Orchids, stove, and other plants, the fine collection of hardy flowering plants, and the rich tree and shrub vegetation, make this a garden of which Mr. Burbidge may well be proud.

PHENIX PARK, one of the loveliest of public parks, contains 1760 acres, boldly and charmingly undulated, and embellished by two noble pieces of ornamental water. There are 500 acres in the drill-ground alone, and thirteen in what is called the people's park, on the higher ground of which is some rock garden planted with *Aubrietias*, *Iberises*, *Alyssums*, and similar plants. The boundary fence is said to be seven miles round, and the park is bisected by a straight road three miles in length. Noble old Hawthorns, in many cases grey with Lichens belonging to the genera *Ramalina* and *Evernea*, are spread over hundreds of acres; in short, the park looks as if at one time it had been a Hawthorn forest, and just now when in bloom they have a wonderfully fine effect. Many of them are of large size, one being 8 feet in circumference. But there are other fine trees in this park. Two *Poplars* measured 10 feet 8 inches in circumference, an *Elm* was 11 feet 7 inches, two *Oaks* 14 feet 6 inches, another 13 feet, with a bole 20 feet high without a branch, a fine clean bit of timber; a *Larch* measured 7 feet 9 inches, a *Cherry* tree 8 feet, a *Beech* 9 feet, a *Sycamore* 9 feet, and a *Chestnut* 10 feet, measurements all taken at 4 feet from the ground. About the Vice-regal Lodge there are also some fine trees, especially a purple *Beech*, very old and of large dimensions, and in the grounds attached to the superintendent's (Mr. Dick's) residence there are some large *Welling-tonias* and other *Conifers*, especially a fine *Cupressus Lambertiana*, a species which was killed in most places by the severe winter of 1878. Irish Yews thrive, as they should do, well here, most of them being unusually large and spreading. Of *Thuopsis dolobrata* and *Libocedrus decurrens* there are also noble examples. In short, all the best hardy *Conifers* are well represented in this enclosure,

in which there are numbers of glass houses, and a nursery for supplying the park and public gardens with young trees. Fruit trees on a wall here were carrying good crops, especially one—an Apricot—on a portion of wall which was heated. This, Mr. Dick informed me, invariably bore good fruit, even in seasons in which other trees on the same wall were fruitless, a strong argument in favour of heated walls. Dying off of the branches, too, so common in Apricots, is likewise unknown in the case of this tree. Altogether everyone must be pleased with Phoenix Park with its broad acres of Grass, its miles of well-kept roads, its ornamental water, its Thorns and other trees, and last, but not least, its hill and dale.

GLASNEVIN was next visited, a charming garden, long under the curatorship of Dr. Moore and now ably conducted by his son, who is extending and improving it in the true sense of the word. A large piece of new ground has lately been added to the arboretum, and the valley through which the Tolka slowly meanders is henceforth to be rendered more attractive by being relieved of its overcrowded timber, by forming better pathways and by strewing broadcast wild flowers along the river banks and on the surrounding slopes. Higher up this glen one crosses a sinuous piece of water filled with Water Lilies and other aquatics, then recrossing it and passing Addison's Walk over-canopied with Yews on the rising ground the hill-top is reached, where there is a walled-in reserve garden in which are some fine plants. Here, as well as in Trinity College Gardens, we found *Veronica Hulkeana* flowering beautifully, a really good plant and hardy, at least against a wall. Here, too, was a fine collection of single *Pæonies*, *Saxifraga Wallacei* in all positions a bright and showy plant, *Meconopsis Wallichii* and *nepalensis*, the white *Ranunculus parnassifolius*, and the blue *Mertensia paniculata*. The great Mullein (*Verbascum Thapsus*) I also noticed here; boiled in new milk, it has the reputation of being a cure for consumption and other chest diseases, and for such purposes, Mr. Moore informed me, there is a great demand for it. The glass-houses are large and spacious buildings, especially good being what is called the curvilinear range. In the Victoria house is a grand collection of *Sarracenias*, some of them hybrids raised by Mr. Moore; conspicuous amongst them were *Chelsoni*, a fine kind with handsome red pitchers; *Drummondii alba*, *Williamsii*, and *flavamaxima*. The interior of the house is much like that at Kew; in the centre is the Royal Water Lily, and in the little tanks at the corners are blue and red flowering *Nymphæas* and other interesting plants. In the New Holland house the variegated *Phormium Cookii* was in flower, a stately plant with leaves 9 feet high and 8 inches broad, cream striped and very beautiful, quite different from the ordinary split-leaved variegated kind. In the Palm house were some noble specimens, and in one of the stoves, *Brownea Ariza*, from New Granada, was in flower, each cluster of blossoms being bright crimson-scarlet, and as large as the largest double *Pæony* I have ever seen. *B. grandiceps*, another fine species, has also flowered in this garden. Alluding to *Pæonies*, I may just mention that the Moutans on the lawn have been badly injured by the winter. *Crinums*, once considered to be hothouse plants, are grown out-of-doors here planted close to the walls of the houses, and treated just as one would *Belladonna Lilies*. On *C. latifolium* fourteen flowers were counted in one head, and *Mooreanum*, amiable, and others were equally floriferous. All they need is deep planting and a covering of leaf-mould or ashes in winter when the tops have died down. One of the most interesting houses at Glasnevin is the Filmy Fern house. Nowhere else have we seen such vigorous specimens, and nowhere else are these plants treated in such a simple manner. No bell-glasses cover even the finest species, and in the coldest winters no heat is ever given, yet the plants look healthy, and are unusually large and fine, some of the *Todeas* measuring quite 5 feet through, the dense feathery fronds arching on all sides down to the stage in a most graceful manner. Such a house as this anyone might possess.

All that is wanted is a north wall against which to build it and a shaded roof. At one time it was thought these Filmy Ferns must be kept closer than other Ferns, and therefore those on the back stage were cased in with glass. This Mr. Moore has partly taken down; and finding that its removal inflicted no injury on the plants, he intends soon to take it wholly away. All they want is to be kept damp and shaded, and they will not fail to thrive.

In the Orchid houses many sorts of *Masdevallias* were in flower, such as *M. rosea*, *Backhousiana*, *Roetzlii*, *igneae*, *Sanderiana*, and other rare kinds. In the case of warm houses in which large plants are kept in pots or tubs, such as Palms and tropical Ferns, Mr. Moore is in favour of a floor made of ashes which, when kept damp, supplies the atmosphere with moisture and maintains it in a much more genial state than a floor made of flagstones would do.

In order to show the interest taken by the public in this really fine botanic garden, I was informed that some 40,000 persons visited it in May, a large number considering that the population of Dublin is only 235,000.

A new public park has been formed at Blackrock, and starting from this up Merrion Avenue, Mount Merrion, one of the seats of the Earl of Pembroke, is reached, a charming place for many years under the care of Mr. Welsh. There is here a good kitchen garden, a noble park, and fine pleasure grounds, which, lying high above the sea, overlook the bay at the mouth of the Liffey, bounded on one side by the "wind-swept" hill of Howth, and on the other by the Dublin mountains, even the distant Sugar-loaf coming into view, a panorama comparable only with that seen from Arthur's Seat at Edinburgh. Being associated with so much natural beauty, no paltry bedding is attempted at Mount Merrion; no rockery, except a few Moss-clad boulders cropping out of the turf, finds a place there. On the contrary, its chief features are its woods, traversed by well-kept walks, its ample lawn, and the noble avenue through which it is approached. There is also a large and well stocked kitchen and fruit garden, and several houses of well-grown Orchids, Ferns, and fine-leaved tropical plants. J. M.

FERNS.

BEST CULTIVATED FERNS.

(Continued from p. 534.)

DOODIA.—Although not an extensive genus, this is one very rich in decorative Ferns of small habit, as, with the exception of *D. blechnoides*, all the species and varieties which it contains are of dwarf growth, but nevertheless they are found very useful, especially for Fern cases, for edging of window boxes filled with taller growing kinds, as one often sees now in London houses on north and north-east aspects, where they replace with advantage flowering plants which cannot be expected to prosper under such conditions. Although some of them grow more luxuriantly in stove temperature, and produce more massive foliage under such treatment, none of them positively requires great heat; the cool or the intermediate houses are the places suitable to all of them. They are equally valuable for mixing with cut flowers, as in that state they keep fresh for a considerable time. Again, they are very useful for forming an undergrowth in cool houses devoted to Orchids, &c., the more so that they are a class of very clean plants, being seldom infested with any insect, and they bear fumigating without receiving any injuries therefrom. As they are of very accommodating habit if planted under or grown amongst other plants, they will bear with impunity syringings that may be found necessary to the welfare of the other plants, or do equally well without, as the case may be. They should be potted in a compost of three-parts of peat and one of silver sand. I have never seen them derive any benefit from loam being added to the compost; indeed, I think it prevents the fronds attaining their full development, and

have always noticed that a light soil suits them much better. The drainage of the pots must not be overlooked, as they are very sensitive to the effects of stagnant water.

D. ASPERA.—A very fine Australian species, of erect, bold-growing habit, and very dark green in colour. The fronds, which are produced in great abundance, are very harsh and rigid; they are lanceolate in shape and pinnatifid, broadest in the centre, and average from 8 inches to 10 inches in length. In a young state, and until they are quite developed, they are of a very beautiful purplish metallic hue, which gradually turns to the darkest green. Greenhouse.

D. ASPERA CORYMBIFERA AND MULTIFIDA are two very pretty and interesting garden varieties, both differing widely from the typical plant, and yet being totally distinct from one another; they are both of dwarfier and of more compact growth than the species from which they spring. The variety *corymbifera* is of stiff, erect habit, and has its fronds densely crested at their extremity, resembling in that respect some of the many interesting forms of our native *Athyrium Filix-femina*. In the variety *multifida* the fronds are longer, and, instead of being of erect habit, as in the preceding variety, are drooping and forked at their extremity instead of being densely crested; it is also of a much better habit, as it produces fronds in great quantities, whereas the variety *corymbifera*, although very pretty, is not at all liberal in the production of its tufted fronds. The young foliage in both varieties is of a beautiful coppery tint, changing to dark green with age. Greenhouse.

D. BLECHNOIDES.—This handsome Australian species is the largest or tallest growing of the whole genus in cultivation; its highly decorative pinnatifid fronds grow from 12 inches to 15 inches high. They are produced from an upright short stem, and are broadly lanceolate and rigid, of a dark green colour, with pinnae broadly ciliated on the edges. Greenhouse.

D. CAUDATA.—This, although the commonest kind, is one of the most useful of all *Doodias*; it is the best for growing in Fern cases, and also for growing under plants of any sort where a green background is requisite. It is also very useful for planting on the wall or in any crevice of the rock fernery, where it displays its pretty wavy foliage to great advantage. The fronds, which are produced very freely from a central crown, are from 5 inches to 9 inches in length. It also differs from the other species belonging to the same genus in bearing two distinct sorts of fronds; the sterile are pinnate, with oblong pinnae, flat, somewhat undulated, and closely set together, whereas the fertile ones, although pinnate also, are totally different, for they have contracted pinnae set rather far apart. The barren fronds are drooping, whereas the fertile ones are rigid and stand erect about 6 inches or 7 inches high; the pinnae of both are slightly cordate at the base, and both fronds are terminated by a tail-like process, often measuring 2 inches long. Native of Australia. Greenhouse.

D. CAUDATA LINEARIS (confluens).—A New Caledonian variety which somewhat resembles the preceding species, from which it seems to issue, especially as regards the barren fronds, which are very similar in appearance, but the fertile ones are less divided; they both rise from an erect caudex, and grow to about 8 inches long, the barren pinnatifid below, the fertile confluent, so as to become linear; these are much contracted. It is most useful for small Fern cases. Greenhouse.

D. DIVES.—A very handsome and most distinct species from Java, and the only one in the whole genus which requires stove temperature. The fronds are produced sparingly when compared with the other species; they grow to about 15 inches high, and are of a dark green colour and pinnate; the lower pinnae, about 2 inches long, are stipitate and auriculate on both margins; the upper ones are differently placed—they are sessile and much shorter; the stalks are black and rather scaly. It is particularly remarkable for its prominent and large sori.

D. MEDIA (lunulata).—A very pretty New Zealand species; indeed, it is perhaps the most charming of the genus. It is of a more slender and pendulous habit than any of the others. When young the fronds, which grow from 10 inches to 18 inches long, are of a light red tint, changing with age first to a metallic colour, then to a dark green; they are lanceolate in form, pinnate, and the margins of the obtuse pinnae are spiny-toothed throughout. It is most elegant, and its fronds are very useful for cutting. Greenhouse.

PELLEA.

ORCHIDS.

Cattleya guttata.—Of this superb Orchid Messrs. Thomson & Sons, Clovenfords, Galashiels, send us a wonderfully fine variety remarkable for the unusually rich colour of the lowermost lobe of the labellum, which is a brilliant magenta. In contrast with this is the pale mauve colour of the unfolding wings of the lip, while the thick wax-like sepals and petals are pale purple copiously freckled and blotched with carmine. It is one of the finest varieties we have seen, and quite distinct.

Saccolabium guttatum.—Rarely have we seen such a fine spike of this lovely East Indian Orchid as that which has been sent to us by Sir Alexander Ramsay from Cheltenham. It measures 21 inches, and of that length 18 inches are densely covered with blossoms, which seem to be more profusely spotted than ordinary. A superb wreath such as this indicates skilful culture, and this is corroborated by a similarly fine spike of a splendid variety of *Cattleya Mossie* from the same garden, and which carries four finely developed flowers on one spike.

Epidendrum nemorale is, in our opinion, one of the gems of the genus, for it combines such elegant growth with such beautiful flowers. The latter measure some 2 inches or more across, and are of a delicate rosy pink, the broad labellum being exquisitely veined and pencilled with a deeper tint. The flowers are produced in clusters on tall slender stems springing from plump egg-shaped bulbs. It is an indispensable plant for growing in an intermediate house. There is now a fine example of it in bloom in Messrs. Shuttleworth & Carder's nursery, Clapham.

Lælia purpurata.—A variety of this *Lælia* noticed in a late number of THE GARDEN is described as having mauve-purple petals and sepals and a deep port wine coloured lip. I fancy most of the later importations of this species approach this description nearer than the original, and, as many think, better form with white petals and sepals and a rich crimson-purple lip. We have a number of plants of the dark kind, from some of which we have lately cut spikes with five large flowers on each, but they were all recently established imported plants when we got them. A small plant which I got at Dr. Paterson's sale at Edinburgh, and just now unfolding its buds, three on a spike, promises to be more like the old variety, as I knew it about twenty years ago. These dark kinds have no purple in their composition, and should be known by another name. The original and typical form was white with a purple lip, and at a distance looked more like a white-petalled *Cattleya Mendelli* than the present dark-flowered *Lælia purpurata*.—J. S. W.

SHORT NOTES.—ORCHIDS.

Palumbina candida is a pretty white Orchid, reminding one of *Odontoglossum pulchellum*, but the flowers are less wax-like and the labellum unusually long and oval in shape. It is grown with the cool Orchids at Kew, where it is now in bloom.

Oncidium cucullatum Chestertonii.—This is a distinct variety and a very pretty one. It resembles the type and other varieties, with the exception of the colour of the flowers. The sepals and petals are a deep vinous-purple, almost a port wine tint, while the ample labellum is white, copiously freckled and spotted with rich carmine. It may now be seen in flower at Kew.

Broughtonia sanguinea.—By far the most remarkable of all the Orchids now in flower at Kew is an exceptionally fine specimen of this Jamaica species; it is attached to a suspended block, and is carrying about half-a-dozen slender spikes some 18 inches in length, each borne horizontally and terminated by a cluster of purplish crimson blossoms, which are exceedingly beautiful, the admiration of every visitor. As this is one of those Orchids seldom seen in a flourishing, much more in a flowering, state, it would be interesting to know the particular line of treatment accorded it at Kew.

The Dove Plant (*Peristeria elata*) is not so often met with in flower as one might suppose, and we have seen it nowhere this season, except in Mr. Soper's garden at 307, Clapham Road, where there is an uncommonly fine specimen now carrying a tall, stout spike of large, white, wax-like blossoms, the interior part of which so much resembles a bird. Mr. Soper is particularly successful in cultivating this Orchid, for it seldom fails to produce an annual crop of blossoms. He grows it in a moderately warm and moist house, and gives it much the same treatment as *Phaius* and other strong-growing terrestrial Orchids. One great point seems to be in not over-potting the plant or frequently shifting it from one pot to another. It is one of those Orchids which are best left alone for years if doing well.

Vanda Hookeri at Tring Park.—The treatment recommended by Mr. Hill last season has once more proved to be correct. At Tring Park there are now several plants of this *Vanda* in bloom, and of ten plants purchased last year no fewer than nine have flowers or buds on them. The result then is that *Vanda Hookeri*, under proper treatment, will flower as freely as an *Odontoglossum*, and so bids fair to become a plant for every collection. There seems to be two forms of it; one, with smaller, far less finely coloured flowers, and a thick stem almost of the size of *Vanda teres*, comes from Cochin China, and is far inferior to the thin stemmed, and finely coloured form from Borneo. A specially fine variety is now in bloom at Tring Park; the heavily spotted and deeply coloured lip is nearly 2½ inches across. A more beautiful Orchid than *Vanda Hookeri* cannot easily be imagined.

Masdevallias form now one of the chief attractions in Messrs. Shuttleworth & Carder's nursery in the Park Road, Clapham, and the collection includes some rarities as well as those of the ordinary class. Among the former is the new *M. cucullata*, to which allusion was made a short time since; *M. trochilus*, the Humming Bird Orchid; *M. Shuttleworthii*, and the singular *M. Chimæra*. Among the plants of the latter there is a variety remarkable for the chocolate tint of the slipper-like labellum, whereas in typical *M. Chimæra* it is white. The sepals, moreover, have a darker ground; in short, it is a most distinct and handsome variety. It is not yet named. Among the varieties of *M. Lindenii* is one remarkable for its unusual dwarfness, the whole sheaf of blossoms being not more than 9 inches or so in height. The plant is altogether a compact grower, an abundant flowerer, and brilliant in colour. The varieties of *Harryana* also comprise some very choice ones, the pick of the large importations which are made of these *Masdevallias* by this firm.

Vanda teres.—Having frequently to reply to the question, "How am I to grow *Vanda teres* in order to get it to bloom?" I have thought that a note respecting a plant of it which I saw the other day might interest those of your readers who are anxious to succeed with this truly lovely Orchid. At Mr. Druce's, Dulwich, there is now in bloom what might be termed a small plant of this *Vanda* with three spikes carrying twenty-one of its beautiful flowers, seven on each spike. The plant is about 3 feet above the piece of cork to which it is attached. On enquiry, Mr. Bachelor, the successful grower of it, informed me that it was never out of the stove, in the centre of which is an open water tank, but during the winter months it is hung up near the glass where there is always a genial moist heat. It seems, therefore,

unnecessary to nearly kill the plant with drying, which is often done in order to make it bloom. It is marvellously beautiful when flowered as this little plant now is.—HENRY JAMES, *Lower Norwood*.

INDOOR GARDEN.

LILIUM DAVURICUM IN POTS.

AMONG the most satisfactory Lilies for pot culture—that is to say, those from which a good show of bloom may be confidently expected even under very simple conditions—are the different varieties of *L. davuricum* or *umbellatum*, now grown largely by the Dutch, and imported in quantity during the winter months. They are cheap compared with most of the others, and are well worth attention where a supply of flowering plants has to be kept up. All that is necessary is to pot them as early as possible, and place them in a sheltered spot out-of-doors. In the event of sharp frost occurring they may be either covered with coal ashes or litter to prevent the soil from freezing too hard, but the covering must be removed before they start into growth in spring. They may be allowed to stand in the open ground till the blossoms are on the point of expanding, when they should be moved into the greenhouse, conservatory, or wherever required. If potted singly, 5-inch or 6-inch pots will be large enough, but they may be potted so as to form a mass. A good way is to put three bulbs triangularly in a 6-inch or 7-inch pot. In mentioning the size of the pot I refer to such bulbs as are commonly imported, as occasionally very large specimens are obtained, which will, of course, need a correspondingly larger pot. The bright orange-red or crimson flowers of these Lilies are very showy when used in conjunction with other subjects. *L. davuricum* will grow and flower well in the open border, to which the pot plants may be advantageously transferred after blooming under glass, and allowed to remain for two or three years before being again disturbed. Some of the best Lilies for this purpose are maculatum, spotted, orange-red; marmoratum, orange marbled with crimson; Sappho, very bright and deep orange; erectum, orange; and incomparabile, rich, glowing crimson, the most conspicuous of the whole, and one of the cheapest. By slightly protecting some they may be had in bloom by the middle of May, and on the other hand, may be retarded till the end of June.

H. P.

RHODANTHE MANGLESII.

THIS is deservedly a great favourite with everyone, its pretty rose-coloured blossoms being equally attractive in the bud state and when expanded. The white-flowered variety of it, too, is a charming plant. At one time these *Rhodanthes* were regarded as very difficult to cultivate, but of late years they have been brought into Covent Garden Market largely during the summer, and, in common with most things grown in quantity, many of them are excellent examples of good cultivation. Quite a sheaf of stems rises from the pot, all clothed with leaves that look as if mildew, once a great pest, was now unknown. The upper portions of the plants are masses of flowers, some expanded and more in the bud state, which with attention will continue to open for a long time. The flowers of this *Everlasting* are easily dried, and in that state preserve their beauty for a great length of time. Having been very successful in the culture of this plant, I am induced to give my mode of proceeding. The seeds are sown about the end of February in shallow boxes and placed in a gentle heat, when they quickly germinate, and soon after are removed to a frame, through which a single hot-water pipe runs—just sufficient to keep out the frost. Air is given freely, and when the first leaf is developed the young plants are pricked off at once into their flowering pots. Therefore better soil is required than if they were to be again potted off. Five-inch pots are a good size for them, and these I fill with a compost, consisting of two-thirds loam and one of decayed manure, adding a little leaf-

mould and sand to lighten it if necessary, but that will depend upon the consistency of the loam. The soil is pressed moderately firm, and about fifteen young plants are dibbled in at about equal distances from each other; a dozen is sufficient, but by putting in this number a few deaths are thus allowed for. The plants are set on a well-drained ash bed not far from the glass and have all the light and air possible in order to encourage a short and sturdy growth, so that by the middle of May the blossoms commence to open and the plants are soon in full flower. *Rhodanthes* require careful watering, and especially avoid wetting the foliage as they approach maturity; when young, it does no harm. A little weak manure water may be given with advantage as the pots become full of roots. By varying the time of sowing a succession may be kept up, and if sown in the open ground early in May a good supply of cut flowers will be obtained at a time when they are very acceptable. A double-flowered variety was sent out some six or seven years ago, but its blooms were wanting in elegance, and it seems to have almost, if not quite, dropped out of cultivation. H. P.

Fungi in propagating pits.—I send you some specimens of a fungus with which I have been much troubled in a small propagating pit in which I have Cocoa fibre and sand for the purpose of plunging pots of cuttings, seeds, &c. The fungus is most prolific, and the powder on it, which has apparently a power of self-distribution, spreads all over the place in which it is enclosed, and every grain seems to make a plant. The growth is very rapid, and I have little doubt that if undisturbed it would grow to a large size. You will observe what a brilliant yellow colour it has. Perhaps you may be able to tell us something about it. I have often seen it stated in *THE GARDEN* that Cocoa-nut fibre breeds a fungus, but though I have used it largely, I have never known it to do so except in this instance.—W. J. T.

*** The name of the fungus is *Agaricus cepæstipes* so named because the stem resembles a Scallion in shape. It is of exotic origin, and often a great nuisance in frames, pits, greenhouses, and stoves; sometimes, but rarely, it appears in gardens. No doubt your fibre is completely saturated with the spawn or mycelium; the growth of the fungus being so profuse, it may speedily exhaust itself. Your observation about the yellow meal spreading from the top of the fungus is curious.—W. G. S.

Torenia Bailloni and Fournieri.—During summer the different kinds of *Torenia* form handsome plants for indoor decoration, more especially when grown in suspended pots, for which their procumbent habit eminently fits them. Two very distinct and beautiful kinds are *T. Bailloni* and *Fournieri*, the first yellow with purplish tube; the other light blue shaded with deeper blue and furnished with yellow markings in the centre. For summer blooming sow a pinch of seed about the middle of February, and as it is very minute, a pane of glass placed over the pot will be sufficient covering. The soil used should be moderately light, and as soon as sown place the pots in the stove till germination takes place, when the glass must be removed, the seedlings kept near the light, and when large enough to handle pricked off. All that is now required will be to pot off when necessary, using a compost consisting of equal parts loam and leaf-mould, with a little sand and decayed manure. As soon as established they should be transferred to a somewhat lower temperature than that of a stove (that of an intermediate house is the most suitable), and shifted into 4-inch, 5-inch, or 6-inch pots, according to the size required. They may be grown larger still, but the plants in comparatively small pots are generally the most satisfactory. These *Torenia*s require to be kept near the glass, when about June the whole plant will be a mass of buds, and will continue flowering till autumn if the seed-pods are picked off, for they produce seeds in such quantity that if all were allowed to remain the plant would die of exhaustion. Throughout the summer these *Torenia*s do well in a greenhouse or

frame, for though they will flower out of doors, bad weather plays such havoc with the blossoms that they are unsatisfactory. When once a plant of each kind is obtained a stock may be easily kept up, as the seed which is so freely produced germinates readily, and plants raised annually succeed best.—H. P.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

- June 26.—South Kensington: Meeting of Fruit and Floral Committees of Royal Horticultural Society; and Pelargonium Society's Annual Show.
- 27.—Croydon Summer Show.
Cardiff Rose Show
- 28.—Regent's Park Evening Fête of Royal Botanic Society.
Southampton: Show of National Rose Society Richmond (Surrey) Annual Show.
- 29.—Canterbury Rose Show.
- 30.—Reigate Rose Show.
Bromley Annual Show.

NEW BRAZILIAN BEGONIA.—At the last meeting at South Kensington M. Pynaert-Van Geert exhibited from his nursery at Ghent a handsome unnamed species of *Begonia* from Brazil. It was remarkable for its fine foliage, which was large, less peltate in form than usual, and of a bronzy green, the satiny surface being prettily studded with white blotches.

THE SOCIETY OF ARTS' ALBERT MEDAL for "distinguished merit for promoting arts, manufactures, or commerce" has been awarded for the present year to Sir J. D. Hooker for the eminent services which, as a botanist and scientific traveller, and as director of the National Botanical Department, he has rendered to the arts, manufactures, and commerce by promoting an accurate knowledge of the floras and economic vegetable products of the several colonies and dependencies of the empire.

THE ASPARAGUS COMPETITION at the Colchester show last week was a good one. Mr. Harwood, who had secured the champion prize in London for 300 heads, was here beaten in the class for 100 heads by Mr. T. Pitt, of Colchester; so close was the competition for the premier position in this class that at one time we thought both deserved equal first. For 50 heads of Asparagus, Mr. R. Cheshire and Mr. Smith were placed 1st and 2nd, while Mr. F. B. Philbrick was placed 3rd, facts which show that Colchester must be regarded as one of the centres of good Asparagus cultivation.

KEW GARDENS.—We have rarely seen these gardens so beautiful and so full of interest as at the present time, particularly the open-air vegetation. The arboretum teems with numbers of trees and shrubs in full blossom, especially those belonging to the Rose and Pea families. Among the latter the finest are the *Robinias*, of which there is a full collection opposite the temperate house, and very fine isolated specimens near the flagstaff. The *Azaleas* and *Rhododendrons*, too, though now on the wane, are still worth seeing, the latest flowering varieties being, indeed, the most valuable. The herbaceous plant collection is full of gay and interesting plants, which, moreover, are doing their best to hide the ugly bareness of the recently formed rock garden. Visitors ought not to miss seeing the old Water Lily house, which is one of the most interesting houses of all just now, the *Water Lilies* being in full flower, including the new *Nymphaea zanzibarensis*. In the entrance porch to this house a bed of the huge *Amorphophallus campanulatus* is a fine feature, quite distinct from any other in the garden. The Orchid houses and adjoining stoves, too, are worth a visit, and likewise the Cactus house, in which some of the *Agaves* and *Dasylium glaucum* are sending up towering spikes through the roof of the house. The climbers under the roof of the conservatory (No. 4) are now at their best, includ-

ing *Clematises*, *Tacsonias*, *Fuchsias*, *Tea Roses*, *Loniceras*, all of which are in full blossom.

QUESTIONS.

5014.—**Celery maggot.**—I have a row of early Celery planted out and it is attacked by the maggot. Can any of your readers tell me what I am to do in order to stop its ravages?—G. W. C.

5015.—**Billbergias.**—Should these when showing a flower-spike in the bottom of a vase-like tuft of leaves be still watered? Should water be left in the same? and after flowering does the plant sucker and die? In full sun the leaves turn yellow; should they be slightly shaded?—GEO. NISBET.

5016.—**Gloxinia buds.**—I will thank your readers if they can tell me the cause of many of the buds on my *Gloxinias* growing blind. They seem right to a certain point, when the sepals immaturesly expand and the centre of the bud becomes hard, and sometimes turns black.—G. A. F.

5017.—**Stephanotis not flowering.**—Could some of your readers kindly inform me the cause of a *Stephanotis* failing to flower? It is planted out in a stove, and trained on the roof. It makes good growth, having covered one side of the roof, and it has only been planted about twelve months.—F. W.

5018.—**Water Lilies.**—Would some of your readers kindly tell me what kinds of *Water Lilies* I should put into two small ponds I have just made and cemented at the bottom in a very warm and sheltered spot—quite a Madeira climate? The ponds are about 4 yards by 2 yards. I have already the Cape Pond Weed (*Aponogeton distachyon*).—WELSHMAN.

5019.—**Freesias.**—What is the proper treatment of these charming bulbs after flowering? I notice on some of mine that what seem to be bulbs are formed in the axils of the leaves; are these of any use, and what is to be done with them? Others are seeding freely; can anyone kindly tell me what is to be done with the seed when it ripens, which, I presume, from appearances, it will do?—DELTA.

5020.—**Genista præcox.**—Perhaps some of your readers can answer the following question: Last year I had flowering at this time in the open border several plants of this *Genista* about the same time as the ordinary yellow and white *Portugal Brooms*, which are now blooming. This year none of the *præcox* is showing flower. Does the plant flower in our Scotch climate only once in two years?—D. M. H., Coldstream.

5021.—**Diseased Vines.**—I have in a small vinery with a south-west aspect two sorts of Vines, viz., *Black Hamburgh* and *Lady Downes*, which at present are almost in flower. Both Vines have been in perfect health these fourteen years past, but about two weeks ago most mysteriously *Lady Downes* showed symptoms of something wrong. The leaves turned partially yellow, and assumed the same appearance as they should do after their fruit has been long ripe; in fact, some have already dropped off, particularly about the base of the Vine. There does not appear to the eye any insect that might cause it. Can any of the readers of *THE GARDEN* give me any explanation as to the cause of the mischief?—G. J.

5022.—**Dying Cedar tree.**—Would any of your correspondents kindly inform me what I could do for a very fine Cedar tree which is dying? Its trunk measures 13 feet 7 inches. The tree is situated quite close to the road on one side; on another side stands a Fir tree about sixteen years old, 14 feet from it or thereabouts. The Cedar stands on a mound 4 feet high and 40 feet round, and the roots of the tree are now forcing their way above the ground. The lawn where the Cedar stands was levelled thirty years ago, which, I imagine, caused the Cedar tree to be higher as regards its roots than the lawn. This year no new shoots have appeared, and indeed a great many of the branches are quite bare. The soil here is chalk, but there are other Cedar trees doing remarkably well, and I am anxious to save this one if possible; therefore for any information on the subject I shall feel thankful.—B. P. O.

*** Our readers will greatly oblige by replying so far as their knowledge and observation permit to these questions. The title of each query answered should be prefixed to each answer, and replies will be printed in the department of the paper under which the subject falls. The questions that arise and must be solved are so many in these days, that it is only by a general interchange of ideas and experiences among practical men that we can hope to answer them satisfactorily.

SOCIETIES.

EDINBURGH BOTANICAL.

A MEETING of this Society was held the other evening in the Royal Botanic Garden, Mr. W. B. Boyd, president, in the chair. The treasurer submitted the annual statement of accounts, from which it appeared that the receipts had amounted to £87 6s. 2d., and the disbursements to £85 14s. 10d., leaving a balance in favour of the Society of £1 11s. 4d. The funds belonging to the Society amounted to £301 18s. 8d. On the motion of Mr. Taylor, the council was authorised to expend a portion of the Society's funds not exceeding £120 in defraying their joint publication with the author of a work on the "Hepaticæ of the Amazon and Andes," by Dr. Spruce, one of the non-resident fellows of the Society. Mr. Geddes read a paper on a small typical botanic garden at Grange House School, Edinburgh. The object of this garden was to arrange in a small space types of the principal Natural Orders, exhibiting their relations as clearly as possible for teaching purposes. This served as a key to a large garden, and was specially adapted for schools. Every school might have such a garden at an almost nominal expense within the limits of an ordinary garden plot. Any waste place in a town, from one-eighth of an acre and upwards, might be used in this way. Mr. Robert Lindsay, curator, read his paper on the progress of open-air vegetation at the Botanic Gardens. Since their last meeting, he said, open-air vegetation had made good progress, yet it was still much behind, owing in a great measure to the dry state of the weather. During the early part of last month the temperatures were below the average, while during the latter portion they were considerably above it. The thermometer was at or below the freezing point on four occasions, indicating collectively 9° of frost. During the corresponding month of last year there was no frost recorded. On the rock garden 243 species and varieties of alpine and dwarf herbaceous plants had come into flower during the month, making a total of 446 for the season, while at the same date (the end of May) last year 492 were recorded as having flowered. Though late, the show of hardy spring flowers was really fine, and they were now forming well-ripened seed. Surface rooting and recently planted trees and shrubs have suffered greatly from the protracted drought. Still, it was seldom that such fine, well-developed foliage and abundance of flower were seen on most kinds of deciduous trees and shrubs as was the case this season. Mr. Irvine, Drum Castle, stated that a *Rheum nobile* grown from seed planted six years ago had flowered in his garden. The plant was a native of the Himalayas, and very rarely flowered in this country. The plant stem was just now 37 inches high. *Rheum nobile* flowered in the Royal Botanic Garden, Edinburgh, two years ago, and was figured in THE GARDEN (see p. 406, Vol. XVIII.).

ROYAL HORTICULTURAL SOCIETY.

NEW PLANTS CERTIFICATED.—In our report of the floral committee meeting at South Kensington last week we omitted to mention that the following new plants—all shown by Messrs. Veitch & Sons—were awarded first-class certificates, viz:—

HYDRANGÆA ROSEA.—A new Japanese shrub, and undoubtedly one of the best novelties in the plant way that have been exhibited in London this year. It resembles the common *H. Hortensia*, but is more slender in growth and has smaller foliage. The branches are terminated by large dense heads of flowers all sterile, as in the ordinary form of *H. Hortensia*. These flowers are of a lovely rose-pink, so clear and pleasing as to win the admiration of everyone both at South Kensington and at the Regent's Park Show.

ACER CRATÆGIFOLIUM VARIEGATUM.—A prettily variegated-leaved form of one of the new Japanese *Acers* recently introduced by Messrs. Veitch. Its leaves, as the name implies, partake somewhat of the character of those of some of the species of *Cratægus*. In the normal form these

are a deep green, with reddish stalks and veins; but in this new variegated variety they are mottled and flaked with white. This *Maple* is, no doubt, quite as hardy as others of the Japanese race.

ACER POLYMORPHUM VARIEGATUM.—An elegant form of this very variable Japanese *Maple*, having prettily variegated foliage.

EVENING MEETING AT BURLINGTON HOUSE.

We give the following list of the plants shown in flower at the evening meeting on the 12th inst. by Mr. Loder, showing as it does what variety and beauty one may have in the open-air garden in early June. Mr. Loder's garden is at Floore Weedon, Northamptonshire.

<i>Aquilegia chrysantha</i>	<i>Lychnis viscaria</i>
<i>corulea</i>	<i>Pentstemon glaber</i>
<i>alpina</i>	<i>humilis</i>
<i>pyrenaica</i>	<i>Papaver alpinum</i> (white)
<i>glandulosa</i> (hybrid)	(yellow)
<i>Saponaria ocynoides</i>	(orange)
<i>Saxifraga Hostii</i>	<i>orientale</i>
<i>McNabiana</i>	<i>bracteatum</i>
<i>altissima</i>	<i>nudicaule</i>
<i>paradoxa</i>	<i>rufifragrum</i>
<i>incurvifolia</i>	<i>Gnaphalium Leontopodium</i>
<i>Cotyledon</i>	<i>Rhododendron ferrugineum</i>
<i>Wallacea</i>	<i>lepidotum</i>
<i>Carduus Benedictus</i>	<i>Narcissus Bulbocodium</i>
<i>Linaria alpina</i>	<i>poeticus</i> fl.-pl.
<i>pallida</i>	<i>Gentiana bavarica</i>
<i>Anemone decapetala</i>	<i>Euphorbia Myrsinitis</i>
<i>sylvestris</i>	<i>Hen-and-chicken Daisy</i>
<i>fulgens</i>	<i>Aponogeton distachyon</i>
<i>Convallaria bifolia</i>	<i>Ranunculus speciosus</i>
<i>Ononis rotundifolia</i>	<i>aconitifolius</i> fl.-pl.
<i>Ethionema grandiflorum</i>	<i>Orchis chlorantha</i>
<i>pulchellum</i>	<i>mascula</i>
<i>Onosma tauricum</i>	<i>Cypripedium macranthum</i>
<i>stellatum</i>	<i>parvillorum</i>
<i>Trientalis europæa</i>	<i>Calceolus</i>
<i>Artemisia argentea</i>	<i>Veronica gentianoides</i> fol var
<i>mutellina</i>	<i>rupestris</i>
<i>Androsace lactea</i>	<i>pinguifolia</i>
<i>Hutchinsia alpina</i>	<i>saxatilis</i>
<i>brevicaulis</i>	<i>Bellidistram Michellii</i>
<i>Thalictrum fedidum</i>	<i>Isopyrum thalicteroides</i>
<i>Rosa spinosissima</i>	<i>Aster alpinus</i>
<i>alpina</i>	<i>Calceolaria Kellyana</i>
<i>Ornithogalum umbellatum</i>	<i>plantaginea</i>
<i>Lindelia spectabilis</i>	<i>Geranium subcaulescens</i>
<i>Ajuga Brockbankii</i>	<i>tuberosum</i>
<i>Armeria grandiflora</i>	<i>sanguineum</i>
<i>juniperifolia</i>	<i>lancastriense</i>
<i>Mertensia sibirica</i>	<i>armenum</i>
<i>Viola pedata</i> alba	<i>Endressi</i>
<i>Geum miniatum</i>	<i>Eriogonum pumila</i>
<i>strictum</i>	<i>Erinus alpinus</i>
<i>triflorum</i>	<i>a. albus</i>
<i>Pyrethrum hybridum</i>	<i>Campanula garganica</i>
<i>Scnecio Boronicum</i>	<i>Jamnesia americana</i>
<i>Iris sibirica</i>	<i>Lupinus nootkatensis</i>
<i>germanica</i>	<i>Eriogonum rubrum</i>
<i>Phyteuma Charmellii</i>	<i>Hesperis matronalis</i> fl.-alb pl.
<i>betonicifolium</i>	<i>m. fl.-rub.-pl.</i>
<i>Cathartica villosa</i>	<i>Digitalis purpurea</i>
<i>Primula farinosa</i>	<i>grandiflora</i> (yellow)
<i>sikkimensis</i>	<i>Astrantia maxima</i>
<i>luteola</i>	<i>major</i>
<i>Dianthus fragrans</i>	<i>minor</i>
<i>Sinisi</i>	<i>Asperula odorata</i>
<i>alpinus</i>	<i>taurica</i> [num]
<i>petraeus</i>	<i>Draccephalum Ruyschia-</i>
<i>deltoides</i>	<i>Ixolirion tataricum</i>
<i>viscidus</i>	<i>Potentilla aurea</i>
<i>casius</i>	<i>ambigua</i>
<i>crucifolius</i>	<i>rupestris</i>
<i>sylvestris</i>	<i>Reseda glauca</i>
<i>Myosotis Surprise</i>	<i>Eritrichum floribundum</i>
<i>Ranondia pyrenaica</i>	<i>Gypsophila cerastoides</i>
<i>Milla capitata</i>	<i>Phlox divaricata</i>
<i>Melittis Melisophyllum</i>	<i>Alyssum Wiersbeckii</i>

English plant names.—Popular names, I find, cause a deal of confusion. For instance, the Bronze Leaf referred to by "Veronica" (p. 440) puzzled me as to what plant was meant till a lady (p. 500) elicited from "Veronica" the answer that it was *Rodgersia podophylla*, and then she suggested that a more appropriate name would be *Rodger's Foot Leaf*, thus making the application of English names a mere matter of taste. Therefore, to encourage the adoption of such names without the Latin one would, as I have said, simply create confusion. "F. W. B." says (p. 469), is it not unreasonable to expect every amateur gardener to learn Latin names for all the plants which he grows in his garden? To this question I answer, no. Anyone who grows plants for pleasure will think it no trouble to acquire a know-

ledge of their Latin names, even if it needed double the time to learn them that it would English ones, which it does not. If scientific education is to prosper, we must become acquainted with its technicalities; if English names are used, Latin ones must also be employed along with them.—J. S.

* * No one, we believe, has advocated the disuse of Latin names—impossible at present. The position of "F. W. B." and others is that they should seek, for all plants likely to be grown in our gardens, an English name, leaving the Latin one to be used as occasion arises and when really wanted. This is only asking for what is already in use in the case of fruits and vegetables. There can be no doubt that a fitting English name is useful and pleasant to many who would never use or care for a Latin one. Unfortunately, some who are facile in the use of technical names cannot see the human side of the question. The very general deafness to long names seems a contemptible weakness to them; whereas, if thought over, they would recognise it as an important condition, and one which must be met.—ED.

New hardy *Passiflora*.—We send you a seedling hardy *Passion Flower* which we have now in bloom for the first time on the open wall. The plant is as free growing as *P. corulea* and quite as floriferous.—LUCOMBE, PRINCE & Co. [The flower sent is apparently not in sufficiently good condition to judge of its merits.]

In Madeira.—In THE GARDEN of the 21st April last appears an article thus headed. Could the author of that article mention the number of days required to reach England from Madeira, and also the best book on Madeira, which gives details of its climate, cost of living, &c.? Is there a British consul there?—E. B. *Ettaah*, N.-W. P., India. [About four days. The best book is Miss Taylor's. There is a British consul.]

THE following has been communicated to us by the directors of the Crystal Palace Company: "Miss F. R. Wilkinson, a lady student in the landscape division of the Crystal Palace Company's School for the Improvement of Estates, has just been appointed a member of the council of the Kyrle Society, with a view to her specially advising in matters connected with the laying out and improvement of churchyards, gardens, squares, &c.—a beneficial department of the Society's operations. Mr. Sydney S. Marshall, who has just completed his course in the same school, has been appointed superintendent of works at Stoke for the new combined park and cemetery that is to be immediately laid out there."

Names of plants.—*E. H.*—*Allium Moly* (yellow), *Geranium sanguineum* (red), *Tradescantia virginica* (magenta).—*A. Wallace*.—It seems to be a variety of *Weigela rosea*.—*W. E.*—*Geranium sanguineum*, *Allium Moly* (yellow).—*J. Gray*.—*Staphylea pinnata*.—*J. B. Boyd*.—*Panacratium speciosum*.—*J. C. L.*—1, *Pentstemon glaber*; 2, *Saxifraga ceratophylla*; 3, *Cistus purpureus*; 4, *Campanula glomerata* var. *speciosa*.—*M. J.*—*Muscari comosum monstrosum*.—*T. Bunyard*.—1, *Allium neapolitanum*; 2, *Alonsoa incisifolia*; 3, *Dianthus plumarius* variety.—*Col. Wortley*.—1, *Rudbeckia hirta*; 2, apparently *Pentstemon speciosus*; 3, *Erigeron* next week. —*C. A. (Sub)*.—1, *Passiflora* or *Taconia*; 2, *Stauntonia hexaphylla*; 3, *Passiflora*; 4, *Chorozema*; 5, *Ficus diversifolia*. Send Nos. 1, 3, and 4 when they come into flower. —*C. H. Weston*.—1, *Geranium lancastriense*, a variety of No. 2; 2, *G. sanguineum*; 3, *G. nodosum*; 4, *Geum montanum*.—Flowers in flat box with no name and no numbers attached.—*Geranium*, *Eriostemon*, *Valeriana alliariifolia*, *Euphorbia corollina*, *Iris squalens* var.

GARDEN APPOINTMENTS.

CHRISTISON, Mr. Wm., has been appointed as gardener to H. G. Bainbridge, Esq., Woodham Hall, Woking, Surrey. CLARKE, Mr. John, as gardener to R. E. Wemyss, Esq., Wemyss Castle, Fife.

DUNCAN, Mr. Thomas, as gardener to Lady Gordon Cathcart, Titness Park, Sunninghill, Berks.

GODFARD, Mr. William, as gardener to R. Ketchell, Esq., Newton Park, Burton-on-Trent.

HITCHINSON, Mr. A., as gardener to Mrs. Russel, of Plassy House, Limerick, Ireland.

KNIGHT, Mr. Henry, as superintendent of the parks and gardens of his Majesty the King of the Belgians, at Laeken, near Brussels.

MASSON, Mr. W., as gardener to Miss Goolders, The Grove, Cookham, Berks.

MILNE, Mr. Charles, as gardener to the Earl of Rosslyn, at Dysart House, Fife.

"This is an Art
Which does mend Nature: change it rather but
THE ART ITSELF IS NATURE."—*Shakespeare.*

EARLY SUMMER ON THE HUDSON.

ASIDE from the many historic memories which seem for ever winding in and out of every bend and sweep of this graceful river, there is untold beauty in the charming valley through which it flows; and just now in June these banks and margins of this broad and ample waterway are clothed in a shower of glory such as no one can understand or imagine who has never looked upon it at this season. Those who have been fortunate enough to sail up or down the Hudson on one of its elegant steamers by a June daylight will remember the picture through life. Beginning with the high vertical wall of rock on the left as you leave New York Bay, with its narrow strip of green foliage at the base and border of the same at the top, where it touches the sky, and the velvety lawns of the pretty villas which adorn the river margin of the upper portion of Manhattan Island on the right, you glide rapidly on, as if sailing upon a ribbon of burnished silver, fringed on either side by most exquisite leafage. As the picture lies unmoved in the still water ever and anon at the vessel's side you gaze upon its lovely details enraptured. The scene is ever changing as you proceed, and there is no thought of monotony as so frequently suggests itself in river landscapes. Here, for over a hundred miles, Nature spreads on either hand a panorama of varied character and continuous beauty. Now, you gaze upon towering mountains, whose bases lie far down beneath the steamer's keel perchance, and whose rugged sides are a wild tangle of rocky grandeur, charming shrubbery and forest; now, you have a table-land gently sloping to the water, with green meadows dotted here and there with suburban mansions, pretty villages and hamlets, with church spires gleaming through the foliage and glistening in the summer sunshine, and, anon, you see rolling hillsides that make the slopes, the nooks, and the rich valleys where the farmer has planted his gardens and his orchards, which of late have made the entire locality a vast flower garden, fragrant with blossoms and bountiful with promise. After a few hours of this and more which I cannot even outline, a range of beautiful mountains looms up on the distant left. At first, far away, resting beneath the blue haze of the intervening atmosphere; but, soon after, you glide nearer and are enabled to study the numerous peaks more in detail. They are

THE CATSKILLS, now arrayed in fresh summer garments, throwing open their doors to tired humanity and tourists of every land. They rise abruptly in the air, some to a height of 4000 feet and more. A few of the peaks facing the river are dotted with huge white hotels plainly visible from the vessel's deck. Now you see village church spires in the foreground outlining themselves against the precipitous sides of the distant mountain, and then green and beautifully wooded foothills appear in the front, and thus continues the charming scene which greets one's eyes as we sail up the Hudson in June. Every flashing bubble of the silvery stream reflects the beauties of its leafy margins, and the music of each tiny wavelet adds harmony to the picturesque symphony of natural grandeur. If asked to particularise, I would not stop at the stiff architectural conceptions and productions of art. There are plenty of these all along the river. Money has been expended lavishly, and landscape engineers have wrought out their geometrical ideas with abundant effect. But in all this there is no beauty for me; the grouping of unassisted Nature is far more graceful and pleasing. She presents no cold fixed lines upon which the eye must rest with discomfort, no hard angles that jar upon the senses. I would point to the

graceful grouping of forest, hill, and vale, the clumps of shrubbery and foliage, and the gradations of colour, the fresh and tender green of the new growth on the Hemlock, the darker shades of the new leaves on the Oak and other deciduous trees, the luxuriant wreaths of Clematis, Ivy, wild Grape, and the numerous wild climbers that twine so beautifully among the branches that grow upon these river banks; and

THE ORCHARDS AND SMALL FRUIT GARDENS, where are they more beautiful, more vigorous, or more fruitful than in this fertile valley? The growers are proud of them; the very soil in which they stand seems honoured in their production. All are now laden with young fruit, and there is promise of an abundant yield. A portion of the western shore is extensively devoted to Peaches, for which the locality seems peculiarly adapted. These trees are now heavily fruited. Strawberries are already ripening, and the crop will be immense. This vicinity is also the home of the Raspberry; large fortunes have been made in years past by the growth of this fruit here, and nowhere else perhaps is the Raspberry grown so largely and successfully. Grapes are also grown here to an enormous extent, and one sees vineyard after vineyard on the banks stretching away as far as the vision extends at times. Currants and the whole class of open-air fruits are also largely cultivated, and this river valley is in truth one of the most fertile and productive fruit gardens in America. The growers make money and live in neat, well-kept houses which are often large and attractive. Enterprise and thrift greet the eye everywhere along the river. Among the residents are many names of eminence and renown; famous artists, inventors, scientists, journalists, philanthropists, pomologists, railway magnates, millionaires, preachers, and some of the most distinguished men of the country in every calling have erected elegant dwellings along the Hudson, where they reside most part of the year; and who will say they have not located wisely?

Kingston, N. Y.

H. HENDRICKS.

PICKING PEAS.

MUCH injury is often done to the Pea crop by careless gathering, especially in the case of late Peas, which are expected to continue in bearing longer than the early white round varieties. If the haul is carelessly handled or bruised, that successional character which many of the Marrow Peas possess is injured, or perhaps destroyed. If every Pea pod was gathered just at the time when it became fit for use, and if the plants were as vigorous as they ought to be when well grown, successional crops equal to, if not superior to, the first would be produced. Peas, like all other seed-bearing plants, will, so long as life remains, strive to perpetuate themselves, and it is interesting to watch the struggles which a plant will make pushing forth crop after crop of blossoms in order to fulfil its destiny; hence the importance of gathering the pods early before they get too old for use. The same principle should be acted on in the case of all kinds of legumes.

E. HOBDAV.

HARDY FERNS FOR SHADED GARDENS.

ONE frequently hears the remark made that plants do not succeed in certain gardens, but on inquiry it generally turns out that the plants selected have not been suited to the positions they occupy. Although some plants delight in abundant sunlight, others are equally at home in deep shade, and it is only by observation as to what conditions are most favourable for certain plants, and selecting them accordingly, that success can be achieved. In this locality, wherever the situation is open to sunshine, bright-flowering plants are the favourites, and thus many of our villa gardens are kept gay nearly the whole year round, the latest Chrysanthemums not being long removed before early flowering bulbs and many other plants are in blossom. But all gardens cannot have full south aspects, and it is refreshing on bright summer days to find instead of summer bedding plants

gardens in shady places filled with the verdant foliage of hardy Ferns and of other plants that dislike sunshine. When well established it is surprising how effective even the commonest of our native Ferns are planted in shade, and how beautiful they make many an otherwise uninteresting corner look; even little borders by hard paved yards or ground beneath large trees where nothing else will grow may be made cheerful by means of Ferns. Get together a few of the largest and roughest stones that can be obtained, and a load or two of good soil; make irregular mounds here and there, and on these plant the Ferns. Intermix with them a few dwarf trailing plants, keep them well watered, and they will soon produce a striking effect.

Gosport.

J. GROOM.

ROSE GARDEN.

THE ROSE HARVEST.

"DELTA" in writing on this subject seems in a most hopeful mood, and, judging by his reference to Mr. Fish's statements about injury done to the wood, appears to think that the latter has been too desponding; this may seem so to "Delta." The losses, however, which we had here in March and the injury done to those left have not, in my opinion, been at all exaggerated by Mr. Fish. No wood on the "cut-backs" was left sound, and, indeed, what little we thought healthy succumbed during the hot, sunny days in May and early June. Such terrible slaughter we never saw before so late. I quite agree with Mr. Fish that the blooming season with good Roses will be late. Looking to a brighter side, perhaps, Roses never recovered themselves so quickly, that is those left alive. Of dormant eyes, we lost many, both dwarfs and standards. I, however, agree with "Delta" that Roses never were so free from fly or grub as this season, but to say that they were not injured and killed in March, and have died since, is, so far as my experience goes, wrong. As to A. K. Williams, we have it in the form of standards, half standards, on the Manetti and seedling Briers, and among all our Roses it is the worst we have on the standard and half standards, more than 75 per cent. succumbing to the March winds. On the Manetti and seedling Brier we find it, too, equally tender, and not nearly so hardy as many of the stronger Teas.—W. H. FRETTINGHAM, *Beeston, Notts.*

A distance of nearly 200 miles must intervene between the gardens that Mr. Fish and I manage. His is in East Anglia; that from which I write is in West Somerset, a county reputedly notable for mild winters and favourable summers, which may, I grant, be true in part, but I must say I have not, after sixteen years' residence in it, found it much more favourable than most of the home and eastern counties. In respect to Roses, the neighbourhood of Taunton seems to be no more favourable than that of Bury St. Edmunds, for the condition of our Roses is anything but satisfactory. It is true I have hardly any deaths to record through the severity of the weather in March last, but I have abundant evidence in the shape of dead and dying branches and plants nearly killed to show that it has left its mark behind it; and if the Roses about which Mr. Fish has written have suffered to the same extent, he has not in any way exaggerated the amount of mischief done. "Delta" does not appear to have much sympathy with growers less fortunate than himself. But if he has any doubt about the injury that the frost has inflicted on Roses, I think dead branches and a score or two of nearly dead plants that I could send him would convince him of the truth of the matter. Once satisfied as to the losses sustained, he may then be able to discover how it is that Roses have suffered more in one garden than in another, and in places at wide distances apart. It is pleasant to turn from the afflicted Roses to those in fairly good health, for we have some such, and they are own-root plants put out in beds with their branches pegged down. These, although somewhat weaker than usual, are flowering well, and not a branch was injured by

the spring frosts, a convincing proof that in gardens where Roses are liable to injury from inclement weather they should be pegged down. In this way they will pass through a trying time much better than standards or what is known as dwarfs. —J. C. C.

—“Delta” might, I think, have expressed more sympathy than he has done with a brother rosarian with whom March has dealt harshly enough. Living, however, in the garden of England (Kent, possibly), and travelling southwards, his experience would naturally be different from that of one living in the east, and oftener than not wandering northwards. He seems, indeed, to be one of those fortunate mortals whose Roses have all been left in the most robust health and highest promise of first prize blooms. Last March, one of the most disastrous seasons to rosarians ever experienced, has been just to his mind, and woe be to the scribe or prophet who writes otherwise. It gratifies me to find that “Delta’s” experience and correspondence differ so widely from mine. It is sweeter far to me to agree with “Delta” than to lecture him for differing from me. And so I go on to note the wonderfully good effects of recent rains on the Roses. Time will soon reveal the true character of our local Rose blooms. To-day Diss is holding its show; on Thursday, the Bury Society has its meeting; on the 5th, Norwich and Woodbridge will show Queen Rosa together; on the 12th, Ipswich will do her best to eclipse all previous doings of her neighbours. These are but samples of the numerous little goes in the provinces that do so much to foster the culture and strengthen the love of the Rose among all classes of the population.—D. T. FISH.

—My experience is in direct contradiction to that of “Delta” as regards his *rosy* statements, and I must endorse Mr. Fish’s view of this, up to the present time, most disappointing season. Here, some ten miles north of London, we have gone through an unusually mild winter, and everything went well until the 7th of March, when severe frost set in, accompanied by strong winds from the north and east, which continued with little intermission through the month. Apricots, Plums, and early Pears were cut off, and we are only now realising the results of the cruel spring weather upon our Rose trees. As your readers are probably painfully aware, the east wind blows no good with it, and as it has persistently prevailed for the last three months, we have been favoured, or I should rather say scourged, with nearly every description of insect pest. I well remember the plague of leather-jackets or bots, the larvæ of the crane fly or daddy-longlegs (*Tipula oleracea*) in the north of England in the year 1880, and the amount of mischief caused by it, but we have never before been afflicted with this troublesome pest until the recent spring, when we have literally destroyed thousands of it, but unluckily not before they had killed our *Echeverias* and other plants by wholesale, and made ugly bare patches all over the lawn. The hedge-rows in fields and the herbaceous borders in gardens simply swarm with cuckoo spit. Our variegated *Ivies* have been to a great extent covered with black fly; and had it not been for the indefatigable perseverance and job-like patience of my floricultural chief, we should have had almost everything eaten up by the green aphids, the prevalence of which has exceeded anything within my recollection.—WINCHMORE.

Rosa Harrisoni.—Mr. Fish alludes (p. 537) to the free flowering habit of the almost unpruned branches of this Rose. Has he ever grown it as a dwarf plant without being pruned? If he has not, I can promise him he would be still more delighted with it in that form. We have two such plants that were planted nearly eight years ago. They have never been pruned, but have been allowed to grow as they pleased, and one especially has grown in a much more satisfactory way than ever I have seen this Rose do. As a standard it generally grows weakly, but as a dwarf on the Manetti stock it makes one of the most charming bushes imagin-

able if the pruning knife is kept from it. Grown as we have it here, its graceful arching branches render it a very conspicuous object, and the freedom with which it flowers in an unpruned state is something wonderful. The length of time during which it continues to flower is not the least of its merits; with us it flowers more or less for at least two months, and it is as early in coming into flower as any Rose we have; moreover, it is the only Rose except *Gloire de Dijon* that was not more or less injured by the cold weather which we experienced last March.—J. C. C.

FRUIT GARDEN.

ROOT-PRUNING.

In countries where the climate is favourable to the production of fruit—that is to say, where the heat and light and moisture are properly adjusted—root-pruning is not needed, as these agencies all work smoothly together to the same end. Root-pruning is a necessity incurred through an unsuitable climate and other causes, under which trees grow over-luxuriantly at the expense of fertility. For example, the Peach tree under glass in this country requires less root-pruning than it does out of doors, because in the former case, however rich the soil may be in which the roots are placed, the branches enjoy a higher and more suitable temperature, and are consequently better ripened every year; and ripe and fruitful wood is the main object of root-pruning. Outdoors, in this country, all tender fruit trees, including the finer varieties of the Apple and Pear, penetrate deeply into the soil, if they have the chance; and as deep soils are longer in being warmed in spring than shallow soils, and longer in cooling in the autumn, the consequence is that trees are late in starting into growth, and grow late into the autumn, so that they cannot ripen their growth properly, and hence do not bear fruit as they should do. Root-pruning—which does not so much mean pruning the roots as lifting them and bringing them nearer the surface within the influence of the sun’s heat and the air—is designed to prevent this state of things. Trees growing in deep or heavy and rich soils make many and strong roots, which produce corresponding strong and unfruitful branches. When such roots are lifted and shortened and laid in nearer the surface, the growth of the tree is earlier, better ripened, and more fruitful. There are often, however, cases in which failure to bear fruit is not due to over-luxuriance, and cultivators should be careful not to make any mistake on this head, as many, it is to be feared, do. Trees usually fail in fertility through over-luxuriance, high living, or poverty; but it is easy to tell which of these is the cause. Root-pruning is, as a rule, practised only on over-luxuriant subjects, which clearly enough indicate the need of it in their growth. The shoots are rank, strong, and barren, rarely producing fruit buds except at their extremities. Such trees are suffering from plethora, and the way to make them fruitful is to starve them in some degree. Poverty, which is often a cause of barrenness also, has to be dealt with in the opposite way. The trees must be fed, but of these we shall speak further on.

THE SEASON TO ROOT-PRUNE.—Root-pruning may be practised at almost any season of the year on Apples, Pears, Plums, Peaches, Cherries, &c.; but the proper season is when the leaves are on the tree, any time after June, when the current season’s growth has grown a bit hard—at least when severe pruning has to be practised. Many root-prune after the leaves have fallen, which is a safe practice; but it means the loss of a year, as the effects of the pruning are not felt until the second year following. Late root-pruning checks the growth the next season, but it usually also destroys the chance of a crop at the same time. On the other hand, by pruning early the growth of the current season is checked, resulting in the production of fruit-buds in the autumn and fruit the next. The check administered simply converts leaf-buds into fruit-buds, and; the root-pruning

being done when growth is only in progress, the buds are capable of being modified either way. Trees which need operating upon should now be examined. It is advisable to prune before the trees get too luxuriant and barren, as they are then more easily managed and kept in bearing. When a tree has been bearing well, and then begins to grow more strongly, and at the same time is less productive, it is time to root-prune, and little pruning will then suffice—a mere cutting round the outside roots almost—as the gross roots will not then have travelled far out of reach. Unless it is suspected that tap roots have gone down under the bole of the tree, the most that will be required will be the digging of a trench round the extremities of the roots a good way from the trunk, and lifting the roots up and cutting their points. This will give a sensible check to the tree without injuring the crop of fruit, if any. But if tap roots exist, such a pruning will do very little good. Tap roots are only likely to be found near the trunk, and they will be thick, strong, and carrot-looking, diving deep into the subsoil. They must be sought for carefully, by removing as much of the earth from the roots as can safely be done, till the block of soil near the trunk is reached, when it will be found practicable to excavate under it, and cut any roots off that may be found. In the case of established trees pruned when in leaf, it is not safe or wise to uncover the whole of the roots; a good ball of soil should, however, always be left untouched, according to the age and size of the tree. It may be scooped out underneath all round, to make sure no roots are going down, but not meddled with further, otherwise the check to the tree while in leaf may do it serious permanent injury—kill it, in fact. Summer root-pruning requires to be carefully performed. After the leaves have fallen it is different, as then any tree, no matter how old it is, may be lifted clean out of the ground and set down again, so long as plenty of roots are saved. For these reasons it is better to put off root-pruning of very strong-growing old trees that have not been disturbed for a long period till November, and do the work thoroughly then. The pruning of the roots really consists principally in cleaning their points with a knife. The most careful workman will fail to save all the roots. Many will be lost, and the first point with such as are got up safely is to lay them down again safely, about 9 inches or 1 foot from the surface. Young bush or pyramid trees are much more easily managed than old trees. As a rule they make a mass of roots, and if root-pruned every two or three years in a regular way, they experience but little check from it, no matter at what season it is performed.

PRUNING THE BRANCHES OF ROOT-PRUNED TREES.—Mistakes are often made in this direction. It is a frequent custom to prune the top of a tree at the same time that it is root-pruned, whereas it would be better to extend it if possible. The root-pruning is designed to reduce the supplies; but when we prune the branches back at the same time, we also reduce the demand, and the tree is just in the same state as before, or nearly. Vigorous-growing trees may be thinned out in the branches as far as necessary to let the air and light in amongst those which are left, but no further pruning is needed. Shoots 4 feet or 5 feet long, one season’s growth, we have seen left after root-pruning, and at the end of the next summer they were clothed with fruit buds from end to end, while making scarcely any terminal growth. This is as it should be. The temporary cessation of terminal growth, or of the production of young shoots is the first noticeable effect of root-pruning. When, however, the tree is cut back in its branches as well, it will push vigorous shoots that will not be fertile. Wall trees should be spread out, and any shoot laid in that room can be found for, and they will all produce fruit the year following, or next again, just according to the season at which the roots were overhauled.

ROOT-PRUNING FEEBLE TREES.—These have to be managed in quite another way from strong-growing subjects. The feeble old Apple, Pear, or

Cherry tree is a common spectacle in old orchards. It has just strength to put forth leaves every year, and probably quantities of blossom, but it extends its branches very little, and bears nothing like the crop it gives promise of, and the fruit is always inferior. Not much can be done with very old trees of this description, and they are, as a rule, better replaced by young ones; but quite often, also, this feeble state occurs in comparatively young trees, and results from the roots being placed in a bad or poor soil, or perhaps by their getting down into a bad subsoil. There is always good hope of restoring a feeble tree to comparative health and vigour while it is observed to make fair foliage to the extremities of its branches; but when the points of the shoots look sickly while in growth, or when they keep dying back, it is a bad sign, and, in the case of all such, restorative measures at the root must be accompanied by free cutting back of the shoots so affected to the sounder wood. The root-lifting in any case must be carefully performed, for few really strong roots will be found. If it is suspected that the roots have gone down into a poor or bad subsoil, they will have to be searched for and brought up, or cut away; but every root should be saved if possible, and all brought up within 18 inches or a foot of the surface. Those roots already near the surface should be uncovered, but not lifted, and the whole should be top-dressed with good, wholesome, fresh soil and manure, keeping the latter, if it is fresh, from actual contact with the roots. It will be a year or two before any good effects are noticeable; they will be seen in the broader and better foliage produced and greater growth.—*Field.*

MARKET FRUITS AND THEIR PRICES.

It is certainly not the fault of fruit growers that the public are unable to obtain first-class fruit at moderate prices. I notice in *THE GARDEN* (p. 551) that you say Tomatoes are making from 2s. 6d. to 4s. per pound, and in the same paper, under Covent Garden Market wholesale price list, Tomatoes are quoted from 9d. to 1s. per pound. Middle men, I know, make large profits, but if they buy at from 9d. to 1s. and sell at from 2s. 6d. to 4s., it not only discourages the grower, but prevents the public being such large fruit consumers as they would otherwise be if they could obtain fruit at moderate prices. It seems they now have to pay three or four times as much as the grower obtains. Until the middle man is content to take less profit, or the grower can supply the consumer direct, fruit will be unattainable at moderate prices. Neither can I agree with Mr. Gilbert in his remarks (p. 530), under market fruits, that "we only want size, colour, and croppers." My experience is that flavour and colour are the chief considerations in fruit growing, and that a medium-sized fruit, well ripened and coloured and fine in flavour (particularly in Tomatoes), finds a readier sale than monstrous, flavourless varieties. Very large, dull red Tomatoes, are inferior to fruit grown from well-selected seed of Hathaway or Old Red, which both bear large crops of well-shaped, highly-coloured, and finely-flavoured fruit. J. W.

Ridgeway Vineris, Malvern.

5002.—**Mulching Strawberries.**—Hay is objectionable on account of the quantity of seeds that it brings into the garden, as well as the rapidity with which it decays, especially in such seasons as the past two have been in many parts. Short Grass or the mowings of the lawn are preferable, but better than all is short stable litter. Tan answers very well where it can be had for the carting.—W. P. R.

— "J. H." says (p. 530) that small wood charcoal is the best thing to spread over Strawberry beds, but how are we to get it? Not nine gardeners out of ten would be allowed to purchase it. It is far too expensive to use in any quantity. Long stable litter, as "A. D." rightly remarks, becomes quite sweet if laid down soon enough, but those who object to this will find clean, fresh straw a cheap and excellent substitute.—DONALD.

5002.—**Litter for Strawberries.**—No; bad hay will not do as well as straw as a litter for Strawberries, for, in the first place, the ground would soon be green from the seeds, and next, both seeds and the harder particles of hay would adhere to the ripe fruit. The best of all mulching for the purpose is long stable litter, with the droppings shaken out of it, only it should be applied early that it may get washed by rain before the fruit is ripe. We always put it on at the time when the beds are given their winter dressing, which dressing is as follows: The beds are freed of runners and decayed foliage, then the surface soil is lightly pointed over and a coating of rotten manure (cow manure is best) spread over, and on this the long litter, this completing the whole of the culture required except keeping the beds free from weeds by hand-weeding.—W. W. H.

Fruit preserving.—As difficulty is often experienced and expense incurred in collecting fruit baskets from the country, is it not strange that factories for preserving fruit on the spot where grown are not more numerous? I would suggest that this district, in and around which so much fruit is grown and sent away, would be a good centre for an enterprising firm in the trade to erect a factory for preserving and packing fruits and vegetables on the spot, thus saving the cost and carriage of baskets to and from London, with the advantage of being able to treat the fruit in the best stages of ripeness, without the deterioration consequent on delay in transit.—CHARLES GANE, *Wishbeach.*

Peach culture.—In the gardens of the Earl of Wharcliffe, Wortley Hall, there has been and is being gathered at the present time from one comparatively young Victoria Nectarine tree about forty dozen fine fruit; they were mostly counted on the tree and might be a few more or a few less. From one Royal George Peach of the same age, in the same house, there was gathered between the middle of May and middle of June a nearly equal number of such fruit as would have fetched the highest price in the London market. In 1882 the same Nectarine bore twenty-nine dozen odd; in 1881 over twenty-two dozen, and the Peach a proportionate quantity, not to mention previous years. These trees have latterly been rapidly extended on Mr. Simpson's extension system. We have tested the flavour of the fruit thus grown and find it almost different in kind from the very best fruit sold in Covent Garden and much superior. The flavour of market Peaches is a puzzle to us. To give from £1 to 30s. a dozen or more for lumps of flavourless matter is a way of spending money that even millionaires might tire of.

The Gooseberry crop.—In many places Gooseberries are thin this year, owing to the length and coldness of the spring, which caused many of the blossoms to fall off, and the crop was still further thinned after the fruits were set by the cold weather. Last year it was an easy matter to gather a bushel of berries from a single bush, but this year pecks will be nearer the average than bushels. Still, there are gardens in which the bush fruits are plentiful, although their number is limited. In a garden with which I am acquainted in the Fens not far from where I am writing, some three or four acres in extent, bush fruits are planted as a bottom crop, and are heavily laden with fruit; perhaps the shelter afforded by the top crop—Apples and Pears—may have helped the Gooseberries to weather the storm. Anyone planting a fruit garden where the site is warm and sheltered might, by having Gooseberries for bottom growth and Lord Suffield and Red Quarrenden Apples as a top crop, make it pay well. The Gooseberries might be gathered green, and so give the bushes a long rest, whilst the Apples, which are sure bearers, at least as sure as any Apples can be, would be gathered and turned into money before winter, and the anxiety and bother of storing thus avoided.—E. HOBDAV.

Early Saumur Frontignan.—My attention has been called to a paragraph in *THE GARDEN* of June 2 respecting this Grape, which was shown by me at the late Manchester show—

not "Early Smyrna Frontignan," as stated. In answer to "J. S. W.'s" request for me to furnish the history of this Grape, I cannot, perhaps, do better than quote the description given of it in the fourth edition of "The Fruit Manual:" "Early Saumur Frontignan (Muscat de Saumur, Muscat Hâtif de Saumur, Madeleine Musqué de Courtilier, Précoce Musqué).—Bunches, small, shouldered, and very compact; berries, medium-sized, round, frequently very much fattened; skin, thin, beautifully transparent, white, assuming an amber tinge towards maturity, and marked with tracing of Russet-like Royal Muscadine; flesh, firm, rich, sugary, and juicy, with distinct Muscat aroma. A first-rate and very early Grape, ripening with the Black July, from seed of which it was raised. The Vine is an abundant bearer, and may be grown either in a cool vinery or against a wall in the open air, and it is valuable for pot culture. It was raised in 1842 by M. Courtilier, of Saumur, from seed of Ischia." I do not understand how "J. S. W." and others came to the conclusion that Early Saumur Frontignan is synonymous with Royal Muscadine or White Frontignan. As a matter of fact the three sorts have little or no resemblance to each other.—J. M'INDOE, *Hutton Hall, Guisborough.*

Air roots on Vines.—I think "W. W. H." (p. 564) will find that the cause of air roots on Vines is too damp and stagnant an atmosphere, and not, as he thinks, the inequality of temperature between root and branch. They will make their appearance on Vines planted in inside borders just as freely as on those planted outside if the house is kept too close and damp; and their presence on early forced Vines more commonly than on later forced ones arises, in my opinion, from the scarcity of fresh air and the excess of moisture necessarily maintained to counteract the effects of so much fire heat required at that cold and early season. Air roots, in my opinion, are a sure indication that a more buoyant atmosphere is required for the health of the Vine, as the leaves assume a healthier look and thicker texture very soon after more air is given, and the progress of these roots is then arrested.—DONALD.

NOTES.

ROBBER PLANTS.—Complaints against certain plants of an aggressive character—plants of robust habit, ever longing for more elbow room—are loud and frequent, especially so from amateur gardeners. We all know how the dainty Androsace, the blue Gentians, the dwarf turquoise-tinted Eritrichium, or the choicest Primulas succumb to the insidious advances of white Arabis, of mossy Saxifrages, or of purple Aubrietias whenever these last are once allowed to obtain a footing near them. In the herbaceous borders it is the same. Asters, Caucasian Comfrey, Golden Rods, Polygonums of the P. Sieboldi type, and such climbing plants as Calystegia dahurica or C. sylvatica soon make short work with more delicate neighbours—they are the Thugs of civilised plant life, the pariahs of the garden, and the gardener's exception to Darwin's rule as to the "survival of the fittest." For is it not true that, from the gardener's point of view, those plants which survive after any too close competition are not the fittest, but rather the most unfit? Hence in all good gardens the gardener watcheth well for these wolves among the lambs of his flock, and slayeth them

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PLANTS RAMPANT.—Some of these robber chiefs are, however, so noble in form, so commanding in stature, or so graceful withal that they may be tolerated in odd corners, in half wild places, or on the turf which is mown regularly round them, so that no extra trouble has to be undertaken in the restriction of their tastes for travelling about. There are few more graceful plants for isolating on the turf in this way than are the Polygonums, especially P. sachalinense and P. Sieboldi; so also Calystegia dahurica or the Hungarian C. sylvatica cease to be troublesome weeds, or Thug-like stragglers, when planted on the turf in sunny corners, or allowed to disport themselves on a

dead bush or on a rude trellis of Larch branches in positions where they can do no harm. A good bold mass of *Lathyrus grandiflorus*, or of *L. latifolius albus* planted out in deep rich earth on the grass, only requires a few Fir branches to clamber over, and will then become quite a charming feature, as indeed they will without the branches, wreathing themselves about in the most graceful way on the shaven turf, but of all foliage plants for growing on grassy lawns, commend me to Iris germanica and Plantain Lilies (*Funkias*) of all, but especially of the best kinds.

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MISTLETOE BERRIES are now and then procurable even in June, and this is the best time to rub them on to the smooth bark of the Apple or of Lime trees in order to propagate the plant. I know berries are obtainable at so late a date, because I gathered some to-day in an old garden, where, although birds of all kinds are plentiful, they had not stolen the viscid pearl-like fruits. There is no difficulty in getting the seeds to vegetate at this season; indeed, a close examination now shows the little green sprouts pushing out at two of the three angles of the sticky or slimy coated seeds. Many people try planting the berries at Christmas time, but they are unripe at that season, and failure is the natural result. The bark of the foster parent or tree, whether of Lime or of Apple, should not be cut, slit, or punctured in any way. If this is done, the sides of the slit or cut begin to decay and dry up, leaving the seed in contact with dry dead tissue on all sides, and again failure comes as the only reward. The right way is to place the whole berry between the first two fingers and to rub it up and down the smooth bark of branch or bole until it naturally adheres, which it will do firmly by its own viscosity.

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THE GREAT YELLOW GENTIAN.—Gentians are so often dwarf and blue-flowered that one almost forgets that the medicinal species—the giant of its race—is a really good, large-leaved, robust-growing plant, well worth a place among ordinary hardy herbaceous plants, and not at all difficult to raise from seeds if sown as soon as they are ripe in autumn. It is now flowering here quite freely, bearing whorls of yellow flowers on stout stems 3 feet to 5 feet in height. These stems rise from a tuft of leaves, which are themselves bold and ornamental, being indeed not unlike those of *Veratrum nigrum* in form and venation. Speaking of *Gentiana lutea* reminds me of a native bog or aquatic plant of the order not often seen in gardens, although it well deserves to be naturalised beside pond banks or near ornamental water. This plant is *Menyanthes trifoliata*, the Buck Bean or Bog Bean of popular nomenclature, and one of the prettiest of all our native wild flowers. In some districts an infusion of its leaves and stems is used as a tonic, just as natives of Southern Europe use an infusion of Gentian. Both are as useful for their beauty as valuable for their medicinal usage.

*

THE COLUMBINES.—Both species and varieties are now most lovely, and well nigh as fashionable as the Daffodil of springtide. We get a supply of seed from Mr. Thompson, of Ipswich, every year, and it is rarely that an expenditure of a few pence yields such good interest. In habit and floriferous growth *Aquilegia chrysantha* is by far our best, although in our soil *A. californica* and hybrids between that species and *A. chrysantha* run it very closely. A very good kind also came to us from the Pyrenees in the shape of seed three years ago. It is robust and floriferous, of branching habit, a yard or so in height, having short-spurred dark blue flowers. I am not sure whether *A. corulea* var. *pyrenaica* is the correct name, but as such we received it and were thankful. *A. glandulosa* is as beautiful as capricious here with us; its flowers are large and lovely, but, alas! why so "few and far between?" Our soil is light and sandy, so that the plants must needs root deeply for support; perhaps this accounts for the plants being short-lived with us, and this may also be the reason that they bear removal or transplanting

badly with us. No doubt as a class they grow best in good strong loamy soil containing plenty of fibre. Where may the finest seeds be obtained?—that is the question.

*

BULBOUS IRISES.—The Xiphion section of the genus Iris is now yielding a glorious harvest of colour and of graceful form. They do not succeed permanently on cold, wet soils, but then imported bulbs are so cheap that everyone may grow them. A thousand or two bought every year and dibbled into beds or borders with a handful of sand to each bulb would ensure plenty of flowers for cutting during June and July. They take up little room and may be planted near the most delicate of plants without injuring or overshadowing them, and no other flowers of this season surpass them in effect. The Clouded or Thunderbolt Iris is now especially beautiful, as are also some pale blue and yellow varieties of the Spanish race. Here and there the great blotched petals of the English Iris are opening to the sun like great blue butterflies, but these will not be at their best for a fortnight or more. Cut in the bud stage and brought indoors, few flowers are more beautiful; indeed they quite rival the choicest of Orchids alike in grace of form and in purity of colour. Tulips, Iris, Gladioli, Poppies, and Daffodils in the open air and sunshine are none the less beautiful than Orchids in a glass-roofed shed.

*

NON-BLOOMING BULBS.—I do not know how it may be in other gardens, but here, where many bulbs grow and bloom exceptionally well, there are some few which fail to do so. *Iris tuberosa* (Snake's-head Iris,) grows like a weed and increases rapidly, all the while refusing to bloom. So also has it hitherto been with *Sternbergia lutea*, *Iris Susiana*, and *Belladonna Lilies* (*Amaryllis Belladonna* and *A. blanda*). This year we shall now take up these, and, indeed, all other of our non-flowering bulbs, and shall then replant them at the proper season in the hope of inducing them to flower. It is very interesting to hear that in the Dutch bulb farms every bulb is taken out of the ground every other year at the farthest, more generally, however, every year, the "sale bulbs" being stored in the drying sheds, and the "stock bulbs" replanted in newly-trenched beds. Even in our own gardens we find that bulbs increase much faster when transplanted every year, although as a rule *Narcissi*, *Scillas*, *Snowdrops*, &c., do not bloom so well the first year after removal as they do the second. Perhaps in ordinary gardens a rotary system of replanting would be the best plan to follow.

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ASPARAGUS FOR ORNAMENT.—Amongst the plants grown for use in our gardens as vegetables, there are some—as the Globe Artichoke, Asparagus, and some sorts of Beet—which might well be employed for ornament also. Of all useful plants, however, none lend their leafy growth with better effect when planted with Irises, Lilies, Foxgloves, Poppies, and other showy and bright coloured flowers than does the common Asparagus. Its light and feathery sprays are in reality more fresh and graceful than are those of any of the Bamboos, and some of our visitors are quite delighted with it as seen in the flower borders here and there. We use it also in a cut state along with Ferns and other greenery for relieving the bright colouring of cut blossoms of all kinds, and where flowers are cut largely for decorative purposes it will be found most useful. It is not easy to say why there should be a prejudice against the ornamental employment of useful plants, but that such does exist "goes without saying." As a friend said to me the other day, "If the Apple tree did not bear Apples, we should then grow it largely as an ornamental shrub or tree."

*

BELLFLOWERS.—Campanulas of all kinds are now coming into bloom, *C. pulla* and the forms of *C. rotundifolia* being especially pretty as their first buds expand. *C. nobilis* var. *alba* also hangs its long white bells amongst its dark

green leaves. We raise a great many plants of *Campanula pyramidalis* from seeds, because they grow and bloom so well on our deep, rich borders, and because they do well under partial tree shade. Now and then we obtain some curious varieties. One last year assumed a dense, rounded, bush-like form only 18 inches to 2 feet in height, and was completely studded with lilac flowers, much more saucer-shaped than those of the type. Another bore white flowers, the tips of the corolla segments being united, as in *Phyteuma*. This year there promises to be more variety than ever, judging by the habits and leafage of the plants. One plant is beautifully clouded with gold—a really good, hardy foliage plant it would make if we can perpetuate it from root cuttings or seeds. Another is splashed with silvery variegation, and others have long, narrow, serrated leaves, quite distinct from those usually produced by this species, which are heart-shaped. Although we did not ourselves hybridise, it seems quite probable that our friends the bees have helped us in this matter.

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BIG LEAVES.—Now that there is a growing taste for variety and handsome foliage in most good gardens, it surprises us to note how very rarely the Dutchman's Pipe (*Aristolochia Sipho*) is planted. As a trellis plant or for covering a fence or dead shrub with handsome heart-shaped foliage nothing could be finer than this plant, which is perfectly hardy, and succeeds well in nearly all soils and aspects. Once well planted it may be left pretty much alone, and will well repay its introduction to any garden wherein hardy foliage plants are admired. Another species, *A. tomentosa*, has smaller leaves of a paler green tint, but is equally desirable.

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THE JAPANESE, OR RAMANAS ROSE.—Of all single Roses in flower, this is just now the best and the sweetest. It is distinct and beautiful alike in leafage and in blossom. Planted in good deep rich soil, it spreads rapidly, throwing up strong sucker shoots from its underground stems, and these flower freely all the summer months, and the flowers are succeeded by large oblate fruits or hips, quite an inch in diameter, and of a bright glossy lacquer-like red colour when ripe. Its deep green leaves, netted like those of *Salix reticulata*, are much used by our lady friends to wear with the half-opened buds of China, Banksian, Tea, and other Roses, or with the rich deep rosy buds of this Japan Rose itself. Cut in the bud state, its flowers open out fresh and fair in water, and possess a singularly rich and piquant attar-like perfume. The snow-white variety is not quite so common, but is, if possible, even more beautiful. I am sorry to hear that when the white variety is obtained, it reverts to the red type sometimes ere it blooms.

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DAY LILIES.—If someone could raise a real yellow-flowered *Amaryllis*, what a furore there would be, and yet *Hemerocallis flava* is practically a golden *Amaryllis*, and one of the most lovely in form and colour of all hardy flowers. It grows and increases rapidly in all good soils, forming a tuft of broad grassy leaves, from which spring the elegantly curving spikes 2 feet or so in height, and these produce golden green buds and pure yellow Lily-like flowers in succession for some time. Here they grow rampant, and flower freely in full sunshine as well as beneath tree shade, where they show to the best advantage grouped along with *Ferulas*, *Oreocoma filicina*, Plantain Lilies, *Thalictrums*, *Cimicifugas*, *Pæonies*, and other foliage and flowering plants of similar habit. The flowers of all the Day Lilies are useful for cutting, but none are so fine as this *H. flava*, which bears comparison with any bothouse productions whatever. What pure and noble colour lies stored within those sombre growths we call bulbs. Seeing the glow of colour produced by broad masses—whole fields indeed—of Hyacinths, *Narcissi*, Irises, Tulips, Anemones, and other flowers, need we wonder at the marvellous colour-beauty of the painters of the Dutch school? Holland is flat, but

not a dull land; some of her colour-effects are the purest and most vivid in the world.

VERONICA.

ORCHIDS.

Dendrobium cucumerinum is a curious little plant with leaves like tiny Gherkins and rather dense racemes of white and brown flowers. The curious character of the leaves alone is sufficient to recommend this small Australian to curiosity-mongers, and the not unhandsome flowers should tell equally in the same quarters. There is a good specimen of this *Dendrobium* now nicely in flower in the cool Orchid house at Kew.—B.

Odontoglossum vexillarium Cobbiana.—A flower of this lovely variety has been sent to us by Mr. Law Schofield, New Hall Hey, Rawtenshall, near Manchester. The flower is remarkable for the soft whiteness of the sepals and petals and the distinct pencillings of violet-purple which radiate from the centre. The column, also, is a violet-purple, a beautiful contrast to the golden crest. Mr. Schofield says he believes that there is only Mr. Cobb's plant of this and his known.

Epidendrum falcatum.—In the Orchid house at Kew there is an unusually fine variety of this well-known plant bearing several blooms. In the type the flowers are greenish yellow, with the exception of the labellum, which is cream-coloured or sometimes almost pure white. In the variety at Kew, however, the sepals and petals are white with a tint of rose, almost twice as wide as in the old form, and much more regular than in any flowers we have hitherto seen; the lip, too, is much finer than it is in typical *falcatum*. In most places so distinct a form would no doubt be thought worthy of a specific name, and indeed it has a much greater claim to such distinction than many of the Orchids one hears of as new species now-a-days. At Kew, however, the mania for new species is evidently looked on with disfavour, and it is to be hoped that before long someone there or elsewhere will take in hand the Orchid family and reduce the myriads of names attached to it to something like proper order.

Broughtonia sanguinea.—The cultivation of this plant, to a fine specimen of which in the Kew collection attention was called in THE GARDEN (p. 574), is not of any particular kind, so far at least as the method pursued in regard to the management of this handsome Orchid at Kew is concerned. As is the case with many of the smaller epiphytal Orchids from the West Indies, the *Broughtonia* thrives best when imported attached to a portion of the wood on which it is found growing, so that on its arrival here all that is required is to hang it up near the glass in a warm house and see that it is dipped frequently during its growing period. On the completion of growth a drier atmosphere is necessary for the proper ripening of the bulbs, without which no flowers need be expected. So far as my experience goes, this Orchid, along with such as *Ionopsis*, *Burlingtonia*, &c., is very impatient of any attempt at cultivation in peat or Sphagnum; indeed they often dwindle away even when attached to prepared blocks of wood. Such plants are best left alone if one gets them attached to anything on which they grew before being collected.—W.

SHORT NOTES.—ORCHIDS.

Serapias neglecta.—This is a rarely seen terrestrial Orchid. It is something like the better-known *S. lingua*, but the lip is longer and tongue-like, and of a deep claret colour. We cannot say if it is hardy. Flowers of it have been sent to us by the New Plant and Bulb Company, Colchester.

Ceologyne flvida, a pretty little botanical curiosity, is now in flower at Kew. It has dense spikes of small flowers of a soft yellow colour. The smallness of the flowers of this species serves to show the great variation in size that exists between it and the larger species, such as the common *C. cristata*.

Cattleya Sanderiana.—Of this Orchid, two very fine flowers have reached us from Dr. Paterson, Fernfield, Bridge of Allan, who says, "The blooms were cut from plants imported by Mr. Sander last year; the one a good variety, the other the finest *Cattleya* flower I ever saw." The good variety alluded to is indeed a fine one; the flowers measure just 9 inches across, by $3\frac{1}{2}$ inches in width; the labellum is 3 inches broad, and of a charming deep amethyst, with a golden yellow throat, the frilling being pink. The sepals and petals are pale lilac. This is indeed a magnificent Orchid.

Stanhopea gibbosa.—This remarkable Orchid, one of the largest flowered in cultivation, has been in flower during the past week in Mr. Peacock's collection, Sudbury House, Hammer-smith. The flowers measured 7 inches by 5 inches, the sepals being more than 2 inches in width. The colour is a creamy white, the sepals heavily blotched with purple-brown, and the petals marked with a deeper shade of brown. The conformation of the other parts of the flower is very singular, reminding one of the head of some animal. Mr. Peacock possesses an uncommonly rich collection of *Stanhopeas*, grown chiefly in suspended baskets, in order to allow the flowers to escape through their sides and bottom.

A new *Masdevallia*, recently named by Professor Reichenbach M. Carder, is now in flower in Messrs. Shuttleworth and Carder's nursery, Park Road, Clapham, to which it has been introduced from South America. In habit and growth it resembles *M. Chimara*, but the flowers more resemble those of *M. Houtteana*. As in this species, they are triangular shaped, and the sepals are prolonged into attenuated tails, which are yellow, minutely spotted with purple. The other parts of the sepals are ivory-white, and also, speckled and blotched. It is a singular and interesting species, and remarkably floriferous. It is named in compliment to Mr. Carder, who recently discovered it.

Odontoglossum vexillarium roseum.—I have two plants of this lovely Orchid in flower one with seven spikes and fifty-eight blooms, measuring $4\frac{1}{2}$ inches deep, one spike carrying ten blooms, the other with eight spikes and fifty-four blooms. The plants are grown in 7-inch pots, potted in peat, Sphagnum, and charcoal, with plenty of drainage and well elevated above the rim of the pots. After flowering they are turned out of the pots, washed, and repotted, and grown in an intermediate Orchid house until growth is completed, when they are placed in a lower temperature. I find that *Odontoglossum* Roezli and *O. album* succeed well under the same treatment. What has become of all the fine specimens of *O. vexillarium* which were exhibited a few years ago?—A. EVANS, *Lythe Hill, Haslemere*.

* * With this note came a flower of a very fine variety of *O. vexillarium* of a beautiful deep rose tint.—[ED.]

The Marsh Orchis.—I send a few plants of the true Marsh Orchis (*O. latifolia*) and of *O. maculata* so often mixed up and confounded by botanists. Why they should be so is a puzzle to me, as no two British Orchises are more dissimilar either in foliage or flower. The leaves of the Marsh Orchis are, when spotted, like those of *O. maculata*, but of a bright and pleasant green, always erect and clasping the stem. The plant rarely exceeds 12 inches in height, and has a dense cylindrical flower of a flesh or port wine colour. It is usually found in wet, marshy ground, growing amongst Rushes and other semi-aquatic herbage, and occurs plentifully in this country, so that we have had ample opportunity for studying it under different circumstances as regards soil and situation. Miss Hope's plant (*O. maculata* superba) I have frequently found in company with the Marsh Orchis, never otherwise, and growing under similar conditions. It is evidently a hybrid or sport between *O. maculata* and *O. latifolia*, partaking of the latter's strong, sturdy habit as well as stiff, erect leaves and deep colour of flower. The thickly spotted leaves and more robust habit resemble *O. maculata*. We have several plants, found

in this district, growing alongside the true Miss Hope's Orchid sent to us by the Rev. H. Harpur Crewe, and have long since pronounced the two to be identical.—A. D. WEBSTER, *Llandegai, Bangor*.

PLANTS IN FLOWER.

VIOLA COUNTESS OF KINTORE.—This is a novel and truly charming kind, and was finely shown the other day by Mr. Cannell. The flowers are large, white in ground with a big irregular blue blotch in the middle. It is robust, dwarf, and free, and should, when abundant and better known, become an universal favourite.—A. D.

DRACÆNA AUSTRALIS.—A fine flower-spike of this plant has been sent to us by Messrs. Smith & Sons, Guernsey. It is, Messrs. Smith state, one of fourteen produced on one plant about $6\frac{1}{2}$ feet in height and fully 8 feet through. The flower-stem is twiggy, and bears myriads of small white blossoms. Such a well-flowered plant must present a handsome appearance.

DASYLIRION GLAUCUM.—This Mexican plant, though common enough in gardens, is seldom met with in bloom; therefore a fine specimen of it in the Cactus house at Kew, which has developed a monster flower-spike, possesses some interest. The spike in question is so tall that panes of glass had to be taken out of the roof to allow it to extend itself. It is not yet fully developed, and will continue to be a source of attraction throughout the summer.

HELIOTROPE ROI DES NOIRS is, we think, the deepest coloured variety we have yet seen. Its dense heads of bloom are of an intensely deep purple, and their perfume also seems to be intensified compared with that of paler kinds. It is a most desirable plant to have in the conservatory at this season if only for its perfume. It is now in great beauty in the Royal Exotic Nursery, Chelsea, where we saw it a few days since.

ROMULEA ROSEA.—This pretty little Cape plant sometimes known as *Trichonema*, is quite a gem for the cool house or frame, its bright rosy purple flowers being borne very freely if the plant be grown in a cool, sunny position. At Kew in the Cape house, where one often sees these rarer Cape bulbous plants, there is a little potful of its grassy foliage and bright coloured flowers. Close by it we noticed a plant of *Zephyranthes Treatia* in bloom.—B.

CALOCHORTUS VENUSTUS.—A charming variety of this, the Butterfly Tulip of California, comes to us from the New Plant and Bulb Company, Colchester. Its flowers are remarkable for their unusual deep purplish tinge and the conspicuous dark blotches at the bases of each bloom. The white *C. albus* or *Cyclobotria alba* has also been sent to us, and, like the preceding, is well grown, indicating that the culture of these difficultly managed plants is well understood at Colchester.

LÆLIA PURPURATA.—Of this magnificent Orchid the Hon. and Rev. J. T. Boscawen, of Lamorran, brings us a remarkably fine spike, bearing four handsome blossoms, and he tells us that he has had as many as seven on a spike—a rather uncommon occurrence. The sepals and petals are suffused with a delicate tint of rosy lilac, while the broad, beautifully formed lip is of the deepest and richest crimson—altogether a very fine variety different in many respects from the usual type.

SAXIFRAGA COTYLEDON PYRAMIDALIS.—This elegant hardy plant, commonly known as *S. nepalensis*, is finding favour everywhere seemingly for conservatory decoration; and certainly there are few prettier plants when in flower and grown as they are in nurseries and gardens about London. A well developed plant should have a spreading rosette of leaves 9 inches or more across, and from this should rise a cone-shaped spire of flowers 18 inches high. Such examples under good cultivation are not uncommon. There is no more important point in connection with its treatment than pinching out the suckers or offshoots as soon as they appear between the axils of the parent

rosette; if allowed to grow they very soon weaken the plant as well as the incipient flower-stem. In short, a rich loamy soil and careful attention to ridding the plant of its suckers are essential to the successful development of fine specimens of this Saxifrage. If required for conservatory decoration it is best to grow it in a cold frame. Nowhere about London is it better managed than in the Royal Horticultural Gardens at Chiswick, and some equally fine examples of it now adorn the show house in Messrs. Veitch's nursery at Chelsea.

BRODLÆA COCCINEA, or **Crimson Satin Flower**, as this pretty Californian bulbous plant is called, is now in full flower, and we are reminded of its beauty by some fine specimens of it which have been sent to us by the New Plant and Bulb Company, Colchester. On the top of tall, wiry stalks it bears a drooping cluster of tubular blossoms an inch or so in length, and of a deep rich crimson tipped with green. It is an easy plant to grow and flower well under frame culture. The pretty *Bravoa geminiflora* has also been sent to us from Colchester.

BIGNONIA SPECIOSA is a pretty summer flowering greenhouse climber. Its blossoms, which are as usual trumpet-shaped, are of good size and of a delicate mauve, prettily pencilled with veins of a deeper hue. A large plant of it is now in bloom on the roof of the conservatory (No. 4) at Kew. It is planted out in free soil and requires no attention from one year's end to the other, except annual pruning and tying and occasional waterings. It is, moreover, little liable to be infested with insect pests—a great consideration.

CIENKOWSKIA KIRKI.—This beautiful African Gingerwort has again commenced its long flowering season in the stoves at Kew. It will be remembered we gave a coloured illustration of it last year in *THE GARDEN*, and recommended it as a first-rate stove plant. It has handsome broad leaves plentifully associated with the flowers, which are produced on stout erect stems in crowded spikes. They are very showy, being some 2 inches across, and of a delicate soft pink colour, with just a dash of golden yellow in the centre by way of contrast. We have already given the cultural treatment which this plant requires, and therefore need only reiterate that it would be an ornament to any hothouse at this season. It is to be regretted that one cannot supplant its cumbersome botanical name by one more euphonious.

PENTSTEMONS.—Two very fine *Pentstemons* now in flower in my garden are *P. ovatus* and *P. secundiflorus*. The former, from Oregon, has very handsome, broad, and glossy leaves and numerous tall spikes of rather small purple-blue flowers; the latter, a native of the Colorado Mountains, at from 8000 feet to 9000 feet altitude, has narrow foliage, but much larger flowers of a brilliant blue with a violet tinge in the throat. A plant which I raised from seed last year has seventeen flower-spikes, each thickly clothed on one side only with its beautiful flowers, which are often 1½ inches long by three-quarters of an inch wide. The flowers are quite as richly coloured as those of the fine dwarf *P. glaber*. These three species can all be recommended as charming ornaments of the herbaceous order. Both the above were raised from seed obtained from Mr. Thompson, of Ipswich.—**ALFRED R. WALLACE, Godalming.**

THE ZANZIBAR WATER LILY (*Nymphaea stellata zanzibarensis*) is by far the finest of all the tropical Water Lilies, of a purple or blue colour, in flower at Kew. It is a recently introduced variety, and we believe this is the first season in which it has flowered at Kew. The flowers are much larger than those of our native Water Lily (*N. alba*) and have broader petals. The colour is a splendid purple. There are several other kinds of Water Lilies in flower at Kew, chiefly varieties of *N. stellata* and *Lotus*, the varieties *devoniensis* and *rubra* being particularly beautiful, the flowers being large and the colour a rich ruby-red. In the tropical house may also be seen in flower the North American *N. odorata*, the rare rose-coloured variety of it (*rosea*), the flowers of which exhibit

the most delicate touch of colour that we have seen in any flower. Both the rose variety and the type seem to flourish admirably in company with the tropical kinds.

IRIS JUNCEA.—There is no *Iris*, except perhaps the common *Pseudacorus*, that has such rich yellow flowers as this rare species, blossoms of which have been sent to us by Mr. Edward Wallace, from the New Plant and Bulb Company's Nursery, at Colchester. The flowers are about the same size as those of the common *Flag*, but different in form. It grows about the usual height of the Spanish *Iris*, and the leaves, as the specific name implies, are Rush-like. When sent the flower-spikes bore one expanded flower; after this faded another appeared from the spathe valves, and has lasted three days in good condition in a cool room. There are but few flowers in cultivation which possess such a clear rich yellow as that of this *Iris*.

LITTONIA KEITI.—At the last evening meeting of the Royal Horticultural Society, held at Burlington House, there were amongst the plants and flowers shown from Kew some good blooms of the pretty *L. modesta*. In the Cape house at Kew this plant has been well grown, and flowered for several years now, and in the same house this year we notice, along with the last-mentioned, a second plant named *L. Keiti*, which appears to be a very fine variety of *L. modesta*. The flowers in this newer one are quite half as large again as in *L. modesta*, and the whole plant seems stronger and freer than the older one. The tuber resembles that of *Gloriosa* or *Methonica*, and is slightly different in shape from *L. modesta*. The handsome orange-yellow, bell-shaped flowers hanging gracefully from the axils of the lance-shaped, tendril-pointed leaves, have a very pretty effect, and are specially adapted for training along a rafter or up a pillar in a cool conservatory or greenhouse.—**B.**

CAMPANULA PULLA.—We have seldom seen this charming alpine so beautifully flowered as it is now in the rock garden at Kew, where there is nearly a square yard of it, and the whole a mass of nodding purple bells. It is a veritable gem among alpine plants, and everyone who does not possess it should make its acquaintance; it is not at all fastidious under culture. It likes an open exposed place, and we are inclined to think that it has a partiality for a peaty soil, for it never flourished at Kew until it was placed in peaty soil, and, moreover, we saw in Miss Jekyll's garden at Munstead a mass of several yards square growing in an exposed part of the rock garden in sandy heath soil. When we saw this mass a few weeks ago it was developing a perfect thicket of flower buds, and by this time must be beautiful. Where it has found a congenial place this *Campanula* rapidly increases by its underground stems, which, like Couch Grass, crop up at some distance from the parent plants, but one can scarcely have too much of so beautiful a Bellflower.

ENGLISH IRISES.—Those favoured with a sight of the grand collection of cut hardy flowers staged at South Kensington on Tuesday last by Messrs. Barr & Son could not be but struck with the fact that of the many forms of English *Iris* represented, whilst there were some that deterred, by reason of their lack of beauty in colouration, others were singularly attractive, and notably as exceedingly beautiful were three kinds that won abundant admiration. The most striking of these was *La Vierge*, a grand dark blue, truly superb kind, and one of which a note should be made by all hardy plantmen. Mr. Barr mentioned that several named forms of this *Iris* were sent out by the Dutch growers, but that *La Vierge* was the best selection of the whole, although it was difficult to find that any of the rest differed from it. Still those who order should ask for it under the name given. Another beauty was *La Charmante*, and, as its name implies, it was truly a charming kind; it formed a light lavender-blue companion to the previous named kind, and a delightful contrast in colour. Of course these flowers are not blue, as the falls and other parts of the blooms have

white grounds here and there, but the shades of blue very far dominate other colours. Finally, a very beautiful and pleasing kind was seen in *Diana*, ground white, heavily flecked with purplish maroon, a very striking form dexterously dropped in between the two blues to give the benefit of contrast. There were many other varieties shown, not the least amongst them being the yellowish white *ochroleuca gigantea*, a capital kind for forcing, and shown by Mr. Ware also in his wonderful group of hardy cut flowers. Indeed, no two finer or more interesting collections of hardy flowers has perchance ever been seen at a London show than were the splendid lots shown by these two famous growers on Tuesday last.—**A. D.**

RECENT PLANT PORTRAITS.

THE June number of *Revue de l'Horticulture Belge* figures the pretty double white-flowered Bramble (*Rubus rosaeifolius coronarius*), well adapted for pot culture in the greenhouse, but not sufficiently hardy for outdoor culture.

The May number of *Villustration Horticole* figures *CATTLEYA NOBILIOR* (double plate, No. 485), an exceedingly handsome Brazilian species, with large rosy purple flowers and a clear golden blotch on lip.

CHAMÆROPS HYSTRIX (plate 486), the Hedgehog Palm.—An ornamental, rather low-growing species from the plains of Georgia and Florida, of very slow growth, with a bristling, hairy stem. Though usually grown in the greenhouse, it will probably prove hardy wherever the *Chamærops humilis* proves to be so.

The May number of Dr. Regel's *Gartenflora* figures *SILENE VIRGINICA*, a variety with rather thin medium-sized orange-scarlet flowers, resembling those of a *Lychnis*.

LINARIA APARINOIDES var. **AUREO-PURPUREA**.—A pretty little Toadflax with a golden centre and deep orange back petals, which should be a pretty border plant.

SUSARIUM SEGETHI.—A pretty little grassy-leaved plant with creeping rhizomes and large, rather thin pale blue flowers, resembling those of a *Sisyrinchium*.

UMBILICUS LIEVENI.—A slender-leaved and apparently free-flowering variety, bearing bunches of pale pink flowers. **W. E. G.**

Sagittaria montevidensis.—This most beautiful and free-blooming stove aquatic has been for some time in flower in the old Victoria Regia house at Kew, and, being quite unknown to me, I was much struck by its beauty when there on Wednesday last. It bears spikes of large creamy white cupped flowers, with a deep maroon blotch at base of each petal. A distinct and beautiful plant.—**W. E. G.**

The National Rose Society will hold its exhibition in the Royal Horticultural Gardens, South Kensington, on Tuesday next, in the large tent. Boxes should be brought to the goods' entrance in Queen's Gate. No boxes will be admitted after half-past ten, at which hour the gates will be locked. In addition to entries in the extra and open classes, exhibitors are requested to enter only for the classes in the one division in which they intend exhibiting. No two of the Roses bracketed together as synonymous in the schedules may be exhibited this year on the same stand. In the case of two stands being judged to be equally deserving of the first prize, the amount of money offered for the first and second prizes will be put together and equally divided, and the winners will be considered to have taken the first and second prizes, while the next best stand will take the third prize. The same rule will hold good with equal second, third, and fourth prizes. Printed Rose labels selected by a committee of the Society, and recommended for the use of exhibitors in the place of written labels, may be obtained of Messrs. Blake & Mackenzie, School Lane, Liverpool.

THE FIRS, LEE.

In these days, when the outspreading growth of London is fast sweeping away suburban residences which for generations past have beautified the outskirts of our great metropolis, it is a pleasure to find here and there a few beautiful gardens that have escaped the hands of the relentless builder. Such spots, hemmed in as they usually are on every side by houses, are like oases in a desert, though their number, is lamentably small compared with what existed in times gone by. So near London as Lee is, and in a neighbourhood fast becoming densely populated, one would hardly expect to find such a charming garden as that of Mr. Larking in the Old Road just off one of the main arteries of traffic and within six miles or so of the heart of the city. In this garden one might almost fancy oneself far away in the country, for there is nought to remind

charming variety of plants which yield flowers from early in spring till late in autumn. The material employed for these beds and all the rockeries here is the coarse kind of rock known as Kentish Rag, obtained from quarries in the neighbourhood of Maidstone. Being in irregular masses, some nature-like effects can be obtained by a skilful disposal of them. Mr. Larking seems to have the happy knack of arranging them so as to resemble what one sees in rocky districts where the rock crops out of the ground in irregular masses. In this garden these rocky beds are not placed in set ovals or circles, but in every case are made subservient to the requirements of the plants to be grown in them. They do not obtrude baldly, as in so-called rock gardens of the ordinary stamp. A large boulder is half sunk in the soil and around it are placed a

justly proud of these grand trees, as they contribute so largely to the interest and beauty of his garden. Among other large specimens of trees on the lawn is an uncommonly fine one of the June Berry (*Amelanchier Botryapium*), having a symmetrical rounded head, which in early summer is a mass of white blossom. The other tree growth consists for the most part of deciduous trees, such as Copper Beeches, Locust trees, and a very fine *Acer dasycarpum* between 60 feet and 70 feet high. There are some moderate-sized specimens of the Cedar of Lebanon, but their growth has been arrested, in common with most all other Conifers, on account of the impure atmosphere to which they are subjected consequent on their proximity to London. It is lamentable to see how these and others, once thrifty young trees,



Lawn view at The Firs, Lee, near London

one of the proximity of the great city save the din of the passing vehicles. It is in truth a lovely garden—one that might well serve as a model of what a suburban garden should be, for every part of it has been fashioned with an artistic hand. It is, moreover, thoroughly unconventional both in design and as regards its contents, quite unlike the majority of gardens about London, which as a rule suggest the idea that all of them had been turned out of one mould.

The principal charm of this garden is its simplicity. No intricate pattern of flower beds blemishes the quiet lawn, which stretches from the front of the house to the very outskirts, and there is a conspicuous absence of any attempt at petty ornamentation, such as fountains, and basins, and statuary, which so often mar otherwise pretty gardens. The lawn, though without any garish parterre, is not, however, a monotonous green flat; on the contrary, here and there

PICTURESQUE ROCKY BEDS crop up from its surface—some isolated, others collected in irregularly disposed clusters, and all planted with consummate taste with a variety of hardy and tender plants. These rocky beds yield sufficient colour to make the outlook from the house a cheerful one, and, examined closely, they reveal a

few suitable plants, which in course of time hug its sides as if they liked its companionship. The rocky banks and beds are planted with a variety of subjects, some true mountain and rock plants, others of taller growth, and in summer these are interspersed with little colonies of brightly flowered tender plants such as *Pelargoniums*, so as to brighten up, as it were, their more sombre associates. Another great charm of this garden is its

NOBLE TREES, the growth of many generations; without them it would be shorn of one of its chief elements of beauty, and the good effects resulting from its skilful design would in a great measure be lost. The largest trees are the English Elms, whose huge spreading heads tower above everything else, save a pair of prodigious Black Walnuts (*Juglans nigra*), without question among the finest specimens in this country. This Walnut forms a magnificent tree of towering height, and the boles of this pair cannot be far short of 11 ft. in girth and nearly 70 ft. high. The massive branches spring from the trunk at a sharp angle, and the smaller branches are gracefully pendulous, and carrying as they do such dense masses of long pinnate foliage, they have as light and elegant an appearance as an English Ash. Mr. Larking is

have had their luxuriance checked and now dying a slow, but certain death. There seems to be but very few Conifers that will thrive in these days near smoky towns. *Cupressus Lawsoniana* does better than most others, and there are some creditable specimens of it in this garden in the best of health. There is now, happily, such a wealth of trees and shrubs with which to embellish town gardens, that we can well dispense with Conifers, or, indeed, with any class that will only flourish thoroughly under the conditions of an unpolluted atmosphere.

THE HOUSE, a fine old building of red brick with stone facings, and with its walls draped with Magnolias and Ivy, has a pretty effect embowered midst such fine trees as those to which allusion has just been made, and from its windows may be seen one of the sweetest garden landscapes which one could desire. The whole place contains but a few acres, but it appears much larger than it really is. The lawn is not abruptly margined, but seems to melt away into interminable recesses that run into the outskirts of the place. All the surroundings which would in any way tend to mar the effect of such quietude are shut out chiefly by the large trees, but, lacking these, high banks have been thrown up, and these have been planted with trees

and shrubs, and studded picturesquely with rocks and colonies of hardy Ferns. The end of the lawn is very skilfully treated in this way, and is one of the prettiest spots in the garden. Little shady nooks and recesses have been made for the Ferns, and in these they luxuriate uncommonly well and form a charming picture. Groups of such flowers as Foxgloves give a cheerful appearance to the place, and the sunny banks are enlivened by masses of such beautiful things as Gentians and *Campanula turbinata*, the latter being at present a sheet of purple-blue cup-like flowers. A rosery, too, in this part is a delightful feature. The bushes are not placed in beds of a set pattern, but in irregular groups so as to harmonise with the surroundings, which partake more of a choice bit of country wood scenery than a polished suburban garden.

HARDY PLANTS, alpine as well as perennials of larger growth, are appreciated and put to good use by Mr. Larking, but he has not the conventional long mixed border. He seeks rather to produce fine effects by having bold groups of the most attractive plants in some prominent position, such as the margins of shrubberies, which in some cases project boldly on to the lawn. These bends are embellished with choice shrubs and showy hardy flowers, Lilies, Larkspurs, Lupines, and such like plants, which in good sized tufts are sufficiently showy as to be seen well from the windows of the house. The mountain plants of course find a congenial home in the rocky beds, and succeed far better than when planted on such dry stony banks which too often pass under the name of rockwork. Here the plants are placed where they are expected to thrive best, the sun lovers have full exposure, and those that delight in shade have also their wants attended to. In most cases the plants form little colonies, so to speak, and they seem to thrive all the better for being in close company with their associates. In a garden like this one may find a suitable place for nearly every hardy plant, which is impossible where the design is geometrical and without retiring nooks and sheltered, shady recesses. In one of these little bays, sheltered on all sides except the south, is a thrifty group of Tiger Lilies and others, which when in flower with the green of the shrubs for a background must have a pretty effect. In another part one comes across a little gathering of choice bulbous plants, such as the newer kinds of dwarf Fritillaries, Tulips, Crocuses, in a position where they would show best in early spring. There is a little bedding out, but this is not of the usual style. In beds of simple pattern, such as ovals and circles, one may see masses of one plant. One bed is wholly filled with dwarf *Tagetes* (French Marigold), another with China Asters, another with dwarf *Ageratums*, and so on. These beds are placed so that one comes upon them unawares; hence the effect of their brightness is intensified. A commendable feature, too, is isolated specimens of some of the finer types of hardy fine foliaged plants that have been planted, such as here and there the Turkey Rhubarb (*Rheum officinale*), Giant Fennel (*Ferula gigantea*), of which there are some admirable and extremely ornamental examples, rising from the greensward.

THE WINTER GARDEN and fernery, both arranged without stages and with the plants without pots, are noteworthy features. The houses lead one from the other, and are not, as usual, contiguous to the dwelling house, but are placed at the farther end of the lawn. The fernery is particularly well arranged. The interior consists of huge masses of Kentish rag stone cunningly placed in projecting points and retiring crannies, and by a few rugged steps one may climb to the higher portions and overlook the whole. The face of these rocks gives a foothold to colonies of sporting Ferns, and seedling Begonias, and the like, while from the crevices rise the Ferns and other plants of taller growth, the whole producing an exceedingly picturesque effect. A sturdy plant of the perforated leaved *Monstera deliciosa* is doing its best to cover the whole surface of the back wall, and here and there a few noble Tree Ferns rear their stately heads of fronds above all the rest,

while such beautiful climbers as *Lasiandra macrantha* adorn the supports and cross-beams. Among the Tree Ferns are fine plants of the beautiful *Cibotium Schiedeii*, *Dicksonia antarctica*, and *Cyathea medullaris*, the latter being so high as to necessitate the heightening of the roof to admit of its wide-spreading fronds to fully extend themselves. This house is kept at an average temperature of from 55° to 65°, and is an enjoyable one at all seasons. The adjoining winter garden, like the fernery, is a spacious structure, and every plant in it is either planted out or its pot is plunged in the beds, which are raised in irregular mounds and studded with masses of rock. The seasons at which this house is seen at its best is in winter and spring, when it is gay with forced shrubs, bulbous and other plants, all of which are either interspersed amongst the permanent growth of Ferns and other greenery, or form isolated masses. The roof is hung with twiners and climbers, like the fernery, and has a very pleasing appearance. The numerous other plant houses are filled with plants of either a showy or interesting character, and among them are some choice Orchids, a well grown and flowered *Vanda suavis* being just now particularly attractive, while among the choicer fine foliaged plants are the new *Dracæna Lindenii*, a plant of elegant growth with golden banded leaves, and the new *Licuala grandis*, respecting which so much has been written of late.

THE FRUIT HOUSES are of the ordinary stamp, with the exception of the Peach house, in which espalier-trained trees are placed across it. This house, which is span-roofed, faces the west, and is some 32 feet in length. In this space there are eight well developed trees, all in excellent health and carrying fair crops of fruit, both Peaches and Nectarines. This system of planting trees crosswise in a house is objected to by some, but it answers well here, and the fruits in it are even better coloured than those produced in the ordinary way. The economy as to space, too, is a great consideration, especially in a small garden, and on this account alone the plan is well worth adopting. A noticeable feature in

THE FRUIT AND KITCHEN GARDEN is a fruit enclosure, proof against the inroads of birds and children. It consists of a rectangular structure about 50 feet long by 20 feet in width and 8 feet in height, formed of strong hexagon wire netting mounted on a stout framework, fitted at one end with a door, the keys of which are kept by the proprietor and gardener. In this enclosure are Cherries, Plums, Pears, and Apples—small pyramid trees, and beneath these are choice Gooseberries, Currants, Raspberries, and the whole has a carpet of Strawberries. Of course there are not many of each in such a small area, and due regard is paid to the importance of light in not overcrowding the plants. This somewhat novel plan is well worth carrying out where birds are plentiful and where choice fruit is required. The original outlay is a considerable item, but there is not much subsequent attention required. The kitchen garden consists of various plots in different places; thereby a variety of aspects is secured, and advantage is taken of warm, sunny slopes for obtaining early vegetables and Strawberries.

W. GOLDRING.

Ornamental Ivies.—I agree with all that is said (p. 545) as to the value of Ivies for ornamental purposes, and particularly for covering north walls that it is desired to make as ornamental as possible. First, then, I must make confession of my ignorance, which is, that till a week or two ago I had no idea that there were such a number of varieties of Ivy, or that they were so diverse both as to colour, habit, and form of foliage; and, moreover, my perception of the beautiful was so dull (at all events in respect of Ivies), that I required to see a sample piece of planting before I was able to fully comprehend their value and beauty. This I have been permitted to see at the seat of Mr. Hargreaves, Maiden Erleigh, Reading. Mr. Turton, the gardener there, has used them to cover the north wall of a flower garden, and though climbers of greater use might have been used, none of greater interest or of a more novel character

could have been employed. There is but one defect, and that is, that the stronger growing kinds are intermixed with the weaker; consequently the covering is not so regular as would have been the case had the habits of the various kinds been taken into account when they were planted; but this defect apart, the wall is quite a study, and its inspection a necessity to any who, like myself, have hitherto been "Ivy ignorant," but who now wish to do penance by using Ivies for ornamental purposes.—W. W. H.

TREES AND SHRUBS.

NOTES ON RHODODENDRONS.

THE display made by Rhododendrons this season has been less brilliant with me than that of last year, but fine displays biennially are quite in accordance with my experience. A very little observation will show that the shoots which are to furnish flowers for the next year begin to grow simultaneously with the expanding of the flowers, or rather before that time. Therefore it is evident that if a plant has flower-spikes on nearly every branch it will be very thinly flowered the next season, because the growth made after the flowering season is over does not as a rule get sufficiently matured to flower. In the case of small plants this is very noticeable, though less apparent in that of large plants. Amongst some of the newer sorts the individual flowers have been very large. In this respect The Queen has been very fine. In this variety the truss is very compact and prominent. Countess Cadogan, in colour a clear transparent rose, has also been good, as has also been the well-known *Everestianum*. Joseph Whitworth, a kind with dark purple flowers in large heads, is invaluable in even a very small collection, being not only distinct in colour, but in habit, and the foliage is excellent. There are a good many varieties that produce

CRIMSON FLOWERS and various shades of red, but none more conspicuous than Mrs. John Waterer, a vigorous grower and flowerer. There are varieties of better habit for single specimens, but I know of none that has a more telling effect. Brayanum is an old variety, but very showy in a mixed bed, its colour being a vivid crimson. Amongst rose-coloured flowers Lady Eleanor Cathcart and Concessum roseum are still surpassed by recent introductions; they have both the merit of being good growers and free bloomers. Although I have already mentioned The Queen as an excellent sort, other white varieties must not be overlooked. We find Minniea particularly valuable sort; in our strong loamy soil it produces a fine display of flowers every year. Verschaffelti is nearly white, but so spotted that it is always distinguishable from all others; it is also a vigorous grower. There is yet another class of flowers that are desirable in all large collections. I allude to those that have the edges of the petals barred and flamed with another colour distinct from that of the body of the petals. Of these the most notable is Princess Mary of Cambridge, a white kind edged with rosy purple and very attractive; Bylsianum, also white, tipped with bright crimson, a very striking flower; and Duchess of Sutherland, with a margin of lilac. These margined flowers are very attractive, but perhaps less striking than those that are nearly self-coloured. Nevertheless, they are useful in the way of affording variety.

OF DOUBLE RHODODENDRONS, I know of none perfect. In our collection we have only one, and that is semi-double. We had it under the name of fastuosum fl.-pl. Its colour is bright lilac, and we like it for the sake of the variety which it makes; but its greatest merit is that it is a hardy, vigorous grower. It is a fine-weather flower, a little rain spoiling its beauty and causing the flowers to drop quickly. In the matter of

CULTIVATION we have this season seen the full benefits of a system of planting which I have for some years advocated. In making fresh beds of Rhododendrons I could never see the necessity of filling them entirely in the first place with expen-

sive kinds so thickly as to make the beds presentable directly after planting. I do not say that I like to see large open spaces between the plants. What I want to say is that it is not necessary to fill up the spaces at once with the best sorts. I therefore selected a sufficient number of plants of the best varieties, and planted them 6 feet apart every way, and the spaces between them I filled up with the common ponticum variety. As the permanent plants required space, the common sorts were removed; and, although this particular plantation was only made six years ago last autumn, the plants intended to remain there have quite filled up the space allotted to them. By adopting this plan, when a fresh plantation is made it gives no further trouble beyond taking away the nursing plants. There is no need to re-arrange those intended for a permanency—a great gain, for a re-arrangement means at least the loss of one season's flowers upon all plants removed. In the management of established plants there is not much to be said. In the majority of cases they are well able to take care of themselves. In our strong loam we have no need to water. In very dry summers we have had occasionally to mulch a few single plants that occupy a rather dry position; but where the beds are on level ground they succeed without any attention in that way; but not so in all cases, because I have known instances where losses through drought in the early autumn months have been serious in the case of large plants; this, however, generally occurs in shallow soils. There are some which in their natural state have 10 inches or 12 inches favourable to the growth of Rhododendrons, but which below that are unsuitable; consequently the roots only penetrate as far as the good soil goes, and suffer from want of moisture in dry seasons. According to my experience, Rhododendrons are safe until the month of August; then, if the weather should be dry, a good soaking of water twice a week and a mulch of half rotten manure 3 inches or 4 inches in thickness are necessary in order to maintain the plants in health. J. C. C.

STANDARD RHODODENDRONS.

MANY plants are grown as standards which, from their stiff, upright habit, are totally unsuited for the purpose; but this objection cannot be urged against Rhododendrons if a selection of sorts of suitable habit be made. They are among the choicest of garden shrubs, and, when once obtained, their training and culture should be carefully attended to. When received from the nursery they always have a good ball of peat around their roots; but in many places they have to put up with a less suitable root medium. That Rhododendrons will thrive in some loams is well known, but, in cases where this has not been proved, it is not wise to risk them in anything but peat. Where the soil is of a retentive character, holes should be dug out at least 3 feet deep, and proportionate in width, according to the size of the plant and ball intended to occupy them. A foot depth of drainage should be placed in the bottom of the hole; this should be covered with the rougher parts of the peat, and over this should be placed another layer, ramming the whole down firmly before putting the plant in position. If the plants are intended to stand isolated, or in groups on the turf, they will look the better for being slightly raised above the ordinary level, leaving a small space round the stems of the plants to act as a receptacle for water. In planting, the peat should be rammed firmly about the roots; at whatever season of the year the planting may be done, they should be thoroughly soaked at the roots; and if they are to flourish unchecked afterwards, they should not be allowed to feel the effects of drought, more especially during their flowering and growing season. When once established, a little attention to training will in time make them very handsome plants. The object of training is to get rid of, or rather to hide the stem. To this end the outer branches should be very slightly depressed during the first season, bringing them down a little lower each succeeding season,

till the tips of the outer branches nearly touch the ground.

Should any strong branches take the lead in the top parts of the specimen these must be checked early. When the plants attain a large size it is advisable to run some stout tar cord through the main branches to prevent the wind from splitting them. A few strands of this cord, looped so that one branch supports another, will keep them safe from high winds. We have several dozens of these plants scattered through the grounds, some of them in very unsuitable positions, or at least where they give considerable trouble to keep them in perfect health. The greatest difficulty is where they are planted near large Elms and other free-rooting forest trees. In these cases we make a practice of trenching round them every other season, and watering copiously during the summer. As a rule, these plants are easily renovated when they show signs of exhaustion. In cases of this sort we open out a trench about 2 feet wide and 2 feet from the stem of the plant, when the ball of peat is carefully shaved all round with a sharp spade or old scythe blade. At the same time the ball is freely pierced with a sharp-pointed iron prong. After this a foot wide of fresh peat is added to each specimen operated on, and the result is always renewed health and vigour. Sometimes these plants get one-sided, and the best part of the plant faces a point where it is least seen. When this occurs they should be turned, as it is always safe to move them at almost any season of the year, provided they are well watered at the root.

The following are kinds that make good standards, being of pendulous habit: Blyssium, Barclayanum, geranioides, Elfrida, Mrs. John Waterer, The Gem, Lady Eleanor Cathcart, Leopardi, John Waterer, Everestianum, gloriosum, Blandyanum, concessum, Cunninghami, atrosanguineum, multi-maculatum. The last-named is a small-flowered kind, and one likely to go out of cultivation before long, but it is one of the best in habit for forming standards. It is small and dense in growth and very free, and some standards of it here are the handsomest plants we have. Some of the erect-growing kinds are very useful when worked on tall stems for forming the background to large clumps of these plants. J. R. G.

NOTES ON SHRUBS.

AZALEA GLAUCA.—This is especially valuable, owing to the late season at which it flowers; its blooms, indeed, do not expand till after the beauty of Azalea pontica and its varieties is over. A. glauca is compact in habit, has glaucous foliage, and bears clusters of pure white flowers in great profusion.

ZENOBIA SPECIOSA and its mealy-leaved variety are both in bloom at the present time, and its large nodding bells are also readily produced in heat in spring, when they form pretty objects in the conservatory. When grown under glass the foliage of *pulverulenta* is even more hoary than in the open air, and its flowers larger.

PERNETTYA MUCRONATA is now a mass of tiny white flowers, which contrast admirably with its neat deep green foliage. Although the fruit is generally regarded as the most ornamental part of this plant, when in blossom it is also very handsome.

CRATEGUS PARVIFOLIA.—The flowering season of the Thorns is extended to quite the middle of June by the Tansy-leaved kind (*Crategus tanacetifolia*), Cockspur Thorn (*C. Crus-galli*), and the subject of this note (*C. parvifolia*). This latter forms a bush about a yard high; it has ovate leaves and large solitary flowers, with which it is thickly studded. In some specimens of it the flowers are nearly an inch in diameter; their large size and the dwarf habit of the plant render this *Crategus* distinct from all the others; indeed, it more resembles a dwarf form of *Mespilus grandiflora* than a Hawthorn. It has long been known in England, but is seldom seen in gardens.

COTONEASTERS, such as *buxifolia* and *rotundifolia*, have quite an interesting appearance just

now, owing to the myriads of little white flowers with which they are furnished. The berries that succeed them are also very pretty, but these plants are worth a place in the garden for their foliage alone. On rockwork or sloping banks these *Cotoneasters* are very valuable.

DIERVILLA TRIFIDA.—Weigelas, to which this shrub is nearly allied, seem to have almost driven it from our gardens, as except in botanical collections it is seldom or never met with, although both interesting and pretty—interesting from being the American representative of the Weigela, and pretty from the numbers of small yellow flowers which it bears.

RUBUS SPECTABILIS.—Among the different Brambles are many forms, some rambling in habit, but this is an erect sparsely branched shrub, generally very dense, owing to the profuse way in which it produces suckers. Its foliage somewhat resembles that of the common Bramble, but is nearly always composed of three leaflets, while the flowers are somewhat drooping, rather contracted, and of a pleasing purplish colour. It is a very handsome flowering shrub, as is also *R. nutkanus*, both of which are much later than the handsome *R. deliciosus*, whose large white flowers have been this season so attractive in many places. *R. nutkanus* has large Currant-like five-lobed leaves and pure white flowers about 2 inches in diameter. With me it flowers freely when not more than 3 feet high, but in good soils it grows larger.

CHIONANTHUS VIRGINICA (the Fringe Tree of the Union States).—So called from the narrow strap-shaped petals giving to a raceme of its flowers the appearance of a bunch of white fringe. It is so different when in blossom from all other shrubs, and withal so pretty, that one wonders it is so rarely seen. In general aspect it may be likened to a Lilac. It is said to grow naturally in boggy places; in England, however, it does well in ordinary soil, but not where very hot and dry.

THE CAROLINA ALLSPICE (*Calycanthus floridus*) would be by many considered dull and uninteresting were it not for the delicious fragrance of its purplish blossoms, which, though not very attractive to the eye unless closely looked into, are not only quaint, but pretty. In a moderately moist spot and where slightly shaded from the full rays of the sun this Allspice will flower for nearly three months in summer.

OLEARIA OR EURYBIA HAASTII.—With this antipodean shrubby composite we are already familiar, but *Ozothamnus rosmarinifolius* presents to us yet another and a very desirable plant. It is a dense-growing, much branched shrub, with small Rosemary-like leaves, and bears tiny white flowers in such numbers as to almost hide the foliage. This *Ozothamnus* appears to be about as hardy as *Olearia Haastii*, and, like it, is very serviceable where small-growing, free-flowering shrubs are required.

SPIRÆAS.—Some of the Spiræas are very useful shrubs where the situation is not too hot and dry; when that is so, they get stunted in growth and flower but sparingly. The following would be a good representative half dozen, viz.: *S. Douglasii*, an erect-growing species, reaching a height of about 6 feet, and bearing dense terminal spikes of pretty pink flowers. This Spiræa throws up suckers freely, and in a suitable spot soon forms a large mass. *S. ariaefolia* is a large shrub 8 feet or 10 feet high, and bears light plume-like panicles of white flowers, which are freely produced in summer. A large plant of this kind when in flower forms a striking object. Of *S. hypericifolia* there are great numbers of varieties, some much inferior to others; but if one of the best is obtained it forms, when in blossom, a grand bush. It is a slender-growing kind, and throws out long arching shoots, which are studded throughout the greater part of their length with flowers. They are arranged in clusters on small lateral shoots, and are pure white in colour. *S. callosa* forms a large clump some 6 feet high, and bears deep rose-coloured flowers in large open corymbs. The bright red hue of the young leaves also adds to the beauty of this Spiræa. *S. nutans*

or cuneata, though an erect shrub in the main, has drooping branchlets, and bears clusters of white or pinkish blossoms; it is a free-growing kind, and has a very graceful outline. *S. Lindleyana* has pinnate leaves, and is very distinct from all the others just mentioned; its season of flowering, too, is much later than that of any of them. In good soil this *Spiræa* reaches a height of 7 feet or 8 feet, and soon forms a large mass. The flowers are white, and borne in large terminal panicles towards the end of the summer. Even when not in bloom this *Spiræa* is very handsome.

ETONYMUSES in sheltered places are very ornamental and well worthy of cultivation. Of japonicus there are two distinct golden forms, one being rounder in the leaf and more yellow than the other; then, with the broad white variegated kind (*latifolius albus*) and one with yellowish green variegation a good variety is obtained. The Box-like *E. microphyllus* is about as hardy as the others. One that seems proof against ordinary frost is *E. radicans* and its variegated variety, neither of which have been injured in that way as far as I am aware, and both of them are, from their spreading habit, well adapted for rockwork, on raised banks, or similar positions. Besides this, they may be employed to cover walls, which they will do thoroughly, and, except a little support at first, will scarcely require any attention, as aerial roots are produced, just as in the case of Ivy, which take a firm hold of the bricks and support the plant. When in this condition, after a height of 6 feet or 8 feet has been obtained, shoots are often produced from the upper portion, partaking less of the rambling character and with much larger leaves—indeed, quite different in appearance from the foliage below.

HOLLIES afford plenty of variety, there being green-leaved, white, and yellow variegated, and one (Moonlight) in which the surface of the leaf is suffused with gold. Some, again, are densely spiny, some without spines, and others with broad, massive foliage. The Hedgehog Holly, so called from its contracted leaf, the whole of the upper surface of which is studded with spines, is very curious, and it is also represented among the variegated leaved kinds. *Ilex cornuta* has very distinct foliage, and is of dense, compact growth. A miniature shrub is *Ilex crenata*, the leaves of which are lanceolate, about 1 inch in length, and terminated by a sharp point. Its growth is dwarf, and when about a foot high it forms a pretty, neat-looking shrub. There is a variety in which the leaves are marbled with yellow, a variegation which in the sunshine is very bright and effective.

ALPHA.

5022.—**Dying Cedar tree.**—As the Cedar in question stands on a mound 4 feet high and 40 feet in circumference, and the roots are forcing their way above ground, which was cut away thirty years ago in the course of levelling the lawn, thus leaving the Cedar in an elevated position, I am strongly of opinion that it is suffering from want of proper nourishment. The roots that are forcing their way to the surface should be covered over with a thick coat of rich earth or road scrapings; of these ten or twelve cart-loads would not be too much for a tree of the size named. From its position on a mound on chalk I take it for granted that the drainage is perfect.—J. B. WEBSTER.

—No doubt the Cedar above alluded to is sending its roots upwards for nourishment which it cannot get out of the chalk. It is said to stand close to a road. Am I to understand that there is constant road traffic over a certain portion of its roots, or do they not extend beyond the side of the road where there is no traffic? If the former, you cannot deal with that side of the roots at all; but if the latter, you must hack the surface without injuring the roots, then put on about 12 inches in depth of rotten manure about 8 feet from the bole of the tree all round, and on the top of that put about 2 feet of good soil, taking care that neither the manure nor the soil touches the bark; you should then water well with the rose on the

watering-pot and gently, so that the water sinks into the disturbed surface below the manure. Give a dozen pots at least, and repeat this constantly during the summer. When the soil is placed on the manure (or before if you choose, as it is immaterial) send a man up the tree with a sharp pruning knife and cut off every dead branch and every branch in a state of decadence. I may here remark, too, that evergreens of the Pine tribe ought always to have dead wood cut out each year, and deciduous trees as well, and in the case of the latter the limbs should be pruned about 12 inches within vitality, not where it begins. As to the Cedar, place single bricks on their sides round the bole to prevent the manure and soil touching the bark. I ought to add that if the surface, when hacked over, will admit of being dug to 6 inches or more in depth without injuring the roots this should be done; the soil should be removed and the manure introduced, and on the top of that the soil must be replaced, and more soil to the depth of 2 feet, as just stated. Where this is done the mound can be sodded, and well watered continually from this time to the end of October.—J. SAUREZ COOKSON, *Neasham Hall, Darlington.*

Trees and shrubs are making a wonderful growth this season. I do not think I ever saw woods, coppices, and hedges so laden with healthy foliage—such a contrast to last year at this time, when the Oaks were almost denuded of leaves by caterpillars. I think the wet seasons in autumn and winter must have drowned or destroyed the bulk of insects and their larvæ, for there are hardly any on the forest trees this year. Gooseberry caterpillars are also scarce. Potatoes are looking uncommonly well, especially Scotch Champions. We are using old tubers of these now, and they are as white as flour and of good flavour. It was the best cropper last year, and bids fair to be the same this. It is now the best cottager's Potato.—G. B.

NOTES AND READINGS.

THE SCOTTISH HORTICULTURAL ASSOCIATION'S annual report for 1882-83, just issued, contains some interesting papers, amongst which perhaps the most valuable as well as the most practical is that by Mr. Macadam, on the analysis of soils from vineries where the Vines are known to be a failure, and from others where they have done well, the results of the analyses going to show that the failure resulted from a deficiency of potassic and calcic oxides and phosphoric anhydride, these elements being present in fractional quantities compared with the quantities in soils in which good crops are grown, thus revealing what Grape growers have all along guessed at in a rough way and acted on in practice by adding lime and potash to their Vine borders. There are soils that are deficient in both, and to these they must be given; but in many soils lime is not needed, hence the general formula of so much lime scraps to so many loads of loam from the pasture may often be disregarded. There are, however, greater mysteries in soils in their relation to plant growth than the chemist reveals to us, otherwise fruit growers would not fail to grow crops in composts made up from the recipe of the chemist, who have for years succeeded with soils selected almost at random. Nothing is more remarkable in garden practice than the different results the same men obtain in different situations. One exemplary fact connected with the Scottish Association is that it manages to live (and do a good deal of work) within its income.

MORE CARNIVOROUS PLANTS.—I notice the list of these is being extended. At the last scientific meeting another subject was introduced that ensnared the helpless insects by violating a great principle and leading them into temptation by means of honey glands. Clearly the idea of catching ants and other vermin by smearing treacle in their haunts has been borrowed from the Cyclobothra, which is not by any means the only

carnivorous plant of its kind. Many of our fine tricolor Heaths, for example, must be voracious midge eaters; their waxy tubes may often be seen covered all over with these insects, and no possible excuse can be assigned for the sticky matter on the flowers, except it be the latter's craving for a flesh diet. We have all but come to the conclusion, also, that the Alnwick Seedling Grape shows an inclination in the same direction—that inexplicable glutinous knob on the stigma of its flowers, showing a decidedly omnivorous tendency towards attracting stray objects, including insects, and keeping them or "absorbing" them. We opine that many of these examples of carnivorous absorption have about as much significance as a drowned rat in a water tank.

MARKET FRUITS.—Just so, Mr. Gilbert! Any rubbish will do for market purposes if it looks well and keeps well. Hard, poisonous Peaches, that can neither be eaten nor bruised, the worst kinds of Grapes badly ripened, and big Strawberries if they are just red and look well in the basket—these are the kinds of fruits that adorn the dessert tables of those who rely on the market for their supply, but they are not the kind of samples that find their way to the dinner tables of West-end mansions, where good fruit is both known and appreciated. The quality of market fruits will always afford a good reason for people growing their own fruits of certain kinds, for they cannot get them so good as at home. As for the ordinary public who buy their fruit, few of them are judges of quality. Quite the cheapest and best, as well as the most wholesome, fruit in the market up till now has been the Orange, which as it is going out of season becomes delicious; in May and June it ranks next to the Peach.

PINKS AND SPIRÆAS.—It is useful and interesting to note the prettiest of hardy plants in their season. The showiest subjects now are undoubtedly the common Rock Pinks, of which the prevailing colours are white and pink. Their profusion of flower is something wonderful, and what masses the plants make in a short time! For display they completely eclipse the other members of the family, and they last long in flower too, and have the true Pink or Clove fragrance. The curious spiral manner which the flowers have of unfolding their petals, leaving a whorl in the centre, is pretty and interesting, and has all but become lost in the demoralised Pink of the florist through long hereditary acquaintance with the tweezers. They have also the unpardonable fault of splitting their calyx, which no well-bred florist Pink does when it is banded in time. These Pinks lend a very gay aspect to borders at this season if used plentifully. Indeed, all the intermediate colours do. Strong and decided colours and contrasts are striking, but intermediates are most pleasing; hence the pinks and the mauves, and light blues, like the Forget-me-not, the *Viola cornuta*, and the Wood Hyacinth, are all pronounced lovely, and are permissible in large breadths where a lightsome effect is an object, a fact which should not be lost sight of in flower garden arrangements. At this season, too, the fair rosy-tinted *Spiræa palmata* is about at its best and has a pleasing effect. What a robust grower it is in cool soils in the north.

LESSONS FROM NATURE.—Those fruit-growers who believe in what they call "practical lessons" may study the habits of their Apple and Pear trees at this season with advantage. The more they do this the more they will wonder what kind of interpreter of Nature's purposes invented a pinched and pruned pyramid which no man has ever yet been able to make out a case for that you could not upset by one logical remark. By universal consent a formally clipped or pruned tree is the reverse of ornamental, while it hinders instead of promotes fertility in standard trees or bushes; therefore such abortions are useless. Trees on the Quince stock show at any time exactly what is wanted in a stock or root treatment that will keep down over-luxuriance and promote balance. To do this the knife or thumb is not

needed in any degree. Some trees, notably the *Beurré Clairgeau*, after it has been grafted a few years on the Quince, ceases to make wood shoots entirely, and produces clusters of flower-buds in excess, many of which are consequently abortive—the tree being often smothered by flowers and few of them setting. This shows too much restriction at the root, but the same thing is exhibited in all degrees in different trees, and where the stock is not restrictive enough, root-pruning or confinement at the root accomplishes the same end ten times more effectually and more easily than it can be done by restrictive top-pruning, which is a pure physiological blunder, involving a wasting of the supplies, while root restriction and unlimited top growth conserves them for use. Every leaf or branch cut away is a waste of material and force, only excusable under exceptional conditions.

STOCKS AND THEIR VALUE.—These do not differ so much as many gardeners imagine. The Quince and Paradise stocks have no special virtue in them which the natural stocks do not possess, only the former cannot pump supplies as fast as strong growing scions would appropriate them, whereas the natural stocks pump these up in excess; this is all the difference, and when the natural stock is so placed that it cannot find the supplies to pump up it is just as good as the other. This is, we believe, the philosophy of the matter. Mostly all stocks require root pruning because their feeding ground is too rich or too extensive, and the point in culture should be to curtail it by means of shallower and poorer borders, or by boxing trees in to a given space, a plan which never fails to promote fertility.

A GLUT OF ODONTOGLOSSUMS.—This is an unexpected circumstance. There have been enormous importations of *O. Alexandræ* lately, and the dealers say they are now selling cheaper than many hardy plants—as low in some cases as 7s. 6d. per dozen, which will not adequately remunerate importers; hence, as we are told, there are likely to be fewer shipments. When a plant becomes common it becomes neglected, but that is not likely to happen in the case of this popular *Odontoglossum*, the most beautiful natural wreath that can be imagined. Now that the trade has become overstocked, growers will probably begin to select, and there is need for it; for, although mostly all the true *Alexandræ*s are pretty, they vary greatly both in form and colour, some being greatly superior to others—at least growers seem to think so when nearly twenty guineas are yet asked and given for one small plant of a good variety such as we saw the other day; in fact, selection will become imperative with all species of rare Orchids that become plentiful.

PEOPLE WHO DO NOT SIGN THEIR NAMES.—I do not complain in the least of Mr. Brockbank declining to answer the questions which I put to him affecting his consistency as a florist, but his plea for not entering into controversy "with people who do not sign their names" is one which, in the interests of gardening correspondence, should not be allowed to pass. I believe I am within the mark in saying that probably the most valuable portion of the matter in gardening papers is written by those whom Mr. Brockbank declines to hold parley with, and I think I could lay my hands on proof showing that Mr. Brockbank is not above voluntarily invoking their aid occasionally when he finds it advantageous to do so. His remarks force one to say this, for they show that he is not more consistent in this matter than he is about florists' flowers. My name no more affects the question than does that of the man in the moon. To be consistent, Mr. Brockbank and others like him should not only not enter into controversy with people who do not sign their names, but they should not read their communications, a habit which, if strictly observed, would leave them in ignorance of the works of some of the most brilliant and successful writers that ever graced the pages of English literature, and whose names are unknown to this day. I may

just add that in no instance have I ever known Mr. Brockbank's ungenerous plea put forward except when the author of it had about reached the end of his tether in a controversy. Mr. Brockbank shifts his ground now when he implies that the plants at Manchester were unsuitable for the season, consisting, as he says, of *Pentstemons*, *Pæonies*, &c., which I do not recollect seeing, but I saw in the hardy collections *Tulips* which were also in bloom in the beds outdoors, *Scillas*, *Violas*, *Iberis*, *Auriculas*, *Lilies of the Valley*, *Dielytras*, *Anemones*, and other spring and early summer flowering subjects, those Mr. Brockbank mentions being the exception and not the rule, while at York on the 14th of June the exhibits consisted mainly of *Pyrethrums*, *Spiræas*, *Aquilegias*, *Saxifrages*, *Pinks*, *Geraniums*, and other subjects appropriate to the season. Where, then, is the ground of your correspondent's complaint?

PEREGRINE.

INDOOR GARDEN.

SARRACENIAS AND DROSERAS.*

SARRACENIAS and *Droseras* have so much in common, from a cultivator's as well as from a scientific point of view, that I venture to link them together, as many of the remarks which apply to the one tribe also apply to the other. Beginning with *Sarracenia*, they, along with *Darlingtonia* and *Heliophora*, constitute a very distinct, though small, Order named *Sarraceniaceæ*, which comprises six species of *Sarracenia*, nearly all of which have several varieties, besides one species of *Darlingtonia*, viz., *californica*, and one species of *Heliophora*, viz., *nutans*. With the exception of the last named, these are all at present in cultivation, are similar in habit, and are natives of North America, where they are found growing mostly in bogs, and even in places covered with shallow water. Their leaves, which give them a character entirely their own, are radical, pitcher-shaped, and collected into tufts. At the flowering season they send up numerous stems, bearing each a solitary flower, the structure of which is quite as remarkable as that of the leaf. The singular aspect of the flower is due in a great measure to the umbrella-like expansion in which the style terminates. This is five-lobed, the stigmatic surface being situated at the deflexed point of each lobe. The shape of the style, or perhaps the appearance of the whole flower, caused the first English settlers in its native place to give to *Sarracenia* the name of Side-saddle Flower. Both in flower and leaf it is totally distinct from every other vegetable form. *S. purpurea* has been known in this country for nearly three centuries, for in Gerard's "Herbal" a characteristic figure is given, where it is called "the Hollow-leaved Sea Lavender," and is said to be copied from Clusius. Since Gerard's time up till 1829 all the known species have been introduced; but it is a remarkable fact that within the last ten years the number of forms has been more than doubled, and not as Gerard has written by those who "travel into foreign parts," but by those who, for the most part, stay at home, namely, the hybridists. These hybrids are so distinct, that, had their origin not been known, they would very likely have passed as species. It may be said therefore that more of these wonderful plants have been created in this country alone during the last ten years than were known to exist throughout the world. Some of them are also decided improvements on the original species as decorative plants. It is gratifying to find that their cultivation is very much on the increase, and that the beauty, singularity, and above all the wonderful adaptation in form manifest in these plants is becoming more appreciated.

SARRACENIAS MAY BE DIVIDED into two sections, viz., those having the mouths of their pitcher-shaped leaves open in consequence of the lids standing erect, thus allowing rain to enter freely, as in *S. Drummondii*, *S. flava*, *S. rubra*, and *S. pur-*

purea; and those having the lids projecting over the mouths of the pitchers, entirely preventing rain from falling into them, as in *S. variolaris* and *S. psittacina*. Their cultivation is by no means difficult. The soil should consist of fibrous peat, with the earthy matter shaken out. To this should be added from a third to a half of chopped *Sphagnum*, and a sprinkling of potsherds, charcoal, and silver sand thoroughly well mixed. This should form a free, open compost. They should be repotted annually, renewing nearly the whole of the soil. The best time for this operation is about the end of February, just before root action takes place to any extent, except in the case of *S. Drummondii*, which has the bad habit of forming abortive leaves, to prevent which repotting this species in August is recommended. They should be firmly potted, slightly raised in the centre, and the surface covered with live *Sphagnum*. They require abundance of water; to insure this place them on *Sphagnum*, which retains the moisture. This is better than putting them in flats filled with water, as the soil becomes soured and causes decay at the roots. They should be quite close to the glass, to within 2 inches from which they will be safe, and a moderate supply of air admitted. None of the species require much heat. This is an error into which many have fallen, treatment like other greenhouse plants as to temperature being sufficient. The same treatment applies to

DARLINGTONIA CALIFORNICA, a remarkable plant, found at an elevation of 5000 feet on the Sierra Nevada of California. Like *Sarracenia*, this plant has hollow inflated petioles or pitchers, but these differ in being twisted, and in widening as they reach the apex, which forms a hood. This appendage appears as if perforated at the upper part, and terminates in two fish-tail like, crimson-coloured prolongations, which give it a most curious appearance. *Sarracenia purpurea* and *Darlingtonia californica* have been grown out-of-doors in various parts of the country with more or less success. My own experience is not favourable to this method, as they make slow progress compared with those grown under glass. This may be attributed to our colder summers, which prevent the formation of well-ripened leaves, rather than to their inability to withstand our comparatively milder winters. Almost every plant has its own peculiar insect enemies, and *Sarracenias*, with all their so-called dangerous enticements to insects generally, are no exception to the rule. Green fly attack the young leaves, causing them to become deformed; and when the leaves are full grown, thrips and scale do great damage if allowed to get a hold. These must be kept in check by the usual means employed for destroying such pests. All the species are propagated by careful division, or by seed, which is occasionally obtained from strong-flowering plants by cross-fertilisation. The seeds should be sown on the surface of finely prepared soil, where they germinate readily, but are somewhat difficult to manage, being very liable to damp off, especially during the first year. In 1874, the late Dr. Moore, of Glasnevin, exhibited at the Botanical Congress at Florence the

FIRST HYBRID *SARRACENIA*, for which he justly received the gold medal of honour. The plant, which was in flower, is almost intermediate between its parents, *S. flava* and *S. Drummondii*, and is now known as *Sarracenia Moorei*. Soon after appeared *Sarracenia Steveni*, a cross between *S. flava* and *S. purpurea*, raised by Mr. Stevens, of Trentham. Messrs. Veitch shortly followed with their handsome *S. Chelsoni*, said to be a cross between *S. rubra* and *S. purpurea*; and last year the same enterprising firm produced the highly interesting *S. formosa*, a cross between *S. variolaris* and *S. psittacina*, and also *S. Courti*, a cross between *S. purpurea* and *S. psittacina*. Mr. Williams, of Holloway, has also a hybrid named *S. Williamsi*, the parentage of which is unknown. Last, but not least, that indefatigable horticulturist, Dr. Paterson, Bridge of Allan, has succeeded in raising a magnificent hybrid, the result of a cross between *S. purpurea* and *S. Drummondii*, and I doubt not we shall have many others ere long.

* A paper read before the Scottish Horticultural Association by Mr. Robert Lindsay, Curator Royal Botanic Garden, Edinburgh.

It seems strange that no one has yet effected a cross between *Sarracenia* and its ally *Darlingtonia*. This, which would be the most interesting of all these hybrids, has hitherto baffled all attempts. The only remaining member of the family is *Heliophora nutans*, a native of Venezuela, which differs from the others principally in having several flowers on a scape, which are destitute of corolla; but as this plant is not in cultivation, we can only express a hope, as old Gerard did with regard to *Sarracenia purpurea*, "that those who travel into foreign parts may bring it home with them, that so we may come to a perfect knowledge thereof."

THE DROSERACEÆ OR SUNDEW FAMILY is a large one, consisting of over a hundred species of *Drosera*, three or four of *Byblis*, two of *Roridula*, and one each of *Drosophyllum*, *Dionæa*, and *Aldrovanda*. Their general cultivation is the same in nearly every respect as that recommended for *Sarracenia*, the only exception being that the soil used may be made a little less rough, with which difference they may very well be grown together. Many of them are exceedingly handsome, and all are extremely interesting. They are easily raised in quantity from seed, and also, in the case of strong-rooting kinds, such as *Drosera dichotoma* or *D. binata*, by root cuttings. If the roots are cut up into the smallest pieces and strewn over the surface of a seed-pan, covered lightly, and introduced into heat in February, keeping them close for a few weeks, almost any quantity of this elegant species can be had in a single season. As a table plant, *Drosera dichotoma*, when well grown, is very effective. The leaves, being always covered with their peculiar dewy secretion, appear, especially in gaslight, as if studded with innumerable diamonds. Other species well worth growing are *D. spatulata*, *D. capensis*, *D. lunata*, *D. filiformis*, and the three British species, *D. anglica*, *D. intermedia*, and *D. rotundifolia*. It is somewhat surprising that, out of over one hundred known species of this wonderful genus, many of which are highly ornamental, little more than a dozen are yet in cultivation. Some of the noblest forms are said to be found at the Cape, but have never been introduced. Among these are *D. cistiflora* and *D. pauciflora*, having petals sometimes an inch long, with a dark spot at the base. In the same place are found two species of *Roridula*, which are shrubs—one of which, *R. dentata*, is used by the Boers in their rooms as a fly-catcher. Judging from dried specimens, these plants would well repay almost any trouble in procuring them. *Drosophyllum lusitanicum*, the Portuguese Sundew, is a very fine species, having large yellow flowers and long slender leaves, studded with innumerable secreting glands. It is easily raised from seed, which is freely produced. But perhaps the most wonderful plant of this family is

DIONÆA MUSCIPULA, or Venus's Fly-trap, a native of Carolina, and known in this country since 1765, for in that year Ellis, a well-known English naturalist, sent a drawing of it to Linnaeus, who gave it the poetical name of *Dionæa*. The account which Ellis gave of it moved the great Swedish botanist to declare that, though he had seen and examined no small number of plants, he had never met with so wonderful a phenomenon. Ellis having a year or two afterwards obtained living plants from America, grew and flowered it in his own rooms; and from him we learn that the insectivorous predilections of *Dionæa* have been suspected for more than a century. *Aldrovanda vesiculosa* may be called a miniature aquatic *Dionæa*. It also has bilobed sensitive leaves arranged in whorls on the stem, which capture minute aquatic insects. It is found in ponds in Italy and some parts of Germany. Unfortunately, it will always be a difficult plant to cultivate, as it is entirely destitute of roots.

5017.—*Stephanotis* not flowering.—It is difficult to say why the *Stephanotis*, in this case, refuses to flower, but probably it is either a shy blooming variety, or having plenty of root-room, is growing too freely to be floriferous. It is a well

known fact that some varieties are much more floriferous than others; indeed I have found it necessary to remove large plants in consequence of their being shy bloomers after means had been tried in vain to induce them to flower. That known as the Elvaston variety, for which there is now a greater demand than for the common kind, is a very free flowerer. This kind should therefore always be secured if possible. Before, however, discarding the plant in question, I should try the effect of curtailing its root-run.—H. P.

Fungi in propagating pits.—Like "W. J. T." (p. 575), I have been several times troubled with a bright yellow fungus in the propagating pits, the mycelium of which spreads with great rapidity in the Cocoa-nut refuse employed therein. In my case the yellow powder was freely distributed over all surrounding objects when the fungus reached maturity, and in most cases it led to the decay of the cuttings on which it fell, especially if of a somewhat succulent character, such as those of *Begonias* and *Fuchsias*. There are great differences in Cocoa-nut refuse as to the rate at which fungi will spread in it, but when they once take possession there is but one remedy, and that is to remove all the old refuse, and after a thorough cleansing replace it with new. The way in which I always succeed in getting rid of fungi is, after clearing out the Cocoa-nut refuse, to white-wash the walls with hot lime, and indeed every part touched by these pests. This destroys any atoms of spawn that may be left, and at the same time tends, in common with the new fibre, to purify the atmosphere of the pit or frame, so that afterwards cuttings difficult to strike are less liable to decay than before such cleaning took place. For the lime washing do not use the rather costly hair-brushes employed by plasterers, but a cheaper kind made of vegetable fibre, as the latter is not injured by the action of the lime, whereas the dearer ones will be spoilt by it.—T.

5015.—**Billbergias.**—The whole of the Bromeliads, without a single exception so far as I know, are sun-loving plants, many of them being epiphytal on the tops of trees and bushes, where they enjoy the intense brightness and warmth of a tropical sun for the whole day. The conditions under which these plants are found growing in the greatest abundance are chiefly in open, sunny places on the edges of forests, where heavy rains are frequent and a heavy dew is deposited nightly. I have been told by a plant collector that in the early morning the urn-like growths of *Billbergias* and other Bromeliads are filled with water, which by evening has evaporated, leaving the plants quite parched. To attempt to imitate Nature in every respect is not always wise, but in the case of Bromeliads one may do so pretty closely and be fairly successful. We grow our *Billbergias* along with a large collection of Bromeliaceæ in a hot, moist stove on a side stage on which the sun is permitted to shine all day. The plants are syringed heavily in the morning, and in many cases a quantity of water is always found in the growths. During summer plenty of water is supplied to the roots. The growths after flowering do not die, but they will not flower again, though they produce one or more suckers at the base, which, in the stronger kinds, are removed when large enough and grown on singly, a good plan if large growths and flowers are wanted. The yellowness of the leaves may be owing to sourness of the soil in which the plant is growing—certainly not the result of too much light. The mixture we use is one of lumpy peat and loam with a little charcoal. Manure water is given now and again during the summer months. In the case of *Billbergias* one would not go far wrong by following the instructions given for the cultivation of Pines.—B.

Shakespeare as an angler.—Canon Ellacombe, who contributed so many interesting articles to THE GARDEN on the plant lore and garden craft of Shakespeare (afterwards published by him in a work-bearing that name), has been following up his Shakespearian studies, and has lately issued a book on "Shakespeare as an Angler." It is published by Mr. Elliot Stock.

GARDEN FLORA.

PLATE CCCXCIV.

SISYRINCHIUM GRANDIFLORUM.*

Who would imagine that this lovely plant was as hardy as a high alpine flower and strong enough to withstand the cold rains of February or the winds of March. The plant is altogether more slender and graceful than any other open-air plant with which we are acquainted. Its Rush-like foliage, growing erect and tufty, has doubtless suggested its popular name of Rush Lily, a name which to some is easier remembered and more euphonious than that given it by botanists. When well and fully grown it is from 12 inches to 15 inches high. The flower-stems are intermingled with the foliage and are about the same height. The blossoms are usually borne in pairs produced on slender stalks drooping out of the membranous sheath called a spathe. One flower usually expands a day or so before the other, and if the stem is cut just as the first flower begins to open the second one will succeed it as if it were still on the plant. Interesting as the plant is in the open border, it seems almost a pity to leave such delicate beauty to the mercy of the weather; and as the flowers last long in perfection when cut it is best to have a few in a vase indoors where their beauty can be thoroughly enjoyed. We have said it is a hardy plant, but the term hardy is subject to conditions, for in some localities, particularly if the soil is surcharged with water in winter, it will succumb to hard frosts. In light soils it is perfectly hardy, but even under such circumstances the plant seems always grateful for a little protective mulching during winter, such as short litter or Bracken. Its normal flowering time is in April and May, but it blooms in some gardens in warm localities as early as the middle of March if the weather is sufficiently mild. The early bloom is accelerated by a good mulching of litter put round the plants in autumn, which, moreover, prevents them suffering from violent changes in the way of weather. This early bloom, however, is never so beautiful as that produced in the latter end of April and May, when the days are longer and warmer.

There are two forms of this plant, the one supposed to be the typical, distinguished by its very fine vinous-purple blossoms, the other called the album or white variety, having flowers of spotless white, save the gold-tipped tufts of stamens. It is a hard matter to say which is the more beautiful. Both are charming kinds and worthy of the attention of every flower lover. In both the petals exhibit a transparency seen in few other flowers, and certainly in no other hardy plant. The form and colour of the flowers are shown in the accompanying plate. This is not a new plant, having been introduced so far back as 1826. It is a native of that tract of country in the vicinity of the Columbia River which was explored by the botanical collector, Douglas, and it was by him it was first sent home. It was named *S. Douglasi* by Dietrich in compliment to its discoverer, but the name which Douglas gave the plant is retained on account of priority of date.

The culture of this plant is simple. It likes a good friable soil, such as may be found in most kitchen gardens. Some say it likes a shady place, but we have always seen it do best in the open in full exposure, but it is best to shelter it from

* Drawn from plants in the Hale Farm Nursery, Tottenham, in May last.



strong winds in some way, as they tear and knock the plants about so badly. To propagate it the plants should be lifted in autumn, and the tufts pulled carefully into as many pieces as are required, always leaving a sufficiency of roots on each piece to start it into growth. The pieces should be planted immediately in light soil, placing a little sand around the roots in order to induce the formation of new rootlets. Fibrous rooted plants such as this require careful handling when propagated, for the roots soon suffer. Some grow this plant well in pots for greenhouse decoration in spring, and a very pretty plant it is for the purpose. There are about ten other hardy species of *Sisyrinchium* in gardens, but singularly enough this is the only one really worth growing, though *S. anceps*, *striatum*, and *convolutum* might perhaps be tolerated in a full collection.

SEASONABLE WORK.

FLOWER GARDEN.

TOBACCO PLANTS.—Of all annuals suitable for flower borders, and for grouping in masses in the sub-tropical garden, the Tobaccos or *Nicotianas* are probably the most rapid growers and the most easily raised. They have also the additional merit of being comparatively hardy, and can be planted out earlier than any of the other kinds of plants usually classed as sub-tropical. Seeds sown on a slight hotbed in March, and the young plants potted off singly as soon as they can be handled, and given ordinary frame culture, will be large to plant out in May. The best varieties are *Tobacum* and its variegated variety and *wigandoides*. In good soil all three kinds attain a height of 8 feet, and have broad massive foliage and long spikes of pink blossoms. They flower so freely, that to prevent premature exhaustion it is necessary to reduce the flower-spikes to about a couple on each plant, as well as to prevent them from seeding, by frequently picking off the bad flowers. Under this simple culture they will retain their effectiveness till very late in autumn. If planted in groups, each plant should not be allowed a less space than 3 feet.

BEDDING PLANTS.—The change to colder weather which we have just had has made the tender section of bedding plants look wretched; so much so, that one almost regrets that there are such plants as *Coleus* and *Alternanthera*; but having used them, and that with grand effect, when the seasons were warmer, it is difficult now to make up one's mind to exclude them, but sooner or later it must come to that; meanwhile we must be on the outlook for hardy substitutes; at present the only available hardy kinds are the bronze *Ajuga* and *Oxalis corniculata rubra*, both a long distance in the rear as regards brightness of colour, but moderately effective when planted in dense masses. Though it is yet early to form an opinion as to whether or not such tender plants as the *Coleus* and *Alternanthera* will fill out their allotted space, the moment there is a doubt in the matter will be the time to set to work to cover the ground; dwarf Sedums, dibbled in amongst them, quickly do this, the mixture so formed being infinitely preferable to bare plots of earth. In the case of succulent arrangements keep the flowers picked off *Echeverias* and other ground-work plants associated with them, such as Sedums and Saxifrages, but the small flowers of *Mesembryanthemum cordifolium variegatum* harmonise so well with succulents, that they should be left. It will, however, be necessary to occasionally pick off the seed-pods in order to keep the plants in free growth. The most pleasing bed we have at the present time is an arrangement of large succulents, consisting of *Yuccas*, *Agaves*, and large-growing *Echeverias* and *Sempervivums*, the whole being in a setting of the large, mauve-flowered *Mesembryanthemum conspicuum*, and the only attention it has ever had or needed since planting

has been the keeping of the *Mesembryanthemum* pegged under the taller plants. In rain or sunshine, in fact in all weathers, these succulent arrangements are equally pleasing, and worthy of adoption on that ground alone, not to mention their desirability on the score of variety. Keep the under growths of sub-tropical plants neatly pegged down, and in cases in which such undergrowths have been deemed unnecessary the beds should be kept mulched with Cocoa fibre or leaf-soil. For the present the flowers should be kept picked off *Cannas*, *Castor-oils*, and the like, and all that need tying and staking should receive that attention before any injury accrues from its neglect.

GENERAL WORK.—During showery weather the weeding and rolling of walks will well repay all the labour that can be afforded in that direction. Shrubberies and mixed flower borders will also require more than ordinary attention as to the destruction of weeds, and the mowing necessary to ensure a close, velvety turf is just now incessant. Roses need washing for the destruction of blight; bad flowers should be picked off once a week, and the growths of any that have done flowering should be shortened. Daisies, Pansies, Primroses, Polyantheses, Violas, Pinks, and other spring flowers may now be propagated by division, cuttings, or seeds; they all do best in partial shade; a border having a north or east aspect is in every way suitable. Any strong plants there may be to spare will do good autumn service in the mixed borders amongst Roses.

INDOOR PLANTS.

DOUBLE PRIMULAS.—The advantages which these possess over the single kinds where flowers for bouquets are much in demand are their greater duration when so used and their continuous habit of blooming, especially the white and distinct pink kinds, such as Gilbert's seedlings, that deserve to be grown extensively; not only are their flowers individually much larger than those of the old sorts, but the habit of the plant is more vigorous. Every attention should now be given them in the way of pot room and plenty of light, with no more shade than is required to break the sun's rays and prevent the foliage from assuming a sickly hue. If seeds of the single varieties were sown at intervals of about two months, there will be a good prospect of a continuous succession from autumn up to spring, and to have the stock in such order as will enable it to produce a full crop of flowers there must be no want of attention, especially in giving more root room as required. Plants of the last sowing should be encouraged to make growth, so as to admit of their being got into their blooming pots before the season is too far advanced to allow them to attain size enough to flower well. On no account allow the stock of either double or single kinds to stand too close together from the first, for where this occurs the leaf-stalks get drawn out weakly, a defect that cannot afterwards be remedied. The best place for Primulas in summer is in ordinary frames facing northwards at the north side of a low north wall with their heads close up to the glass. Thus situated they will get plenty of light, but not under the full force of the sun. The lights should be well tilted up back and front in the daytime, and a piece of garden netting should be put on the glass in the middle of the day when the weather is bright.

HELIOTROPES.—These must be kept close to the glass when subjected to the warmth requisite to bring them into flower during autumn and winter; consequently, where they will have to be brought on in low pits, small plants such as can be grown up from spring-struck cuttings occupying 6-inch or 8-inch pots should at once be placed in such, regularly pinching off the flowers as they appear. This is necessary in order to direct all their strength to the formation of growth. Large old *Heliotropes* are most useful where there are means of giving them the requisite room, as where these exist, if encouraged with a little warmth after the weather gets cold, they will go on blooming for

months. With large examples of this description it is not so necessary to keep all the flowers nipped off now as in the case of small ones, but means must be taken to keep them growing freely by the aid of sufficient pot room and frequent applications of manure water.

PERPETUAL FLOWERING CARNATIONS.—The later flowering stock of these will now be in fine bloom, and should be assisted with manure water once a week, which will induce them to push up strong shoots from the bottom that will flower later on. Plants that have been forced early should have their old flowering shoots well shortened back, so as to encourage the young shoots, which in free-growing varieties are always making their appearance; they should then be turned out of the pots without disturbing the balls of roots more than what occurs in removing the drainage, and be planted out in prepared soil, not too light, but with sand enough in it to admit of their being taken up and potted in the autumn without much breakage of their roots; they must have an open situation fully exposed to the sun, and not be allowed to suffer through want of water. If well managed they will produce many more flowers than younger plants, and will not be so leggy or unsightly as where the old stems are allowed to grow up without cutting back. Young plants struck from cuttings in the winter or spring must have all the attention which they require, or it is useless to expect more than a meagre production of flowers. Move them as soon as necessary out of the small pots they occupy to others a couple of sizes larger, using good strong new loam, to which has been added a little leaf-mould with some sand, but not so much as is required by most soft-wooded plants, as if the soil is too light they will not be unlikely to refuse to move altogether.

FRUIT.

PEACHES.—When all the fruit has been taken from the early house, go over the trees and remove the shoots which have performed their office and can now be spared with advantage to the young growths intended for next year's fruiting. Tie in and regulate the latter, allowing plenty of room for free development of foliage and the free admission of light and air. Syringe regularly with pure water where the foliage is clean, and add soft soap or Gishurst compound on dull evenings to keep it clear of spider. Keep the inside borders regularly supplied with water, and renovate the mulching where the trees show signs of weakness or exhaustion from heavy cropping, but carefully guard against forcing them into a vigorous growth when they should be going to rest. The ventilators may now be left open by night and day, and when the buds are well made up, the roof lights, if possible, may be taken off, painted, and stored away ready for use early in the autumn.

SUCCESSION HOUSES.—If time is an object the trees in succession houses may now be subjected to a higher temperature than would have been safe before the fruit commenced its last swelling, but it must be borne in mind that nothing in the way of quality is gained by it, increased size, colour, and flavour being the true tests of merit. We prefer a temperature ranging from 60° at night to 75° by day, with plenty of air and full exposure by drawing the lights off when the weather is very fine after the end of June. Where good soft water can be obtained the trees may be syringed every morning until the fruit has attained its full size and shows signs of changing for ripening, but on no account should the afternoon syringing be performed when there is danger of the foliage remaining wet after nightfall. If the roots are confined to internal borders, and the latter are well drained, liberal supplies of water at the mean temperature of the house will be needful in this and later houses; but where they run outside, the heavy rains we have lately had, combined with good mulching, will keep them in a satisfactory state until the earth becomes much warmer than it is at the present time.

LATE HOUSES.—See that the wood is thinly and evenly laid in in late houses and wall-cases, par-

ticularly where no heating apparatus has been provided for ripening it up in the autumn; pinch the points out of gross shoots where they are likely to rob the fruit or weaker parts of the trees, and elevate all that can be raised to the influence of sun and light as the work proceeds. Syringe well twice a day, leave the ventilators constantly open, and mulch the roots with some non-conducting material to counteract the drying influence of constant currents of air; but guard against the use of over-rich manure, which will force the trees into vigorous growth late in the season.

FIGS UNDER GLASS.—Our early forced trees are now swelling up the second crop of fruit, and a few of the most forward Figs are beginning to ripen. The fruit has been well thinned to insure good size, and the roots have been liberally supplied with warm liquid to keep the trees in growth. From the first week in June stopping is discontinued, as it is from the young growths now being made that next year's first crop will be obtained. When all the best fruit has been gathered the lights will be taken off the roof, the shoots will be well cleansed if insects are present, and the trees will be allowed to go gradually to rest. In our best house a large tree of Brown Turkey is ripening hundreds of fine Figs. This tree is planted out against a rough stone wall forming the north side of a span-roofed pit. The shoots are trained upwards to the ridge, thence downwards to the south front. The winter pruning consists in cutting away barren shoots which have reached the extremity of the trellis to make room for summer growths, and as these are never stopped, a successional growth of wood and fruit is secured until the time arrives for withholding stimulants. The shade produced by the foliage having caused the stems of eighteen years' growth to throw a complete network of roots over the surface of the old limestone wall, we keep them packed Orchard fashion in the pieces of turf, from the floor line 4 feet upwards, and feed copiously with warm liquid, which is poured on at the top every other morning, or as often as the turf roots and projecting stones show signs of becoming dry. We ought to say the wood never becomes so gross, neither does the fruit drop at the usual critical period of its growth, two striking proofs that this heat and moisture-loving tree is most decidedly at home when planted where rich, stimulating food can pass quickly away and the air is not excluded from the roots.

STRAWBERRIES IN POTS.—Young plants intended for early forcing should be placed in their fruiting pots by the end of this month or early in July. Small pots, 5 inches to 6 inches in diameter, are quite large enough for the first batch, but for the general stock a larger size may be used with advantage, if only to economise time in watering. See that the fruiting pots are clean, dry, and well crocked, for, much as the Strawberry enjoys a strong, rich soil with plenty of moisture, it soon becomes unhealthy in a pot from which water cannot pass away freely. Pot the plants singly, with the crowns well up above the soil when all is finished, and place them on a hard surface in a light, airy situation convenient to water, and, if possible, free from worms. Avoid crowding the plants together or setting them near trees, as it is important that the leaf-stalks be kept short and stout, and that good single crowns in preference to double ones be thoroughly ripened before the autumn. Water well with water which has been exposed to the atmosphere, and keep the beds of concrete or ashes on which they are placed well moistened, but avoid wetting the tender foliage in bright weather or at any time with water that is colder than the mean temperature of the air. Remove all weeds and runners. Apply lime water if worms gain a lodgment, and rearrange occasionally, as they require more room, and to prevent the plants from rooting into the ground. With many growers it is the practice to avoid the use of small pots altogether by filling the fruiting pots up to within three-quarters of an inch of the rim, and then pegging the runners tightly down on the surface. The drawback to this plan is the establishment of a colony of worms during the time

the pots are standing on the quarters, and the time occupied in watering in dry weather. The plants, however, make excellent heart buds, which ripen well, and the check which follows shifting from 3-inch pots to fruiting pots is overcome.

ORCHIDS.

EAST INDIA HOUSE.—We find *Odontoglossum Roezli* to succeed best in this house, but in the coolest end, there being a difference of at least 5° between the two ends; our plants of it are placed very near the glass, and when making growth are as freely supplied with water as the cool house species. They have just passed through the flowering period, and are again starting to grow. Some of them were repotted about mid-winter, and have done well; these will not be disturbed now, but all that were repotted at this time last year will be potted again; the roots should not be disturbed more than what may happen in removing the decayed and sour compost. For these we fill the pots with drainage up to within 3 inches of the rim. They should be cleared from thrips before repotting. Some of the *Cattleyas* grown in this house will now be pushing up their flowers from the recently formed pseudo-bulbs; amongst these we place *C. gigas*, which flowers best when placed very near the glass in the coolest end of this house. *Cattleya Dowiana* requires very similar treatment. It does well with the pots placed inside a basket. *C. superba* is grown in quite the warmest end, but this should be on a block, or, what is better, fastened to a bit of the stem of a Tree Fern. We find *Cattleya Warneri* to succeed better in this house than in a cooler temperature. Our best plant of it has been grown here for many years and always flowers well. Any *Dendrobiums* starting into growth, as many of them do at this time, should be repotted as they require it; give them plenty of heat and moisture, and occasionally syringe them overhead. The smaller-growing species should be placed near the glass; those that are taller will do in the centre or on the side stages. *Saccolabiums* are now beginning to make fresh roots; if any of them require robust setting or repotting it ought to be done at once. These Orchids dislike being disturbed, and if the potting material has become decayed, it may be best to carefully pick it out from amongst the roots and substitute fresh material. They do not require any peat amongst the Sphagnum, but crocks and charcoal are necessary to keep it open. We find it answers well to have dried Sphagnum that has been well washed previous to drying to work in amongst the roots, finishing off with live material chopped fine and that has been mixed with a little pounded charcoal as well as the lumpy portions of it. We always wash the leaves with soapy water before potting.

CATTELEYA HOUSE.—If any *Cattleyas* really require repotting, it should be done now, but we are of opinion that January is the best time for performing the operation. Most of ours are being left until that time. Recently imported plants are dealt with differently. Some pot the plants at once in the usual compost, and as a rule roots are very soon emitted from the base of the last formed pseudo-bulbs. The best way, perhaps, of treating all such plants, including *Lælias*, is to pot them in clean crocks, and as soon as the roots have begun to push, remove some of the crocks and replace them with the usual compost; the roots run into it at once, and before it becomes tainted by repeated waterings. Many new and notable additions are constantly being made to *Cattleyas*, and as there is always much pleasure in watching the development of new forms, it ought not to be forgotten that as a rule flowering sheaths are most likely to be formed when the plants are placed near the glass. We had six plants of *C. gigas* in one house placed on the stage; they were not more than 3 feet from the glass, but not a flowering growth was formed upon one of them until they were all suspended from the roof close to the glass; now they are all forming flowering sheaths. *Odontoglossum hastilabium*, an inmate of this

house, is usually much punished by the long time during which its flowers remain on it. We have had single spikes last for three months and longer; one even lasted six months. Carefully attend to the plants in the way of giving water at the roots, and maintain a moist growing atmosphere. They are now making new growths and pushing out young roots.

COOL HOUSE.—The instructions recently given as to the general treatment of this house will do for the next two months. We have not had very hot weather, consequently no extra precautions have been necessary; indeed, the rather cool, moist atmosphere has suited the occupants of this house well. We would rather not repot many of the *Masdevallias* and *Odontoglossums* at this season, but it may be necessary to do so; in that case we are careful to disturb the roots as little as possible, and are also very careful not to let them suffer from want of water afterwards. Cool house Orchids are rapidly increasing in numbers and interest, and the house need not be altogether filled with *Odontoglossums* and *Masdevallias*; a few of the finest *Dendrobiums* may find a home there. *D. Jamesianum* and the nearly allied *D. infundibulum* make the best growths in the warmest end of the cool house; in potting and watering deal with them much the same as is done with *Odontoglossums*; they like to be near the glass. Besides *Oncidium macranthum* alluded to in last calendar, another really pretty species does best in this house, at least during the summer months, viz., *C. cheiroporum*; it is best grown in pots, but the pots may be placed in baskets and suspended from the roof. Amongst *Cattleyas* the lovely *C. citrina* succeeds well on blocks or in shallow pans. In either case it is best suspended from the roof. *Lælia majalis* and *L. autumnalis* are good subjects for this house. They will do very well if they can be placed in a corner where they can get a few hours' sun each day, as they will not form flowering growths if they are too closely shaded. Cultivators know that certain plants must be placed in the lightest part, others near the ventilators, and others again at a distance from both. To grow Orchids well in any department it is necessary that their habits and the conditions under which they are found in their native habitat should be known and, if possible, adhered to when under cultivation.

KITCHEN GARDEN.

KEEP the hoe constantly going among growing crops, and prick out Broccoli, Savoy, and winter greens. If ground for them is not likely to be early at liberty we always sow as late as possible, so that the plants do not get drawn while they stand in the seed beds. Early Potatoes now occupy the ground where we intend to plant our spring Broccoli; therefore with us pricking out the plants will be a necessity, otherwise we prefer planting from the seed bed. Keep Tomatoes well nailed to the walls. Encourage them to become strong healthy plants, so that their fruit may be a sure and profitable crop. On Globe Artichokes recent winters have left their mark, but last two winters being mild ones have helped them wonderfully. We are well watering our stock of these, and will not forget to duly protect them next winter. All Celery for late spring use should now be pricked out. Keep early Celery in the trenches growing by giving it daily a slight damping. It should be kept constantly growing.

Lathyrus Sibthorpei.—This is one of the most showy of perennial Peas, and generally blooms much earlier than June. I have grown it over fifty years, having first got it from the late Mr. Baxter, of the Oxford Physic Garden, as it was originally called. It was introduced there by the late Dr. Sibthorpe, professor of botany at Oxford. He travelled in Greece to collect rare plants, and this was one of them. It seeds freely with me, and I will be pleased to send some seeds when ripe to any who will send me a stamped envelope for the purpose.—H. T. ELLACOMBE, *Clyst St. George, Topshams*.

STERILITY IN PLANTS.

THE following extract from a lecture by Dr. Matthew Duncan, published in *The Lancet* the other day, may not be without interest:—

Viewing this subject generally, we may anticipate a great result by pointing out the paramount prevalence and potency of constitutional conditions as causes of sterility. Such are cold and heat, overfeeding and underfeeding, youth and old age, degradation of general health, confinement, and inter-breeding. Local conditions occur in plants that are quite sufficient to account for or cause sterility. Such are contabescence of anthers, monstrous flowers, double flowers, seedless fruit. These local conditions are the result of the general or constitutional conditions of the individuals in which they occur; and they have their place rather in the results of sterility, or of the conditions producing sterility, than in the causes of sterility. In the vegetable kingdom everyone has observed that source of sterility which may be, no doubt nearly truly, designated a degradation of general health. A plant covered with flowers is brought from a house where its fertility has been stimulated to the highest degree, and placed as an ornament in a sitting-room, where it remains till its charms are lost, and the result is such an injury to its constitutional vigour that it is sterile, or nearly sterile, for one or for several subsequent seasons. Its fertility may never be restored, or only after several years of the medical care of a skilful gardener. The scarlet Geraniums which are brought from their healthy homes in full bloom to adorn the houses of inhabitants of densely populated cities soon show the injurious influence of their new surroundings, however well they may be cared for; their flowers become less numerous, or are altogether wanting; then their leafage diminishes greatly in quantity, and their existence becomes a mere lingering. A Rose garden, lately in a suburban position near London, gets surrounded by the growing city, and gradually as the buildings increase the fertility of the Roses diminishes; the garden becomes useless. Some of our finest forest trees, and among them some plants, grow beautifully in our squares, producing wood in even exaggerated quantity, and a clothing of leaves sufficient for ornament; but there is no wealth of leaves, and there is no seed. In some cases an exception makes the rule more striking, as when a Cherry tree in the heart of the City of London lately produced flowers and matured its fruit, so far as maturity is indicated by beauty, size, and taste. Practical gardeners attribute sexual injury to over-stimulation by manure, or what they call

OVER-FEEDING. This ordinarily produces great growth of the tissues; and when this is restrained by judicious pruning, it forces out a large or excessive crop of flowers and subsequent fruit. In the language of Spencer, there is produced by over-feeding an excess of individuation, the restraint of which results in excess of genesis. The natural tendency of the overfeeding of plants is to produce a degree of relative sterility; and this may show itself in paucity of flowers, or it may show itself in the production of those double, or monstrous, or abortive flowers which are so much admired. The opposite result is produced by moderate or full feeding. Then, in mature plants there is not great growth of tissues, but rather a production of fruit. Sometimes the plant, without assignable cause, but especially if underfed, has an exaggerated production, and is said to run to seed; and, from whatever it may arise, it in a reflex manner injures the plant, which consequently becomes blighted and often dies. Excessive production here seems to take the place of sterility. The following is an interesting illustration of the effect of over-feeding and of moderately feeding or under-feeding a Vine, and it is important because it specifies a particular local condition or disease which is apparently the cause of the infecundity of the over-fed plants, and so indicates a line of investigation which may with advantage be pursued in other examples of sterility. In a recent letter from Mr. Thomson, the well-known Vine cultivator, he writes: "A

circumstance has arisen in my own experience that I have never seen noticed in print. A Vine called the Alnwick Seedling, if grown vigorously in rich soil, fails to set its fruit even when aided. This failure is caused by the exudation from the female organ of a dewdrop of sap, which moistens the pollen, and it does not descend through the pistil and impregnate the ova. When the Vine is grown in poor soil the dewdrop does not appear, and impregnation takes place; seeds are formed in perfection, but the pulp for which the Grape is grown is almost absent. I know" (he adds) "no other Grape affected in the same way or subject to the same influences." I know no good account of the

STERILITY OF PLANTS AS REGULATED BY AGE, but the influence of age is well recognised. A young fruit tree bears no fruit, or very little, and that little imperfect, and the careful gardener does not permit it to bear much or even a little, believing that fruit bearing injures growth and diminishes future fertility. The influence of old age in fruit trees is also well known: the fruit is ill developed, and there is little of it. "All know," says Spencer, "that a Pear tree increases in size for years before it begins to bear, and that, producing but few Pears at first, it is long before it fruits abundantly. A young Mulberry, branching out luxuriantly season after season, but covered with nothing but leaves, at length blossoms sparingly, and sets some small and imperfect berries, which it drops while they are green; and it makes these futile attempts time after time before it succeeds in ripening any seeds. But these multiaxial plants, or aggregates of individuals, some of which continue to grow, while others become arrested and transformed into seed-bearers, show us the relation less definitely than certain plants that are substantially, if not literally, uniaxial. Of these the Cocoa-nut may be instanced. For some years it goes on shooting up without making any sign of becoming fertile. About the sixth year it flowers, but the flowers wither without result. In the seventh year it flowers and produces a few nuts, but these prove abortive, and drop. In the eighth year it ripens a moderate number of nuts, and afterwards increases the number, until, in the tenth year, it comes into full bearing. Meanwhile, from the time of its first flowering, its growth begins to diminish, and goes on diminishing till the tenth year, when it ceases." The evil influences of

INTERBREEDING is a subject too extensive to enter upon at any length. In plants it is corroborated by the well-known advantage of crossing of varieties. But it needs no confirmation, for there are self-impotent plants, plants more thoroughly fertilised by a nearly allied species than by pollen of their own species, and there are the wonders of dimorphism with sterility arising from union of individuals not only of the same species, but of the same form. In the works of horticulturists is to be found ample evidence that interbreeding of plants tends to weakness, malformation, and sterility. The influence of heat and of cold is, in plants, well illustrated by the failure of most alpine species to produce flowers and fruit in lowland gardens, and the same failure of lowland plants as they ascend the sides of mountains. A walk in the highlands will show the Pines thriving on the hillsides and well covered with cones, but as greater altitudes are reached the trees are observed to become stunted and the fruit entirely to fail. The abortion-like sterility of plants is illustrated by the bearing of

DOUBLE FLOWERS, of flowers whose seeds do not ripen, or whose seeds, though apparently perfect, are incapable of germination and growth. In some of the cases of seedless fruit and of fruit with few seeds or with one seed, or with imperfect seed, we have also abortion and at the same time a fine illustration of the working, locally, of the opposition between individuation and genesis. The whole plant, as the Vine or Pear tree, may have the appearance of health, and its fruit alone is unnatural. The tissues of the fruit-capsule are enormously developed, while the seeds have disappeared or are reduced to one or a small number. The luscious

Pear or the juicy Grape are masses of hypertrophy or myxomatous-like degeneration while the seeds are the subject of extreme hypoplasia. Gardeners generally ascribe these results to overfeeding and overstimulation by manures and heat, but Darwin is more cautious, and in most cases does not analyse the causes further than is implied in "unnatural conditions of life." No one, according to Lindley and Darwin, has produced double flowers by promoting the perfect health of the plant. Before leaving vegetable physiology I would point out the frequent occurrence in plants of seeds which, though apparently perfect, will not germinate; they cannot be distinguished from their neighbours otherwise than by their incapacity for growing. The same failure to grow is often observed under closely similar circumstances in eggs; they cannot be hatched, although no imperfection is discoverable in them.

NOTES FROM TIMOR.

THE island of Timor differs considerably from Java, Borneo, and islands to the west; the seasons are much more decided, and the dry period of greater duration. At this season the shade temperature during the day ranges from 85° to 90°, and at night falls to about 75°, thus placing it, as a residence, at an advantage when compared with the above-named places, where I have sometimes found a difference of but from 5° to 8° in twenty-four hours. Added to this, Timor, or at any rate Koepang and the surrounding country, is almost free from that curse of warm, moist countries—mosquitoes. The vegetation resembles that of Australia in having numerous Eucalypti (called by the natives "Kayu Putie"), scrubby Acacias, and similar plants scattered over an undulating country, where run half wild the numerous ponies for which the island is somewhat celebrated. The families of Aroideæ and Zingiberaceæ, so exceedingly common in the islands westward, are here represented by comparatively few species. Orchids are also much rarer than in the more humid islands; they probably do not exceed a dozen species. Of these three at least are horticulturally interesting, one of them being the true *Vanda insignis*, which until recently was almost unknown in collections. This is found growing on low trees in exposed situations in the warmest parts of the island. Malvaceæ is strongly represented; at least half-a-dozen species of *Hibiscus* might be collected close to Koepang, and several species of *Sida*.

A great proportion of plants in this island are furnished with spines, so that in riding across the country for a few days one's clothes suffer considerably. Very little of anything is cultivated, though parts are said to be specially adapted for Coffee and Cocoa. At the present time there is no security for capital, as Dutch rule is only nominal in the mountain districts. The principal exports are sandal wood and bees-wax, neither of which require any attention, and are consequently exactly suited to the Timorese. The natives live in houses almost exactly resembling an old-fashioned straw bee-hive; a small hole on one side, about 3 feet in height, serves the double purpose of door and chimney. The fire is in the centre, and the only way to escape semi-suffocation is to lie down as near it as possible. Their principal food is Maize and dried buffalo flesh, and their drink laroo, a preparation from the juice of *Borassus flabelliformis*. This is not used in the sweet state as obtained from the tree, when it is by no means disagreeable, but boiled and mixed with various bitter roots. As a drink it is worse than the sourest cider. There is another fan-leaved Palm common everywhere near the coast, from the leaves of which mats, ropes, and other materials are made, and its stem yields a coarse kind of sago. When fruiting it has a curious appearance; all the leaves drop off, and there remains only a straight stem terminating in an immense pyramid of small fruits. When required for sago it is cut as soon as it shows signs of flowering.

FRUITS are not numerous. Guavas and Custard Apples abound in a wild state near the

coast, and a native Grape with clusters of purplish berries is often met with. Mr. Wallace speaks of th's as having a luscious flavour, but I cannot endorse his opinion. Mangoes, Oranges, and a few other fruits are cultivated sparingly near the coast, but in the mountains nothing but the bare necessities of life. The island of Semaou, separated only by a narrow strait, produces an abundance of Water Melons, which are brought to Koepang. Generally, near the coast the soil is poor and stony; pointed limestone rocks crop out everywhere; often for a long distance there is not a particle of soil. Where there is a little, Maize is planted, and a rude fence is constructed round it by piling up the loose stones as a protection from buffaloes and other animals.

C. CURTIS.

KITCHEN GARDEN.

PEAS PODDING TO THE GROUND.

MR. MUIR's fault with the Ne Plus Ultra Pea was that it did not bear pods down to the ground, like varieties he said he could name that did. He was asked to name or produce these, but he has not done so, and I can only guess why. I will give him more rope, and ask him to name any Pea of the height and habit of the Ne Plus Ultra that bears pods any nearer the ground than it does under equal conditions. I should be willing to submit the Ne Plus Ultra in a cooked state to any set of judges, along with other sorts, at the right season, and risk their verdict, except, perhaps, with Veitch's Perfection, which is a sweeter Pea, but less prolific. Ne Plus Ultra is of the best flavour, grows well, and bears abundantly, and I would like to know what more anybody wants in Peas for eating. It does not produce long exhibition pods as a rule, hence is not a Pea for the show table, where in nine cases in ten the prize is given to the longest and fullest pods, but which, I have often noticed, no one would grow for cooking purposes. Is this not a farcical way of estimating the qualities of Peas? It is useless, however, trying to talk down a Pea that everybody likes and grows, and which seedsmen sell by the ton, as they do Ne Plus Ultra. I am not going to Wales to see Peas I can see nearer home, but I will endeavour to go and see the "Pea prodigies" of Mr. Muir that bear from the ground upwards when they are ready. He has distinctly stated that he can name such Peas, and no doubt grows them, and he ought either to name them or let them be seen.

J. S. W.

MUSHROOMS.

WILL you kindly inform me whether the enclosed is a good edible Mushroom, and of what variety? Its appearance struck me as peculiar, but all that are growing in the bed look just the same. How is an edible Mushroom to be distinguished from a poisonous variety?—W. F. V.

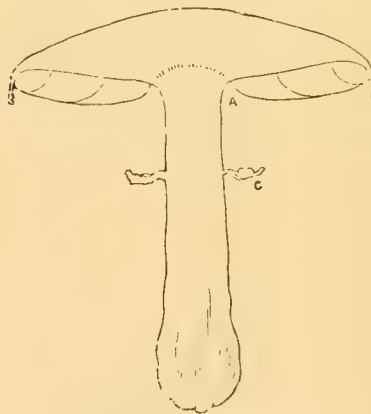
** The fungus sent is a good, edible Mushroom; the different varieties are often very diverse from each other in external appearance. The crucial points of distinction between true and false Mushrooms were given in the first volume of THE GARDEN (p. 16), and as the season for Mushroom gathering is at hand, perhaps their reproduction, as follows, may be of service. "First, and foremost, the true Mushroom (*Agaricus campestris*) is invariably found amongst Grass in rich open pastures, and never on or about stumps, or in woods. Many cases of poisoning have occurred owing to the supposed Mushrooms being gathered from stumps or in woods; it is true there is a certain variety found in woods and woody places (*A. silvicola*); but, as far as amateurs are concerned, it is best left alone. A second very good point is the peculiar, intense purple-brown colour of the spores (which are analogous to seeds); the ripe and fully-mature Mushroom derives the intense purple-brown colour (almost black) of its gills from the presence of these innumerable coloured spores. To see these spores, and so become acquainted with the peculiar

colour, remove the stem from a Mushroom, and lay the upper portion, with the gills lowermost, on a sheet of writing paper; in a few hours the spores will be deposited in a thick, dark, impalpable powder. Several dangerous species, at times mistaken for this Mushroom, have these spores umber-brown or pale umber-brown in colour, and belong to *Pholiota* or *Hebeloma*. In the accompanying figure is shown a vertical section of the true Mushroom, which differs (when the colour of the spores is taken into consideration) from



True Mushroom (*Agaricus campestris*).

almost all other *Agarics*, and certainly from all poisonous ones. One of the principal points to be observed is the distinct and perfect collar at C, quite encircling the stem, and the edge of cap at B, overlapping the gills; in some poisonous allies, as *A. ceruginosus* (generally found on and about stumps), this ring is reduced to a mere fringe, and the overlapping margin is absent, or reduced to a few mere white flecks or scales. Lastly, the gills never reach or touch the stem A, for, on inverting a Mushroom, a blank space will be seen all round the top of the stem where the gills are free from the stalk.



Section of true Mushroom.

There are innumerable varieties of the true Mushroom and of the horse Mushroom, but all are equally good for the table; sometimes the top is white and soft, like kid leather; at other times it is dark brown and scaly. Sometimes, on being cut or broken, the Mushroom changes colour to yellow, or even blood-red; at other times no change whatever takes place. But, observe, the Mushroom always grows in pastures; always has dark purple-brown spores; always has a perfect encircling cloth collar; and always gills which do

not touch the stem, and a top with an overlapping edge."

W. G. S.

Globe Artichokes.—Plants having such large leaves as Globe Artichokes require a good deal of support in summer if the flower-heads are to be large and succulent. Rich mulchings and frequent supplies of liquid manure will be of great benefit now. To give a successional character to the crop the flower-stems should be removed now from a part of the plants. This will cause a new crop to spring up later on, when they will probably be more valuable than now.—E. HOBDAV.

Cutting Cabbages.—In garden culture Cabbage stems are commonly left for the sake of the successional crop produced by them later in the season. As in large establishments young, tender Cabbages are always in demand, and the second crop equal to a threefold one, often more, the leaves should be left on the stems for a week or ten days after the Cabbage has been cut, as in that time the young sprouts will be pushing out to supersede them. No plant, not even a Cabbage, should be denuded of all its leaves at one time if we wish to gather another crop from it.—E. HOBDAV.

Diseased Cucumbers.—I enclose two specimens of diseased Cucumbers. The plants which produced them were looking healthy and strong until quite lately, and now the whole crop is affected in the same way, so that all the plants will have to be destroyed. Can you give me an idea as to the cause of the disease, or tell me of a way of preventing it? The plants were grown in a well-constructed pit, and great care was taken in the watering. The outside linings, too, were removed when cold. I have never seen the disease so bad before, and never in this particular pit.—COBHAM.

** Your Cucumbers are suffering from an uncommonly virulent attack of gummy, immediately recognised by the excretions somewhat resembling gum-arabic. This disease is often accompanied by other ailments both of a fungoid and animal origin, and it may be so in your case. The disease and mode of treatment have often been described in back numbers of THE GARDEN, but when so bad as the specimens in question indicate, the best way would be to destroy the plants, and, after a thorough cleansing, begin afresh.—W. G. S.

Magnum Bonum Potato.—I have read with some surprise what "Grower and Exhibitor" has written (p. 571) respecting this Potato. He certainly has rushed to a conclusion on small premises, for seldom have I seen this Potato looking better than it does this year. It would not be difficult for me to see, in a few hours' walk, 100 or more acres of Magnum Bonum growing on many diverse places and soils, and yet all looking singularly well; indeed, the common observation here is not only how well Potatoes look generally, but how well the Magnums look. I have no doubt that for one acre of Champions four of Magnum Bonum are grown for the supply of the London market. "Grower and Exhibitor" must be singularly ill-favoured in the way of soil or seed stocks, but it is specially remarkable that whilst such kinds as Regents and Schoolmaster look so well with him, a kind which almost universally does better than either should be so indifferent. In Reading Hero, although it produces good and handsome tubers, the top growth is enormous, and, indeed, I have dug quite as good crops from round whites that have been content to produce one-half the haulm that the Hero does. Here, too, where Potatoes always are of capital table quality, the Hero does not excel Magnum Bonum when cooked. It is true that Potatoes this spring were generally late in starting into growth, but that probably kept the tops out of harm's way. The season so far, however, has been most favourable, and the growth has been all that could be desired. Beauty of Hebron and one or two others show some gaps, but all over the great mass of varieties nothing could be better than are present appearances.—A. D., *Bedfont*.

ASPARAGUS.

THE old errors about Asparagus and the old mis-statements were trotted out again last week in the *Chronicle* by a writer who does well not to sign his name. The paragraph is as full of mis-statements as it has lines, showing the complete innocence of the writer as to every condition of the question. That the Asparagus which was shown at Kensington, and received prizes there, was "tasteless and inedible" is untrue; it was pronounced by one of the best judges in Covent Garden to be among the best samples he had ever seen. We speak of Mr. Gulliford, who acted as judge, and who is not likely to give prizes for tasteless and inedible "rubbish." The whole assumption of the writer that the blanched part of the stem is rope, &c., is pure nonsense, because all intelligent cooks make it perfectly edible and good in flavour if the shoots be fresh.

The question of blanching it more or less is apart from the question of cultivation, and people may adopt the best system of culture without blanching, if such be their taste.

These prizes were not offered to cause Asparagus to be blanched, and the exhibitors are in no way bound to blanch. The conditions as to Asparagus and its blanching for market purposes have been settled for many years, and are not altered or disturbed by these prizes. That one or many should prefer in their private gardens this vegetable in a certain state of greenness is a common experience; but that is a different thing to condemning, as this writer does, the practices that growers have found essential for the marketing and profitable culture of Asparagus. That the writer knows little of the general question is proved by his assumption that the blanched stem is necessarily "hard, tasteless, and non-edible." Throughout a large area of Europe Asparagus is blanched completely, and always by choice of the eater. We are not now speaking of the partially blanched shoot of the London or Paris markets, but of heads *white* from point to base. The flavour of the last in a fresh state is not only good, but thought by some to be the most delicious of all!

We need not speak of the taste and modesty of terming the best produce of our good growers—Messrs. Harwood, Poupart, Allan, Speed, Cole—as "uneatable rubbish." A visit to these men in their gardens would soon convince the writer of the monstrous injustice of his remarks. If the writer professes to regard only the private garden aspects of the matter, and insists that Mr. Poupart, who, too, showed longest Grass the other day, showed "rubbish," we may refer him to Mr. W. Allan, of Gunton, and Mr. Speed, of Penrhyn, both good gardeners, whose crops, which we have seen, are excellent.

—Having read the remarks in the *Chronicle* upon the Asparagus exhibited at South Kensington, I am surprised the writer so strongly condemns blanching. He has made a molehill into a mountain. We do not earth up half as much as he imagines. The Asparagus exhibited is what is most appreciated in Covent Garden Market, and just such as realises the best price. If greener it would fetch less money, and I think I may safely place the opinion of a discerning public as regards such matters before that of an individual. I have cut my last lot to-day (25th inst.). The best of it was about 10 inches in length; 3 inches of it above ground was pale green, and 4 inches next to that was pinky white; the bottom 3 inches was white as ivory and brittle as a Cucumber, and, if cooked fresh, edible almost the whole length. The great thing with Asparagus is to cook it as fresh as possible—the fresher the better. The "absurd notion," as he calls it, of earthing still remains, and will remain as long as blanched produce fetches the most money. What the writer in question seems to want us to produce we call sprue—material hardly worth the trouble of cutting. He disagrees with the size of our Asparagus; but let me tell him we intend to grow it larger, if possible, the Argenteuil system having found favour with those who have tried it. In fact, some of the longest and largest heads shown at

South Kensington were grown on that plan. Let any grower of Asparagus draw a little loose earth round any large head he may see during warm weather, let it run 9 inches higher than usual, cut it and cook it the same day, and I feel sure he will find no rope-making material in it. If, however, it was kept a few days in hot, dry weather, it would doubtless become as tough as foreign Asparagus is.—A. J. HARWOOD, *Colchester*.

FLOWER GARDEN.

THE VERBENA AND ITS CULTURE.

FEW plants are more effective when well grown and flowered than the Verbena; but from some cause or other, although once extremely popular, Verbenas are now-a-days comparatively but little grown. It is said that the bedding kinds have degenerated to the extent of being no longer reliable, but my opinion is that over-propagation has had much to do with the failures so often experienced in the outdoor culture of this plant. Very often only a few potsful are struck in autumn where thousands are wanted by bedding-out time; therefore, high pressure must of necessity be resorted to during the early spring months in order to secure the desired quantity. These spring-struck plants are, however, never equal to those propagated late in the summer, and which have never experienced undue excitement. Then, too, more pains should be taken to secure good cuttings. An experienced propagator once said to me, "It is all very well to say that Verbenas strike like weeds, but you must have the right kind of wood, and you cannot always get it." The first part of this sentence is, I know by experience, correct; the latter I do not endorse, as good cuttings can be had by taking proper measures. It is scarcely reasonable to expect that plants which have profusely bloomed under more or less trying circumstances should furnish good cuttings; and although in some seasons, marked perhaps by unusual geniality and under very excellent culture, the plants may continue to produce succulent wood, disappointment and failure are at times sure to result from relying on flowering plants for purposes of propagation. A safe and easy plan is to set out a few plants by themselves, which, being well attended to, and not being allowed to flower, will be in good condition when the time comes to take the cuttings. These need not be the best plants, but such as are left over at bedding-out time, as not flowering they will naturally grow rapidly.

PROPAGATION.—The last fortnight in August I consider to be the best time for propagating Verbenas, as there is then time to harden off the young plants by full exposure to sun and air before housing them. The points of the shoots naturally make the best cuttings, but any portion of the stem, if succulent, will do. As the Verbena roots all down the stem, it is not necessary to cut the cuttings to a joint. Some make a practice of filling the pots nearly to the rim with light, sandy soil, merely surfacing with sand, but I prefer to use enough pure sand to allow of the complete reception of the cuttings, for, although it is absolutely necessary that they never flag from the time they are put in until they make roots, it is just as indispensable that they are perfectly guaranteed against stagnant moisture. A surfacing of some 2 inches of silver sand will allow of the comparatively free use of the water; the sand will not, unless drainage be defective, become sour or waterlogged. A handlight or frame in a north aspect is the best place one can have, and I need scarcely say that the cuttings should be preserved against draughts or hot air during the day, keeping them in a general way quite close, but giving a little air on very damp days, and removing the covering for an hour or so in the morning, allowing it to remain off all night when the weather is very still and warm. Nothing invigorates them more than such a dewy bath as they then get, and if they are covered before the night's dew dries off, they will

be sure to remain fresh all through the day without watering, no matter how hot or dry the weather may be. When they have made roots, as will be shown by young shoots pushing from the eyes, remove the covering except in very wet weather, and eventually place them in a sunny place until housing time. This treatment will give strong, bushy, well hardened plants, very different indeed from those put in, as is often the case, so late that they are barely rooted by October. I should, however, mention that when the pots can be plunged in gentle bottom heat, the cuttings will root more surely and readily. Where large quantities of Verbenas are required it is often found necessary to resort to spring propagation, in which case there is even greater need to become a good and early strike the previous summer. With a good command of heat from February till May one may work up a stock of many thousands from a few potsful of cuttings. By continually taking off the tops, which will under favourable conditions be young plants in less than a fortnight, it will soon give a crop, also increase will go on at a very rapid rate indeed. The stock plants should, however, be kept quite cool until the beginning of January, and 50° to 55° will do for the first month. If the most is to be made of the plants, do not pot off until the latter end of April, as the check occasioned by so doing will cause loss of time. What is sometimes called the sand and water method is a good one for Verbenas, saving trouble and giving good results quickly. Ordinary pots are filled nearly to the rim with sand, the cuttings are dibbled in and the pans kept filled with water. In this way they never flag, not even in the full sun, and the pans may even be stood on a warm pipe, roots being quickly made if the pans are kept full of water. This plan involves less labour than any other, and greatly facilitates potting off, as the cuttings may be simply drawn out of their semi-liquid rooting medium and potted without check. Now that it has been found possible to fix the various decided colours of Verbenas, the substitution of seedling plants for those obtained in the ordinary way will in all probability be extensively practised. Seedlings always possess greater vigour than cuttings, and this extra store of vitality and strength enables them better to resist the disease and partial paralysis which often seizes on the Verbena in the open. Seed sown in warmth early in February will, if the young plants are pushed along for a time, give nice little specimens for planting out the latter end of May.

OUTDOOR CULTURE.—It may appear superfluous to warn Verbena growers against anything approaching stimulative treatment in winter, but the necessity of keeping the plants cool and almost in complete rest from November until March is so great, and the neglect of it so fraught with danger, that I venture to call particular attention to this part of the subject. Not that I approve of the extreme cool treatment oftentimes practised, and which consists in simply keeping out frost. The very low temperature, accompanied by the great amount of humidity which so often prevails for some days together, is not good for Verbenas; they like a dry atmosphere, and consequently a little fire heat in periods of cold, damp weather. The foliage then remains green and healthy, and the roots continue in their normal state of activity. They are full of restrained vigour, and go ahead finely when set out in the open ground later on. Although the above remarks may not appear to harmonise with the accompanying heading, they do so really, as on the winter management depends to a great extent the progress in summer, and the difference between plants which have been wisely managed and those which have been allowed to struggle through as they may is really marvellous. A mistake often made is that of keeping the plants too long under glass. After the middle or indeed the beginning of March the proper place for Verbenas intended for bedding out is a cold frame, as whatever growth is made from that time onwards should be, as it were, hardened as it is made. The lights being pulled off on fine days and left off during the night in balmy weather,

both foliage and wood retain great substance, and the plants are in this manner better prepared for their permanent positions in the open than by any other means. One great advantage gained by this treatment is that of being able to plant out at a much earlier date, as the plants are thereby endowed with such a hardy constitution as to bear with much indifference the cold nights and bleak winds incidental to the earlier part of the month of May; whereas, when kept constantly under glass until the middle of May they can scarcely be set out before the last week of that month. The plan commonly followed of potting Verbenas off singly into small pots where they are eventually to be planted out is not a good one. The better way is to put two plants into the same pot, one on each side of it, as then the separation which takes place at planting time loosens the soil and the roots somewhat, and they always seem to thrive better in this way than when set out with balls entire. From May 20 to the first week in June is the time most often chosen for planting, but if you desire an early bloom and wish to see the Verbena at its best, do not be later than the end of April, but of course some little protection will be needed should hard frosts occur. Flower-pots will do very well, and when the days are very cold they may be left on all day, as sufficient light will enter by the drainage holes, especially if they are enlarged a little. I have seen fine beds of Verbenas grown in this way in light soils when by the ordinary method there would be but little chance of succeeding. Where the natural soil is very porous, some endeavour should be made to render it more firm and holding. A few barrow-loads of clay laid on in winter and worked in when it crumbles in spring will work wonders, but good sound loam is still better. Verbenas like good rich earth, but beware of raw manure, which will do more harm than good. Manure should be not less than twelve months old when used for them.

POT CULTURE.—The flower gardener may certainly pass his time less profitably than in growing a few specimen plants of Verbenas, and I think many more would do so did they but know how many fine varieties there are which in richness, brilliancy, delicacy of colouring, and general effectiveness are surpassed by scarcely any other summer blooming plant. The fact is a very large proportion of the numerous kinds of Verbenas which have been raised during the last few years are not quite happy in the open air, being probably too high-bred to resist the extremes of moisture and drought to which outdoor plants are often subjected, but under glass they bloom well, the trusses coming remarkably large, much larger than the best outdoor culture can effect. In order to succeed with the Verbena as a pot plant, all that one has to do is to select free autumn-struck plants, and grow them along briskly in a cool greenhouse or frame, pinching now and then during the early portion of the season, shifting before they get root-bound, and keeping them free from green fly. The last shift should be made in June into 8-inch pots, at the same time inserting four or five stakes round the edge of the pots to train the shoots to. Be sure not to coddle, but to give abundance of air, and if mildew appears dust at once with sulphur. Good fibrous loam, with some well decayed manure in it, is the best soil for them. J. C.

Byfleet.

Impatiens Sultani.—I find this pretty Balsam to grow freely from seeds, so that being easily increased both by means of seeds and cuttings, it will doubtless before long become as popular as it well deserves to be. I may mention that *Impatiens alba*, a plant rarely seen, forms a good companion to it, being in general character the same except in colour; indeed, it may be best defined as a white counterpart of the Zanzibar Balsam. When the seeds are ripening care must be taken that they are not lost, as the capsules expand with such force as to scatter them in all directions; therefore when the pods are approaching maturity they should be enveloped in a gauze bag, which will retain the seeds.—H. P.

BERNARD'S HYBRID NARCISSUS.

(*NARCISSUS BERNARDI*.)

A LADY who now and then enjoys a little tour on the Pyrenees, and is mindful to bring or send from thence choice floral treasures for her garden, found a bulb or two of this plant a year or two ago, and has now quite a strong clump of it in her rock garden. It is a little known plant in cultivation, but has long been known to botanists, being figured by M. Henon, and it is also described in Grenier and Godron's "Flore de France." It is generally thought to be a natural hybrid be-

these natural hybrids from the Alps, that did we know less of them we might be tempted to make a new variety (if not a species) of the one now figured; but species making is not the fashion now that it once was, and we are quite willing to call this Narcissus a form of *N. Bernardi*, although it differs in one or two points from M. Henon's figure. It is of tolerably robust habit, having stout glaucous leaves, and its flowers are of creamy whiteness, so far as the perianth divisions are concerned, the cup varying from yellow to deep orange-scarlet; and, as we have before indicated, the relative pro-



Narcissus Bernardi.

tween *N. Pseudo-narcissus* (var. *muticus* of Gay) and *N. poeticus*. It is quite distinct from *N. incomparabilis*, its perianth divisions having more substance and the leaves are broader—indeed there is a *N. Nelsoni* look about the plant which removes it quite out of the *N. incomparabilis* group, so far as my own opinion is concerned. And yet this *N. Bernardi* is a variable plant, even naturally, and culture increases its stature and the size of its flowers. Turning over my sketches of Narcissus, I came across a form of *N. Bernardi* sent to Mr. Barr from the Pyrenees two years ago, and its flowers are quite different from those now figured, inasmuch as the petals are smaller in proportion, and the cup or crown larger, and with a rich suffusion of orange-scarlet quite suggestive of a little known Narcissus already figured in *THE GARDEN*, *yelect N. Nelsoni aurantius* (*vide THE GARDEN*, Vol. XVI., p. 174, fig. 7). So distinct are some of

portions of perianth divisions and cup are apt to vary pretty considerably. As a garden plant its late blooming habit is a great recommendation, as it naturally blooms along with *N. poeticus* fl.-pl. during the bridal time between May and June. Planted in sheltered situations in deep moist soil, it grows freely and increases rapidly, having indeed that robust constitution which is characteristic of so many hybrid plants. All visitors to the Pyrenees should look out for its bulbs and flowers wherever the yellow Daffodil and Poet's Narcissus are seen growing side by side, for it is at present far too rare to appear in trade lists, even if it has actually gained a place in that wonderful bulb garden at Tooting where nearly all known Narcissi are for the nonce at home to privileged visitors. I am proud to say that a bulb of *N. Bernardi* is just now very happy in a deep rich border in the College Gardens. F. W. B.

FLORISTS AND THEIR FOIBLES.

I HAVE no intention of joining "Peregrine" in what he calls "the Scotch game of answering one question by asking another;" neither do I mean to identify myself one way or the other with the person whose views he so strongly condemns (see p. 529). My controversy has been with "Peregrine" alone, and arose from his own remarks solely. My attention was first called to him by his attack on the National Auricula Society, which he was pleased to say "numbered nearly half a dozen members," and by his condemnation of florists in general on the ground of their not being like butterflies and bees. In his succeeding remarks he goes on accumulating charges of narrowness and obstruction against the florists, which charges culminate in the statement (p. 445) that "none of the races of popular hardy flowers made any great strides in improvement until they were taken out of the florists' hands." If he could prove such a charge as this there would be an end of controversy, and the florists should hide their heads with shame as the worst foes to floriculture. If he could not prove it, I prefer not to characterise his charge. Consequently, I demanded from "Peregrine" a detailed list of the flowers which had been in the florists' hands which had been taken out of their hands, and which had made great strides in improvement in consequence. He has not thought well even to attempt the justification of his charge, but instead invites me to the Scotch pastime just mentioned. I leave your readers to draw their own inference, and to estimate the value of his remarks on florists and their foibles. "Peregrine" says that I am wrong in stating that he knows nothing and cares nothing for florists' flowers. If he does know anything about them—their culture, their properties, and their varieties—I have certainly not perceived it in his writings; and if he does care for them, I can only say that he has admirably succeeded in dissembling his love. Thanking you for your courteous admission of my remarks, I now take leave of "Peregrine."

Cloghran, Co. Dublin. FREDERICK TYMONS.

BARE EARTH.

IF I had but the poetical nature of "Veronica," I could just enlarge a bit on this subject; but then, Mr. Editor, you only allow about two of your correspondents to exercise this valuable gift, and you would therefore be sure to "clip my wings" if I dared to take a flight into the regions of poetry, and I won't (as you know) be clipped. I will, therefore, confine myself simply to what I have done, and do, in this matter of bare earth, solely from an ornamental point of view. The idea was suggested to me, "as most happy thoughts are," by accident, some years ago now—the accident being that we had too few *Pelargoniums* of a given variety for filling out the space that had been allotted to them in the summer bedding arrangements, and, being quite of "Veronica's" opinion as to covering all the soil, I was perplexed beyond measure to solve the difficulty, but industry was presently rewarded and my brain set at rest by the happy thought of filling in cushion fashion, as the ladies do their fancy slippers, with a ground colour of some other plant. I am not quite certain as to what was the variety of *Pelargonium*, but, I think it was Mrs. Pollock, and the plant used for filling in was *Ajuga reptans purpurea*, the effect being charming. Such was the beginning, the dawning of the idea that, unfortunately for my physical powers, has developed, and is still developing, for now we not only do this filling-in work when short of certain varieties of plants, but from choice also. I give you an example or two of our doings at the present moment. *Alternantheras* planted thinly, and *Sedum glaucum* intermixed; *Fuchsias* the same, and green *Sedum Lydium*; *Pelargonium Sophia Dumaesque* and *Herniaria glabra*; *Coleus* and *Sedum acre elegans*; large tree succulents, and the flowering and variegated creeping kinds of *Mesembryanthemum*; whilst, with respect to hardy perennials, the notion has got possession of me that all tall growers that do not cover the earth naturally

should have an undergrowth of dwarfier, but allied kinds of plants, there being dwarf *Saxifrages*, *Sedums*, *Phloxes*, &c., innumerable that are in every way suitable for such undergrowths, and which I purpose to press into service as time and opportunity offers; then, as "Veronica" remarks, "weeds will have no chance." W. W. H.

ROCKETS.

FROM the notes of "Veronica" and others I gather that the old double white Rocket is getting scarce, which is a great pity, as it is the sweetest by far and the most charming of all the varieties of this lovely family. It is far more compact in the truss than the French variety, which one much more frequently sees now than it. I have five varieties—the old white; the French white; one that on first opening has the faintest tinge of lilac, but which becomes perfectly white; the pale lilac, which continues that colour always (this last has the grandest spike of any and the largest flowers); and fifthly and lastly, the purple—not, however, the old purple, a beautiful plant which made spikes in soil it liked nearly 2 feet long, and which was very delicate, but a hardier kind, which only attains to about 3 inches or 4 inches in its spike, but which still is a beautiful contrast with the white. If "Veronica" has not got the old white, and would send me his address, I would give him a plant later on. I wish very much that I could hear of anyone possessing the old purple, as it is a thousand pities that such a treasure should be lost. And I also wish that M. Max Leichtlin would tell me where the rose-coloured one he speaks of as blooming at Baden-Baden is to be procured, for if really rose-coloured it would be most valuable. I wonder very much at "Veronica" leaving the side shoots on his Rockets. They give the whole plant a weedy appearance, and rob it of the stately aspect it wears when rearing its grand spikes aloft. Lovers of Rockets should be sedulous to keep diligent search during the spring months for the odious Rocket grub, which, if not found and destroyed, will entirely ruin the bloom. Virginia Rectory, Ireland. DENIS KNOX.

BORDER V. BEDDING PLANTS.

I AM among the ever-increasing number of those who grow and admire hardy and half-hardy perennials, and who prefer a mixed border containing perhaps fifty distinct varieties or species of plants to one arranged in ribbon fashion with only five. These five may have been the same identical kinds that occupied the same border for the previous five years. THE GARDEN does well in assisting to put an end to bedding. There is no reason why mixed borders or beds should not be showy, and why, if need be, some regard should not be had to height, colour, and effect. This cannot be learned in a moment. A full and perfect acquaintance there must be with every plant used, with its habit of growth and time of flowering before that can be accomplished. It may then at once be conceded that the amateur or gardener who successfully grows flowers and uses with effect the aforesaid fifty varieties or different species of plants is much more skilful, and has acquired a more extensive knowledge of plants than the ribbon border or bedding-out man who has only to do with a fraction of that number. But while the former acquires a more extended acquaintance with the larger number dealt with, there is also an enlightened pleasure and satisfaction in watching their progress to maturity and expansion into bloom the whole year round, and that bewitching anxiety to see what one's seedlings may be like. This pleasure the mechanical bedder of *Pelargoniums*, *Lobelias*, *Calceolarias*, *Iresines*, &c., never knows. Why, it would be far more interesting to go in for one or more of the florist flowers, grow them from seed, improve them by hybridisation, and have a bed of each of the best, and watch the effect. This would be the remedy for those who complain that one requires to know too many and too much. Take Pansies—I cut sixty distinct varieties from sixty beds within the last few days—show, fancy, and self.

There are also the hardier *Auriculas*, *Polyanthuses*, *Primroses*, *Dahlias*, *Fuchsias*, *Carnations* and their allies, *Picotees* and *Pinks*, *Begonias*, *Antirrhinums*, *Pentstemons*, and other large species having varieties enough to stock a whole garden, such as the *Pæonies*, *Campanulas*, *Saxifrages*, *Phloxes*, *Anemones*, *Delphiniums*, *Gentians*, *Liliums*, various *Compositæ*, including such good things as *Doronicum*, *Harpallium*, and *Rudbeckia*, which I would bracket together, and so on. To succeed, however, propagation must go constantly on. W. J. M. Clonmel.

5018.—**Water Lilies.**—"Welshman" may safely plant any *Nymphæas* in ponds where the climate is "a Madeira one." The space he has (16 yards) will accommodate, say, eight plants. A good selection would be *N. stellata* or *scutifolia* (blue), *N. gigantea* (blue), *N. Lotus*, *N. odorata*, and *N. dentata* (white), *N. Devoniensis* and *N. Lotus* var. *rubra* (red), *N. flava* (yellow), and *N. versicolor*, *N. odorata* var. *rubra*, and *N. alba* var. *rosea* (variously coloured). Other plants suited for the position described are *Limnorchis Humboldtii*, *L. Plumieri*, *Eichornia azurea*, and *Pontederia crassipes*.—B.

The old double white Rocket.—I was in great joy at seeing a note under the above heading in THE GARDEN (p. 558); but when I came to read it my joy lessened, as I fear it is very far indeed from certain that the plant referred to as growing at Eglinton Castle is the genuine old double white Rocket, or, as it used to be called, the Paper-white Rocket. I have known the plant from the time I could know anything, and it was the only double white grown in this garden, where it was in profusion until about twelve or thirteen years ago, when it suddenly and completely died out here and in the gardens of relatives and friends in various parts of Ireland. I should rejoice, for old acquaintance sake, to think that it still survived at Eglinton, but one or two words in your description of that variety make me doubt that it is the old Paper-white. In the first place, the old kind would be far more appropriately described as neat than as massive, an epithet which exactly fits a well-grown spike of the kind now commonly grown and known as the French White. In the next place, the old kind was never "widely branched at the base." It was smaller in all its parts, foliage, stem, and flower as well as spike, than the existing kind. It gave but few and insignificant branches from the main stems. In these respects the Eglinton plant does not agree with the old kind. Not having seen the flower which you describe, I cannot tell whether it possesses the peculiar characteristic of the old sort, namely, absolute purity of colour, not a trace of pink or lilac even in the centre of the flower. Although I should be glad to get back my old friend, still the kind which I have is superior as a decorative hardy plant, with fine constitution, which the other had not.—FREDERICK TYMONS Cloghran, Co. Dublin.

* * The Eglinton Castle Rocket is said to be the true old Scotch kind. One border planted with it is 283 feet long and 6 feet wide. It contains over 1200 plants, all now in bloom, and many carrying 8 spikes—a grand display.—ED.

SHORT NOTES.—FLOWER.

Calla æthiopica is hardy here. Three years ago I planted some in an old bee-hive, and plunged them, hive and all, in a pond in my garden. They have survived three winters (including the terrible one of 1880-81), and are now in flower, the blossoms being as large and strong as could be produced under glass.—WILLIAM WICKHAM, Binsted-Wyck, Alton, Hants.

Viola Mrs. Gray was raised here several years ago. It was tried along with many other white seedlings, and was found to be quite hardy, sound in constitution, and dwarf—even creeping—in habit. We find it also very useful in a cut state. We have over 8000 planted, and some in borders two years old are masses of pure white bloom. Some idea of its hardness may be formed when I say that last winter after eleven days of frost, ranging from 4° to 19°, we gathered blooms.—JOHN GRAY, Eglinton Castle.

5008.—**Violets in September.**—Czar and Queen Victoria are the best varieties of Violets for flowering in autumn; new plantations made from the strongest runners as soon as procurable in early spring never fail to produce an abundant supply of flowers from September onwards, and continue to flower till destroyed by severe frost. The best aspect for such a plantation is a border facing the west.—W. W.

Sowing biennials.—Canterbury Bells, Sweet Williams, Foxgloves, Antirrhinums, Columbines, and other hardy plants of a like character, which flower the second year may be sown now in the open border. They are best sown thinly in drills in a partially shaded position, such as that afforded by a border on the east or west side of a wall or fence. The soil should be well pulverised, and the drills, which should not exceed half-an-inch in depth, should be far enough apart to permit of the free use of the hoe after the young plants appear. If the weather is dry at the time of sowing, water the drills and sow on the damp soil, covering with dry surface soil to prevent the moisture from escaping by evaporation. A thin shade if the weather is very hot in the middle of the day will be beneficial to the sprouting seeds.—E. HOBDAK.

The Sun Roses (Helianthemums).—To fully enjoy the beauty of Sun Roses early rising is necessary; on sunny mornings they are fully expanded by seven o'clock, and by the middle of the day their flowers are entirely or partially closed. Despite this peculiarity they are, however, very gorgeous *en masse* when the weather is favourable, and will succeed where little else will thrive. The Sun Roses are small, procumbent shrubs from 6 inches to 1 foot high, and therefore are well suited for sloping banks or rockwork, even where the soil is chalky; indeed on some of the Surrey hills the common *Helianthemum vulgare* forms large showy masses. As they lend themselves readily to the operations of the hybridist, a large variety now exists amongst them, including white, yellow, crimson, and various intermediate shades. There are also single and double flowered kinds. Although classed as shrubs, their general aspect is that of herbaceous plants, so procumbent in habit are they. Should the day be very dull, the flowers do not open, but a long-continued succession is kept up, and in summer most days are sufficiently favourable for their expansion.—ALPHA.

Seedling Columbines.—I send a few flowers of Columbines for your opinion; some of them are quite distinct from their parents, which were *Aquilegia chrysantha*, *A. cærulea hybrida*, and *A. californica hybrida*, there being no other kind in the garden except one of the commonest double forms. We find them to be most useful for arranging amongst cut flowers in vases, cutting them with moderately long stalks and keeping them above a groundwork of other flowers. With us they stand in water a fair length of time—generally three or four days, but they probably would not stand so long now, as the weather has been so hot and our honey bees have been hard at work among them.—C. WARDEN, *Clarendon Park, Salisbury*.

* * Beautiful hybrids, with delicate and most novel colours. They are very desirable in cultivation, and we have had many enthusiastic comments upon them from our correspondents, but those who have enjoyed the beauty of the finer wild species will rather seek to keep them pure and vigorous than to add to their hybrids. Their beauty, however, is very great, and a batch raised occasionally will prove useful.—ED.

Autumn-sown Sweet Peas.—These I find to be most useful for furnishing a supply of early flowers for cutting; they stand the winter well, and come into full bloom considerably in advance of spring-sown ones. Anyone having a sheltered position such as a boarded fence or even close to a hedge may get a very early supply of Sweet Pea blossoms by sowing in November, and as soon as the young plants come through the soil put a good covering of sifted coal ashes over

them; these act as a protection from severe frost, slugs, and even superfluous moisture. A few sticks should also be put to them early, as they screen them from cold winds that are more destructive to such plants than actual frosts. I find the scarlet *Invincible* to be a capital sort for cutting from, but as a rule mixed sorts are most generally useful. The colours can be selected as gathered if required for any special purpose, and the more closely the flowers are kept gathered the longer will the plants continue to produce them. It is seed-bearing more than flower-producing that exhausts the energies of the plants, and if kept well supplied with liquid manure, and a covering of good rotten stable manure is placed over the roots about 2 feet wide, the same plants will continue to flower the whole season. Sweet Peas are especially suited for filling vases either mixed with other flowers or by themselves, the latter being as a rule the most satisfactory arrangement.—J. GROOM, *Gosport*.

NOTES FROM COOMBE WOOD.

OF all seasons the present is doubtless the best for visiting a tree nursery, the foliage being now fully developed and still fresh and spring-like. Hence a correct estimate of the true character of the different subjects examined can be obtained. Never have we seen Messrs. Veitch's nursery at Coombe Wood so beautiful as now; everything seems so fresh, and, as usual, it teems with a host of interesting plants with which one cannot meet elsewhere. Among the most striking features of this nursery is its collection of

CONIFERS, which are now developing their new season's growth, and the contrast between the bright emerald-green of the young tips of the shoots and the sombre tint of the older branches is most striking. It is interesting to observe the various degrees of forwardness which the different kinds exhibit; some began to break into growth several weeks ago, and some are only just breaking. Among the late breakers is the very handsome Japanese Tiger-tail Spruce (*Abies polita*), and this distinct character makes it a valuable tree for northern districts in which late spring frosts are prevalent; even the latest would be past before the tender shoots of this Spruce unfolded. Besides the collection of older coniferous trees, one may see here a host of new ones, and some not yet put in commerce. Among the new ones are several Japanese species collected by Mr. Maries when travelling for Messrs. Veitch. Never till now had we seen the true beauty of the new *Abies Veitchi* and *Mariesi*, both recent introductions. The first bears some resemblance to Nordmann's Fir, but the branches are more densely set with deep shining green leaves, which are also somewhat shorter than in *Abies Nordmanniana*. It gives every promise of becoming a handsome plant, and if as hardy as *A. Nordmanniana*, it will be a real gain. *A. Mariesi* is distinct from all others, and though said to grow in company with *A. Veitchi* on the Japanese mountains, they seem to bear no near affinity to each other. It is a strikingly ornamental species, and, being perfectly hardy, will be an acquisition. The new Japanese Hemlock Spruce may likewise be seen here clothed with fresh young growth, as well as such beautiful kinds as the true *Abies concolor* and *amabilis*. The collection of conifers for the most part occupies a sloping bank, and in such a position the beauty of their young foliage can be seen to the best advantage. Another and perennial feature, though in one sense always changing, is what is called the specimen borders, which skirt a broad path that runs through the centre of this nursery. Here one may find well-nigh every kind of ornamental tree or shrub grown in gardens. At the present time those which arrest attention are the

JAPANESE MAPLES. These are now arrayed in their richest summer leafage. We more especially allude to the innumerable varieties of *A. polymorphum*, truly the most variable of all Maples. Judging by the splendour of the foliage on the specimens here, these Maples must be even now but little known, or they would be oftener met

with than they are. Some, such as *sanguineum*, have blood-red foliage, the effect of which, properly placed in a garden, would be charming. In this nursery, on one of the exposed sunny slopes, a broad mass of it has occupied its present position for some years, and has never been injured either by cold or heat, drought or excessive wet. The effect of this rich mass of colour—a deep reddish crimson—especially when seen from the opposite side of the nursery, several hundred yards distant, is very fine. In the specimen border are also some fine examples of the varieties *dissectum*, with finely divided, deep red foliage; *septemlobum*, also with dark foliage, and many other varieties, all beautiful, plainly showing the wealth of variety existing amongst these Japanese Maples alone. Scarcely less attractive are young shoots of two other Maples, *A. colchicum rubrum* and *A. platanoides Schweedleri*; the young leaves of both of these are of a rich red tint, retained for a long time, but longest by *colchicum rubrum*. These plants grown in large masses contrast beautifully with such ornamental trees as the Golden Oak (*Quercus Robur concordia*), the new Golden Elm (*Ulmus Dampieri aurea*), the variegated Negundo, and others.

Among the other Japanese Maples of recent introduction are *Acer crataegifolium*, which gives promise of becoming a useful fast-growing shrub, and the variegated form of it certificated at South Kensington a week or two ago is one of the prettiest of Maples. The bright red petiole of the leaves is a distinct and beautiful character of this species, and also that of the *Acer rufernerv*, another Japanese introduction, with larger foliage. These and various other new Maples are being tested in every way as regards their hardiness, and up to the present they all seem perfectly indifferent to the severe cold of our winters. A sunny slope set apart in this nursery specially for new things in the way of trees and shrubs abounds with interest. Here may be seen trees from the antipodes in company with those from Chili, and Japan, and California, four widely separated regions, and it is a singular fact that all, or nearly all, are thriving, though quite unprotected during the past few winters. The Japanese shrubs are especially interesting, and those in flower just now are *Styrax japonicum* with clusters of white bell-like flowers similar to those of the Snowdrop Tree (*Halesia*). *Daphniphyllum glaucescens* promises to become a very ornamental evergreen, the Rhododendron-like leaves being of a silvery hue beneath. The greatest attraction, however, in this part of the nursery is a huge spreading bush of the single *Rosa polyantha*, which is indeed a beautiful sight, as each of its long slender shoots carry a dense cluster of white blossoms, the delightful perfume of which pervades the atmosphere around; a finer object for isolation on a lawn would be difficult to find. Among other noteworthy shrubs in flower is the beautiful *Zenobia pulverulenta*, one of the prettiest of all Ericaceae shrubs, which was exhibited at South Kensington on Tuesday last, and likewise the Californian *Leucothoe Davisæ*, which was certificated. Seen in the open air, this shrub is even prettier than it was at the show, and it is to be hoped that it is quite hardy.

PHILADELPHUS GRANDIFLORUS is the best of all the Mock Oranges in flower, and indeed of the whole collection, not even excepting *P. mexicana*, which was certificated a short time since. By far the finest white-flowered shrub in bloom is *Viburnum plicatum*, of which there are here some grand specimens, fairly smothered with snow-white clusters of bloom, each of the long slender shoots being wreathed in white. In a short time the beautiful *Escalonia Phillippiana* will be a mass of bloom in various parts of the nursery, besides a host of other things. The fine new *Magnolia Soulangeana nigra* must not be omitted from the list of flowering trees. For some weeks past it has been laden with bloom, and still the large specimen standards of it quite in the open air are in flower. The huge blossoms, almost of a black-purple, have a very fine effect in the specimen border, where also we noted the new purple-leaved Plum (*Prunus Pissardi*) which has emanated from the Continent.

If perfectly hardy it will be a valuable addition to the list of pictorial trees, for the colour is equal to that of the purple-leaved Filbert, the variegated Tulip Tree (*Liriodendron*). W. G.

NOTES OF THE WEEK.

APPOINTMENTS FOR THE WEEK.

July 3.—South Kensington: Show of National Rose Society.

5.—Dublin: Summer Show of Royal Horticultural Society of Ireland.

Bath: Rose Show.

A DEPUTATION of market gardeners has arrived from Scotland for the purpose of urging the Government to include market gardens and orchards within the provisions of the Agricultural Holdings (Scotland) Bill.

A STEPHANOTIS HOUSE.—There is a house devoted to this plant in Messrs. Hawkins & Bennett's nurseries at Twickenham, about 150 feet long. It is now full of flowering plants in the most perfect health, and without a trace of insect pests of any kind. The culture is admirable, and the flowers gathered in the house for the market are of the finest quality.

STOVE PLANTS AND THEIR CULTURE.—We have made an arrangement with the well-known plant grower, Mr. Thomas Baines, for a complete series of articles on this subject. It is needless to say that their culture will be fully treated of, and in addition their propagation, which, if done at all in books of this sort, has never hitherto been well done. The series will embrace fine-leaved as well as flowering stove plants.

PRIZES FOR FRUIT PACKING.—On Tuesday next at the Horticultural Gardens, South Kensington, the competition for the prizes offered by Messrs. Webber & Co., fruiterers, Covent Garden Market, for the best examples of packed fruit will take place. These prizes, three in number, amount to 10 guineas. The exhibits must consist of one box of Grapes, not less than 14 lbs.; one box of Peaches, not fewer than two dozen; and one box of Strawberries, not less than 2 lbs. The boxes are to be sent by rail and delivered by the railway company.

HEUCHERA RICHARDSONI, commonly called the Satin-leaf Plant, is grown unusually well by Mr. Bedford, of Straffan, Kildare, judging by the size of some leaves of it which he sends us. The upper surfaces of these leaves, which measure 6 inches across, are very beautiful, being deep green, overlaid with a bronzy tint, and edged with bright green, the whole shining with a satin-like lustre. The form somewhat resembles that of a Vine leaf. This plant is being brought prominently into notice on account of its fine appearance, not only in the garden, but when mixed with cut flowers, its leaves lasting in perfection several weeks when cut.

SOWERBY'S ENGLISH BOTANY.—We have received the first part of the concluding volume of Sowerby's "English Botany," which has been in preparation for the last eight years. It will contain Ferns, Fern allies, and supplementary plants, and also a full index. There will be seven monthly parts, which will be issued in succession. The present number contains coloured plates of *Pilularia globulifera*, four species of *Isotes*, *Selaginella selaginoides*, five species of *Lycopodium*, two of *Ophioglossum*, *Botrychium Lunaria*, *Osmunda regalis*, *Trichomanes radicans*, *Hymenophyllum tunbridgense* and *unilaterale*, *Polypodium vulgare*, *Gymnogramma leptophylla*, *Cryptogramma crispa*, and *Phegopteris Dryopteris*.

GLOXINIAS.—The prizes offered by Messrs. Sutton for a dozen Gloxinias at South Kensington on Tuesday last were so poorly responded to that only one lot, though a very good one, was staged. No doubt these plants when in full bloom travel badly, for the flowers are not of sufficient substance to withstand friction, and the packing of the flowers with a mass of wadding seems produces

tive of almost worse results. Then a dozen plants make a heavy and difficult parcel for transit anywhere, and at the most only a dozen diverse kinds can be shown. If the Messrs. Sutton wish, as they doubtless do, to encourage the cultivation of this lovely flower, we would suggest that in preference to asking for plants in the future, the prizes should be offered for cut blooms, say twenty-four kinds in bunches of three blooms, set up in a groundwork of *Selaginella* or *Maiden-hair Fern*. This would make one of the most charming cut flower classes, and in small shows might well be reduced to twelve kinds to meet the ability of small growers. There are dozens of growers who could carry a box of flowers to a show who would not bother themselves with a dozen large plants. —A. D.

COMMONS PRESERVATION SOCIETY.—On Monday last the annual meeting of this Society was held (by permission of the Duke of Westminster, at Grosvenor House. The president, Lord Mount-Temple, was in the chair. The report, which was taken as read, stated that protection from encroachment on rights of common was needed at Mitcham, Chislehurst, St. Paul's Cray, East Sheen, Keston, Epsom, Harrow Weald, and Stanmore. No act for vesting Malvern Hills in a properly constituted authority had been passed, as was hoped, last year. The Society's friends were congratulated on the recent dedication to the public of the Coudsdon Commons by the Corporation of the City of London, the movement for their preservation having been set on foot by one of its local branches. Lord Onslow, the lord of the manor, had notified his willingness to dedicate Merrow Downs, on the outskirts of Guildford, to the public if the Corporation of that town would apply for a scheme under the Commons Acts. No scheme had as yet been set on foot for the regulation of Ashdown Forest, but it was likely that next year application would be made. The rest of the report referred mainly to the more or less effective resistance to the attempted appropriation of rights of common by railway and other public bodies.

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 26.

THERE was an interesting display of plants on this occasion, and these, combined with the brilliant exhibition of the Pelargonium Society and the competition for special prizes, held under the same tent, made a most successful gathering. A large number of plants was submitted to the committee, to the following among which first-class certificates were awarded:—

CATTLEYA WARNERI.—This was a wonderfully fine form, designated Hardy's variety, and shown by Mr. Hardy, Pickering Lodge, Timperley. Its flowers were very large, the petals broad and of a delicate rose-pink, and the labellum was unusually broad and exquisitely coloured. On the lowermost lobe was a large blotch of amethyst; this was margined towards the throat with a band of white, and beyond that was a conspicuous blotch of citron-yellow, while the whole margin was beautifully frilled and tinted with rose. The only fault the flower possessed was an inordinate flopping of the sepals and petals. The plant, a fine one, bore two large spikes.

PRITCHARDIA GRANDIS.—This noble fan-leaved Palm, lately introduced from Borneo, and shown by Messrs. Veitch, is destined to become one of the handsomest dwarf Palms in cultivation. It was admired by all who saw it.

BEGONIA PRINCE ALBERT VICTOR.—An extremely fine double flowered variety of the tuberous-rooted section. Its flowers are large, and the petals form a perfect rosette of bright cherry crimson. The plant, a sturdy grower and well furnished with blossoms, was exhibited by Messrs. Laing, Stanstead Park Nurseries, Forest Hill.

RHODODENDRON DIADEM.—A new seedling variety of the Javanese section raised by Messrs. Veitch & Sons, who exhibited it. The truss is

large and dense, and the flowers individually good in form. Colour, a bright orange-scarlet.

YUCCA GLORIOSA VARIEGATA.—A new form of the common hardy Yucca, in which the leaves are variegated with longitudinal bands of yellow and a rosy pink tinge with green, much in the same way as in *Y. quadricolor*. Shown by Messrs. Veitch.

ROSE HEINRICH SCHULTHEIS.—A new Hybrid Perpetual, raised and exhibited by Mr. Bennett, of Shepperton. The blooms are large and full, and the colour a rich rose-pink. It is one of the finest of all of Mr. Bennett's new Roses.

LEUCOTHOE DAVISLE.—A handsome evergreen shrub, lately introduced from California, where it grows from 3 feet to 5 feet high. It has rather small, deep green foliage, and bears at the tips of each branch clusters of small white blossoms, which, being abundant, have a pretty effect. It is a valuable addition to hardy shrubs. Shown by Messrs. Veitch.

PRATIA ANGULATA.—This little New Zealand plant has long been known in botanical gardens under the name of *Lobelia littoralis*. On this occasion it was shown in a profusely flowered state by Messrs. Veitch. The surface of the large pan in which it was growing was so densely studded with tiny white blossoms, as to appear to be quite a sheet of white. It is perfectly hardy, and is a capital plant for the rock garden.

ROSE VIOLETTE BOUYER.—A new Hybrid Perpetual in the way of *Madame Lacharme*; the flowers are large and full, and almost pure white, there being but a delicate suffusion of pink in the petals. Shown by Mr. House, Peterborough, and also by Mr. Wm. Paul, Waltham Cross.

BEGONIA ZENOBIA.—A double-flower tuberous variety, shown by Mr. Barron, from the Chiswick garden, on behalf of Messrs. Benary, of Erfurt. The flowers are deep crimson, and arranged in large, compact rosettes.

DELPHINIUM DICK SAND.—An extremely fine variety of the tall perennial class. The flowers are each as large as a florin, semi-double, and of an intensely deep violet-purple. The spike shown by Mr. Bealy, Roehampton, was much branched and the centre shoot densely furnished with flowers.

ROSE MRS. GEORGE DICKSON.—Another of the Hybrid Roses, raised by Mr. Bennett, of Shepperton. This is a Hybrid Perpetual variety with good sized blooms consisting of broad petals of firm texture of a delicate pink colour. Like Mr. Bennett's other Roses certificated this season, this will doubtless become popular.

BEGONIA ORANGE GIANT.—A tuberous-rooted variety, raised at the Society's garden, at Chiswick, whence it was brought for exhibition. The flowers are single, unusually large, and of good shape. The colour, a vivid vermilion-scarlet, is very telling, particularly when in contrast with that of others of duller hue.

VERBENAS FANTASTIC, with large trusses, pink flaked with crimson; COMPACTA, with an unusually long truss, the colour being a bright purple; MABEL, a pretty variety, of a delicate pink colour; and DELICATA, a soft mauve-pink. All these new seedling varieties were shown by Mr. Stacey, Dunmow, one of the few raisers of improved Verbenas now-a-days.

ORCHIDS were not numerous. Among them were some very choice varieties. The finest form of *Cattleya Sanderiana* we have ever seen was shown by Mr. Hardy. The flowers were very large, and the broad sepals and petals of a much deeper rose colour than usual, and the broad, shallow labellum, exquisitely frilled at the margins, was of an intensely deep amethyst. This splendid variety was the admiration of everyone, and it plainly exemplified what a beauty Sander's *Cattleya* is when represented in its best form. Mr. Hardy also sent a fine plant of *Lælia purpurata alba*, bearing two spikes, having four flowers on each. A plant of *Cattleya gigas* was sent by Mr. Fowler all the way from Ashgrove, Pontypool. It represented a very fine form of the species, the colour being rich and the flowers large. The finest variety as regards colour

of *Cattleya Warneri* we have seen was that exhibited by Mr. Gair, of Falkirk. The rose colour of the sepals and petals was uncommonly deep and uniform, and the amethyst-crimson tint of the labellum was intense. This and the variety exhibited by Mr. Hardy and certificated showed admirably what a wide range of variation there exists in *Cattleya labiata*, of which *Warneri* is a variety. Mr. James, Castle Nursery, Lower Norwood, had a few choice Orchids, conspicuous among which was the rare *Trichopilia picta*, a pretty species, producing a profusion of flowers with greenish yellow sepals and yellow lip. He had also the singular *Nanodes Medusæ* in flower, as well as a rather distinct form of *Thunia alba* appropriately named *citrina*, which had the lip wholly of a citron colour. Mr. Stevens, of Trentham, exhibited a few fine forms of *Masdevallia Harryana*, one with the sepals curved and crossed in a peculiar way. A few very choice Orchids were also shown in the small group of plants from Mr. B. S. Williams' nursery, Upper Holloway. Among these were *Cattleya Morganæ*, an extremely lovely variety of C. Mendeli, having large purple-white blossoms, save a dash of amethyst-purple on the labellum. There were also in Mr. Williams' group numerous other varieties of *Cattleya Mendeli* and *Mossii*, as well as of *Dendrobiums*, *Nepenthes*, and a choice collection of stove and greenhouse plants. A cultural commendation was accorded to Mr. Gilkes, Higham Hall, Walthamstow, for a fine spike of *Cymbidium Lowianum*.

CUT ROSES were abundant. Messrs. W. Paul & Son, Waltham Cross, had a large display, filling some eight or nine large trays. Among the sorts were several new ones, notably *Violette Bouyer*, which was certificated; *Queen of Queens*, one of the new Waltham Roses of great promise and shown better than hitherto. Then there was the beautiful *W. A. Richardson*, a new American Rose which captivates everyone, particularly ladies, who admire so much the soft gradation of tint in the flowers, which varies from a reddish buff to a creamy white. Besides this gathering of choice Hybrid Perpetuals and Teas there were some basketfuls of the old-fashioned Damask and Moss Roses, among the latter being the white *Blanche Moreau* and *Maiden's Blush*, both charming sorts still; Mr. Prince exhibited some of his Oxford-grown Roses, principally Tea and Noisette varieties, all of which were so fine as to anticipate Mr. Prince's usual successes at the forthcoming Rose shows. Mr. House, of Peterborough, showed the new Hybrid Perpetual *Hélène Paul*, which seems to be a fine variety. Besides the varieties certificated, Mr. Bennett exhibited other beautiful Hybrids, such as *Lady Mary Fitzwilliam*, *Earl of Pembroke*, *Mary Bennett*, *Countess of Pembroke*, and *Princess of Wales*, nearly all of which have received certificates.

NEW PLANTS shown by Messrs. Veitch, besides those certificated, included *Cornus brachypoda variegata*, a Japanese Dogwood with handsomely variegated foliage; *Acer polymorphum dissectum variegatum*, a long name for an extremely elegant form of the polyphormic Japanese Maple; *Daphniphyllum glaucescens* and variety *jezoense*, both hardy Japanese shrubs of great promise; *Zenobia speciosa pulverulenta*, very fine flowering shoots of this handsome hardy shrub; *Heliotrope Roi des Noirs*, alluded to in another column; and three new erect flowered Gloxinias named *Diadem*, *The Daimio*, and *Mars*, all splendid sorts. Besides these were some glorious cut flower sprays of *Rosa Polyantha* and *Spiræa Aruncus*, the elegant white plumes of which being an unusual occurrence at an exhibition.

CUT FLOWERS and plants from Messrs. Cannell & Sons' nursery, Swanley, made a bright display. A score or so of tall spikes of *Delphiniums* were a beautiful feature distinct from anything else in the show. There were also from Swanley a large collection of *Pelargoniums* of the zonal type, both single and double, besides a numerous gathering of cut blooms of *Violas*, *Petunias*, *Verbenas*, and a host of other things, which are grown specially by Messrs. Cannell. An extensive collection of seedling zonal *Geraniums*

was exhibited by Messrs. Pearson, of Chilwell, some of which showed a decided advance on older kinds, especially in point of colour. A numerous display of double and single *Pyrethrums* and herbaceous *Pæonies* came from Messrs. Kelway, of Langport, who seem to be paying particular attention to these beautiful races of hardy plants, and with good results, judging by the produce they exhibit.

HARDY FLOWERS were shown finer than we have seen them for a long time, and the extensive collections from Messrs. Barr & Son, Covent Garden, and Mr. Ware, Tottenham, surpassed even those shown by the same exhibitors on the occasion of the last meeting. Messrs. Barr's collection was a very large one, and was made of groups of particular flowers arranged in a mass by themselves, and had a pleasing effect. There were English and Spanish Irises in abundance, *Columbines*, *Alstromerias* in variety, French Poppies, Iceland Poppies, and Poppies of other sorts, including the new double *Papaver umbrosum*, which is a very handsome one, the flowers being quite double, and each petal has the characteristic black blotch at the base. Bearded Irises in great variety, *Ixias*, *Pyrethrums*, *Delphiniums*, *Lilium elegans* in numbers of varieties, and a splendid assortment of herbaceous *Pæonies* were also among this fine group, besides such curious plants as *Arum Dracunculoides*, the odour of which, however, was somewhat unpleasant.

A similar gathering of hardy flowers was that from the Hale Farm Nursery, Tottenham, which without question was the finest collection of choice hardy plants that has been exhibited for years. There were upwards of a hundred kinds, and with scarcely an exception were beautiful and interesting border of flowers. This included a fine series of varieties of Irises, Bearded English and Spanish *Pyrethrums* (single and double), *Pæonies*, *Snappedragons*, *Pentstemons*, double white *Rockets*, *Pinks* in great variety, including the new *Mrs. Sinkins*, the best of all the whites. Besides these we singled out the following, all of which are first-rate border plants:—

<i>Inula Oculus-Christi</i>	<i>Tropæolum polyphyllum</i>
<i>Lychnis Viscaria splendens pleno (new)</i>	<i>Onosma tauricum</i>
<i>Spiræa Aruncus</i>	<i>Cyclothra pulchella</i> and <i>alba</i>
<i>Campanula glomerata dahurica</i>	<i>Polemonium Richardsoni</i>
<i>Lathyrus grandiflorus</i>	<i>Phlox ovata</i>
<i>Lilium pomponium</i>	<i>Dictamnus Fraxinella alba</i>
<i>Colchicum parvum</i>	<i>Armeria cephalotes</i>
<i>Martagon</i>	<i>Sidalcea candida</i>
<i>Martagon purpureum</i>	<i>Gladioli Colvilli</i> and its variety <i>The Bride</i>
<i>Candidum</i>	<i>ramosum</i> in variety
<i>longiflorum</i>	<i>Cypripedium spectabile</i>
<i>auratum</i>	<i>Orchis foliosa</i>
	<i>maculata superba</i>

Among the newer and rarer plants shown were *Heuchera sanguinea*, an extremely pretty plant, flowered for the first time in this country; *Lilium pardalinum pumilum*, a rare and beautiful form of the Panther Lily; *Milla biflora*, not often seen in flower; *Senecio japonicus*, *Cyclothra fusca*, and *Sprekelia formosissima*, cut from plants that have been in the open border for several seasons.

A cultural commendation was accorded to Mr. G. F. Wilson for a remarkably finely-flowered example of *Lilium Hansonii*, with a tall, stout stem, carrying about a dozen of its handsome flowers, of a rich yellow spotted with chocolate. Mr. Wilson also showed a stout flower-stem of *Lilium colchicum* bearing fourteen fine blossoms—a fine example of good cultivation. A new *Pelargonium*, named *Duchess of Connaught*, was shown by Mr. Dutton, Bath. It had prettily variegated foliage and dense trusses of double flowers of a flesh-pink colour. It was a very pretty plant, and much admired.

FRUIT AND VEGETABLES were rather numerous. A first-class certificate was awarded to a new seedling Melon named *Hollanden Favourite*, exhibited by Mr. Goldsmith, *Hollanden Park*, Tonbridge. It was a large, round fruit, well netted, and with thick, red flesh of delicious flavour. Mr. Goldsmith also showed another, called *Hero of Hollanden*. Mr. Ross, of Welford Park, likewise showed a Melon, a seedling from William Tillery, and a seedling Melon also came from Mr. Hudson,

Gunnersbury Park, a cross between *Scarlet Gem* and *High Cross Hybrid*. For a fine collection of nine Pine-apples of The Queen variety, Mr. Harris, gardener to Mrs. Vivian, Singleton, Swansea, was awarded a silver medal. The fruits ranged from 4 lbs. to 5 lbs. each, and were remarkably uniform in size; and Mr. Laxton, Bedford, showed a new Strawberry named *The Captain*, stated to bear fruit perpetually from early June till late in September.

Messrs. Veitch & Co. contributed an interesting collection of early Peas, comprising fourteen kinds, all sown March 26, and their times of fitness for gathering were given, although some specified as ready several days previous were far from being fit to gather then, whilst the discrimination which detected a Pea as being fit one day earlier than another was of a remarkably discerning kind. Three kinds suitable for pot culture were *Little Gem*, *Minimum*, and *American Wonder*. These ranged from 9 inches to 10 inches in height, and the last was the earliest and best cropper, being ready on the 19th, as also was *Masterpiece*, height 14 inches, having full pods and a capital cropper; whilst *Optimist*, same height, was not ready till the 22nd. Of rather taller kinds, *Veitch's Extra Early* was ready on June 19, and *Laxton's First and Best* on the 19th, though the variation was not clear. *Alpha* and *Dr. Hogg* was both ready on the 19th, and both good croppers; whilst *Sunrise*, *Kentish Invicta*, and some others were poorly podded. Then the same firm showed several kinds of Onions, of which *The Queen* was the earliest and best sample.

Messrs. Carter exhibited baskets of various Lettuces from their trial grounds, but none were yet fully developed, although capital stocks of the respective kinds. *Victoria* was a handsome green Cabbage Lettuce, while *Stonehead*, one of the All the Year Round type, is doubtless the parent of that and many others. *Tom Thumb*, a pretty small green kind, was evidently identical with the more modern *Commodore Nutt*, and *Early Paris Market* was a large green kind, the leaves slightly tipped with purple. The American Green Fringed resembled a curled *Endive* and had no heart, and the American Gathering was the same colour as *Sutton's Marvel*, but much looser. The same firm also showed a large collection of new sorts of Peas, such as *Invicta*, *Little Gem*, *Tom Thumb*, *Earliest of All*, and *Holborn Gem*.

Special Prizes.

On this occasion the special prizes offered by Messrs. Webb & Sons, Stourbridge, and Messrs. Sutton & Sons, Reading, for vegetables, &c., were competed for. There were eight competitors for the four prizes offered by

Messrs. Webb for collections of six kinds of vegetables from fourteen named sorts, but all of an open choice. As might well be expected in the case of such small collections, the quality throughout was exceedingly high and even. Mr. E. Beckett, who was first, is a young exhibitor, but is taking a high place with vegetables amongst veteran growers. His collection included a fine dish of white Naples Onions, handsome Woodstock Kidney Potatoes, Early London Cauliflowers, solid and white; good Telegraph Peas, Canadian Wonder dwarf Beans, and very handsome Early Nantes Carrots. The second prize lot comprised Earlier Leviathan Beans, very fine; Lapstone Potatoes, a good sample; Telephone Peas, and with the same kinds of Carrots, Onions, and Cauliflower as in the first named collection. It was worthy of notice that in each collection were Nantes Carrots and Early London Cauliflowers, and all had Potatoes, whilst all but one had white Naples Onions, and of Peas four had Carter's Telephone, two had Culverwell's Telegraph, one Carter's Stratagem, and one Webb's Kinver Marrow. These figures show the average popularity of various vegetables for exhibition purposes.

Messrs. Sutton's prizes were offered for vegetables as under: First, for four dishes of Peas, any kinds except those otherwise specially named elsewhere in the schedule. In this class

there were four competitors, the average quality of the samples being far below that shown in the vegetable collections. Mr. Ward, gardener to Earl Radnor, Longford Castle, Wilts, was awarded the first prize, having very immature samples of Culverwell's Giant Marrow, a fine-looking sword-shaped Pea; Laxton's Supreme, a very fair sample; John Bull, also a pointed pod, but far from full; and Sutton's President Garfield, a fine-looking Pea of the British Queen type, and remarkably fine flavour. Nearly all the other sorts shown were small white-seeded forms of Sangster's No. 1 type, some, such as Kentish Invicta and First and Best, being wretchedly small samples. There was a large and spirited competition in the next class for six kinds of Lettuces, three heads of each kind. Here Mr. Beckett was again first with fine, well-selected samples, of such excellent sorts as Sutton's All Heart, a handsome, Solid Green Cos, and their Superb White Cos, very like the other, but lighter in colour. Of Cabbage kinds there were capital samples of Blonde de Berlin, a handsome, smooth-leaved, yellowish green kind, with firm, solid heart; the well-known All the Year Round; and the purple kind Marvel, a very fine solid-hearted kind. Other exhibitors had good Paris White Cos and St. Albans All Heart, but, of course, all this section are either the old trade strains of Paris White or Green Cos, though some may be better stocks than others. Of other Cabbage kinds were Standwell and the little Commodore Nutt.

SCIENTIFIC COMMITTEE.—A. Grote, Esq., in the chair.

Melon leaves diseased.—Mr. G. Murray reported that he had examined the leaves sent by Mr. Boscauwen to the last meeting, and found that the treatment of sulphur and lime had quite destroyed the fructification of the fungus, but the mycelium was still present within the tissue of the leaf. He thought it might prove to be a *Peronospora*, but would examine it further and report.

Potato disease.—Mr. S. Wilson forwarded fresh material for Mr. G. Murray to examine, remarking that the results of the chemical tests he had applied were that the so-called sclerotia were insoluble in spirit, not coloured by iodine, but are soluble without effervescence in nitric acid; they are also soluble in acetic acid. Alkaline tests had not been applied. They fall out readily from macerated tissue not being in the cells, but between them. Mr. Wilson adds that Professor Dickson distinctly denies that they are tubercinia or proto-mycetes. Mr. G. Murray will report further on the nature of these sclerotoid bodies.

Alchemilla vulgaris.—Mr. G. S. Boulger exhibited a fine specimen of the common Ladies' Mantle grown in a garden for three years, and which formed a very ornamental plant.

Pinus Thunbergi (Massoniana of gardens).—Dr. M. T. Masters showed young cones of this species having anthers at the base. He observed that he had seen a similar occurrence in *P. rigida*.

Torsion in Sweet Williams.—Mr. Bennett exhibited a stem showing the spiral arrangement of the leaves by torsion. It is observable that the opposite and decussate arrangement characteristic of all the Caryophyllaceæ is not departed from, but one leaf of each pair grows slightly more elevated than the other, thus producing the torsion. Teazle stems thus grown (from seed) were used as parasol handles under the name of Eucalyptus.

Deformed Digitalis.—Mr. Loder showed a plant where the terminal flower had grown in a campanulate form by two or three having combined. It was fully expanded, though the raceme was blossoming upwards as usual.

Plants exhibited.—Col. Clarke showed a blossom of a Hibiscus, probably Hugeli. From Mr. C. Green came a hybrid Begonia, *B. argyro-stigma* crossed by *B. sanguinea*.

Ranunculus aquatilis.—Mr. Henslow showed a specimen growing on damp soil in which several of the usually floating leaves were partially divided, showing a transition to the filiform state; while the latter, which formed a perfect carpet, were provided with abundance of stomata, though when submerged they are devoid of them.

PELARGONIUM SOCIETY.

JUNE 26.

THE annual exhibition of this Society, held as usual in the gardens at South Kensington, was as brilliant as its predecessors, and the number of exhibits was perhaps larger than hitherto, but amongst exhibitors there seemed to be no new recruits, the same familiar names being on the prize list as in former years, and in much the same positions. This is not the fault of the Society, the schedule being most comprehensive, but rather an indication that there is really not so widespread an interest taken in the Pelargonium as in such flowers as the Rose, which is exhibited from all parts of the kingdom. The quality of the specimen plants was not up to the average, a circumstance probably attributable to the hot weather experienced a short time ago, having a tendency to defoliate the Pelargoniums. Throughout the whole of the plants shown there was a conspicuous thinness in growth, and the redundancy of sticks which some of the exhibitors used to prop up weakly flower-stems was most unsightly. As on previous occasions, there was a marked absence of anything strikingly new. Notwithstanding the fact that upwards of £15 were offered by the Society for hybrid varieties, there was not a single plant partaking of that character. Such work, nevertheless, may be going on, though we may not see its results, at least at exhibitions, for some years to come. Some new departure is greatly wanted now that the climax of perfection has apparently been reached with regard to most of the types of Pelargonium, except perhaps the Ivy-leaved class. This exhibition, it may be added, was visited by a large and appreciative company.

NEW VARIETIES were but sparingly produced, and there was no trace of any new forms of the Cape species or any other of the types that are less known. The large-flowered Pelargoniums, both of the show and decorative types, were most largely represented in the shape of new forms, but as only one certificate of merit was awarded in this section, it may be assumed that there was little of special novelty or quality among them. Mr. E. B. Foster, Clewer Manor, Windsor, had the best three new large flowering (show) Pelargoniums, and was awarded the prize for Adventure, a pretty pink flower with dark top petals, fine form; Brilliant, rich orange, deepening to scarlet, showy, and of good form; and Diadem, lovely orange, shaded dark, dark top petals, and white throat, all very pleasing varieties, raised by the exhibitor. In the class for two plants, Mr. C. Turner, Royal Nursery, Slough, staged Pioneer (Foster), a bright-coloured variety of showy character; and Confessor, a pleasing orange-pink flower, dark top petals and good form. Mr. H. Little, Hillingdon Place, was awarded the prize for one plant, staging Mrs. H. Little, raised by himself, having pure waxy white lower petals and black and purple upper petals, very pretty, and good in habit. The new fancy Pelargoniums were few in number. In the class for three varieties Mr. Turner was the only exhibitor, having Butterfly, Cherry-ripe, and Irene, none of them in good condition, the last the best—a pretty pale variety of decided promise. There was no competitor in the class for one or for two plants. New decorative varieties were fairly numerous, but not generally of such good quality as the show types. Messrs. J. & J. Hayes, Edmonton, had the best three varieties, receiving the prize for Bouquet, pure white, the flowers much fringed on the edges, very fine, and excellent in habit; Fanny, delicate pink, also much fringed, very pretty and distinct; and Formosum, brilliant deep orange, very showy. From Mr. H. Little came Rayonette, a free-flowering, bright-coloured variety; Pink Perfection, and Mauve Queen, both very novel in appearance. Mr. W. Brown, Brent Nursery, Hendon, was first with two decorative sorts, viz., Lustrious and Beacon, both fine, bright red flowers of good form and very free, also with excellent habits of growth. Mr. Brown has raised some excellent market varieties, generally of bright and striking colours. Mr. Turner had the prize for one new decorative variety, staging Dresden China, a sin-

gularly novel Pelargonium, having white flowers stained and flaked with pale rose, but with a tendency to sport, as some of the flowers were white, with a slight dark spot on each petal. Mr. H. Little had Rosette, a pale pinkish red, but not of good quality. Of new zonal Pelargoniums (single) there was a poor display. No award was made in the class for three plants, the varieties shown not being good enough; in the class for two plants there was no entry; in that for one plant there was no award; in the class for three double zonal varieties there was no award, the only exhibitor being Mons. Victor Lemoine, Nancy, who had unnamed seedlings. There was no entry in the class for two plants, and in that for one plant no award was made.

Of new Ivy-leaved Pelargoniums, Mons. V. Lemoine showed in the class for three doubles La Rosière and Jeanne d'Arc, both of good properties, and a seedling, but no award was made. Mr. J. George showed his new variety, Future Fame, which the floral committee a short time since thought good enough for a first-class certificate.

COLLECTIONS were more numerous, but the specimens on the whole were below the average quality of the past few years. As usual, Mr. Turner, of Slough, and Mr. Little, of Uxbridge, were the only competitors of show and fancy specimens. The six best show kinds from Slough were large and admirably flowered. They represented such beautiful sorts as the old Victory, Despot, Modesty, Archduchess, Mountaineer, and Amethyst, as fine a half dozen as could be selected. The large specimen of Amethyst was really superb, and was selected by the judges as the best specimen in the whole show, for which the Royal Horticultural Society offered a silver Banksian medal. The colour of Amethyst is a beautiful rich purple, with the upper petals of a deep maroon. It is distinct from any other variety as regards colour that has been raised, and it combines with this splendid colour dwarf and compact growth and a remarkably free flowering habit. It was sent out two or three years ago by Mr. Turner, and the fortunate raiser of it was M. Brébaut. Those who care for show Pelargoniums should by all means possess this one. Mr. Little's second best six were fairly good, the best being Claribel, one of the finest light sorts; and Illuminator, the brightest of all the shows, the colour being a glowing vermilion-scarlet, set off by a clear white centre. The two collections of fancy varieties were shown by the same exhibitors, Mr. Turner's being again the best. His plants were profusely flowered, and averaged about a yard in diameter, the sorts represented being Mrs. Pope, Lady Carington, Mrs. Pottle, Nellie Fordham, Pilgrimage, and Delicatum. In the other group were beautiful examples of Polar Star, Duchess of Edinburgh, and Delicatum. In the class for eighteen show kinds, in 6-inch pots, Messrs. Little and Turner were again the only competitors. In the first collection, from Slough, were several beautiful new sorts, such as Cornet, orange-scarlet with maroon upper petals; Royal Review, one of the finest of all the show class, the flowers being of perfect shape, and of a rich crimson, and dark upper petals edged with crimson; Seyla, pale rose-maroon, crimson upper petals and white centre; Zealot, bright scarlet and of fine shape; Statesman, a pleasing rose with dark top petals and white centre. All these are new sorts now being distributed for the first time; but besides them such excellent sorts as Amethyst, Rob Roy, Martial, Fortitude, The Baron, Morning Light, Joe, Monarch, and Sunbeam, the last being probably the brightest scarlet of all.

THE FRINGED or decorative varieties were the most numerous, a fact that points to the rising popularity of this section, which is now so largely grown for the London markets. The varieties of these are becoming very numerous, and among the most successful raisers are Messrs. Hayes, market florists, of Edmonton, who were the principal prize takers in the classes for this type of Pelargonium. The best six came from them, the specimens being large, profusely flowered, and altogether fine examples of skilful culture. The

sorts were Mrs. Bradshaw, Garibaldi, Lady Isabel, a distinct and lovely tinted variety; Duchess of Bedford, one of the best whites; and Gold Mine, a splendid new sort, the brightest of its colour (a glowing scarlet) yet raised. In Mr. Little's second best six were such excellent sorts as Madame Favart, Duchesse de Morny, Triomphe de St. Mande, and Digby Grand. The other six were from Mr. Turner, who had several fine varieties of the Regal type, such as the vivid Carl Klein, Dr. Masters, besides Volonté Nationale, Madame Thibaut, and Comtesse de Choiseuil. The class for eighteen plants in 6-inch pots was also best represented by Messrs. Hayes, who had several novelties, such as Madame Marie Knecht, the best pure white yet produced, and one of excellent habit; Mrs. J. Hayes (rosy pink), Gold Mine, Metallica, Robina, Emma Hayes, and numerous other excellent kinds. In the next best collection from Slough, Robina, Lady Blanche, Decorator, Mrs. J. Hayes, Maid of Kent were striking varieties; and among those from Mr. Little those named Zulu Belle, white with conspicuous black blotches; Blushing Bride, new; Miss Alice; Goliath, new, were the most noteworthy. The other two exhibitors in this class were the Messrs. Brown, both market florists at Hendon.

ZONAL VARIETIES throughout the whole of the classes were poor; even Mr. Weston, who usually shows some astonishing productions amongst the single kinds, was not up to his usual mark, though he had no difficulty in taking the principal prize in the class for six. His group consisted of Rosamond, Lucrezia, Hettie, Laura Strachan, Rev. Atkinson, and Lizzie Brooks. The plants were trained in the broad Mushroom-shaped fashion, and of course were very showy. The other collections were poor in comparison, as were also the collections of eighteen plants, the best being much inferior to those shown on previous occasions, the plants being rendered unsightly by a redundancy of sticks. The double zonal varieties, too, evinced the same fault, and the paucity of foliage made it more bare; indeed, the double zonals were so poorly represented in the class for six specimens, that the judges refrained from awarding the first prize. The Ivy-leaved class was only exemplified by one collection of nine; this was from Mr. Little, the specimens being large tall pyramids, well furnished with bloom. The sorts represented were Mdme. Emile Gallé, Mdme. Jean Wouters, Perle, Sarah Bernhardt, Eurydice, Elfrida, Anna Pfitzer, and Gloire de Orleans. The collections of cut blooms made, on the whole, a very creditable display, the principal prize winners being Messrs. Turner, Cannell, Saltmarsh, Meadmore, and Little.

THE CERTIFICATES of the Society were awarded to the following La Cygnée, shown by Mr. W. Bealby, Roehampton. It was a zonal variety with large massive trusses of white flowers, though not quite pure, being shaded slightly with green. However, it is the best double white at present raised, and seems to be a free grower and flowerer. Mr. Little showed the other certificated plant, which was named Mrs. H. Little, and belonging to the show section. It is a most distinct variety, having large finely-shaped flowers, the lower petals of which are white, while the upper two are a deep maroon-crimson, a striking contrast of colours. The habit is sturdy and dwarf, but the plants shown were poorly flowered.

A full list of awards is given in our advertising columns.

WAVERLEY PANSY SOCIETY.

THE annual exhibition of this Society was held at Galashiels on the 16th inst. The number of entries in the various classes was more numerous than in former years, while the quality of the flowers was all that could be desired. There were eight competitors in the nurserymen's section, the principal awards in which were as follows: Twenty-four show Pansies.—1 (silver medal), Wm. Paul & Son, Paisley, with beautiful flowers of Artemus, A. Miller, Harry Paul, J. P. Barbour, P. Barr, Rev. J. Morris, dark selfs; Gomar, Geo. Rudd, yellow selfs; Mrs. Dobbie, Mrs. Turnbull, white selfs; The Mede, Mrs. J. Millar, Mr. J. G. Paul, Mrs. D. Wallace, Miss Meikle, Jessie Foote, Nellie Corbett, white grounds; Try me Oh! J. B. Robertson, D. Dalglish, Lizzie Bullock, A. Henderson, D. Robertson, Seedling No. 1, yellow grounds. 2, Messrs. Dicksons and Co., Edinburgh. Twenty-four fancy Pansies.—1 (silver medal), Mr. J. Sutherland, with grand blooms of Catherine Agnes, D. Main, W. McIntosh, Mrs. J. Stewart, Mrs. McTaggart, J. Murray, Perfection, John Stewart, May Tate, Ruby, Miss Reeve, General Grant, Mrs. Findlay, Mrs. Murdoch, Earl Beaconsfield, Miss Bliss, W. Dickson, Mrs. Duncan, D. Wallace, and seedlings. 2, Messrs. Laird and Sons, Edinburgh, whose exhibit included George & Ross, James Gardner, Prince Silverwings, Archie Bowe, W. Cuthbertson, Luck's All, Lady Falmouth, Hon. G. R. Vernon, W. Windle, Mrs. Forrester, Mrs. E. H. Wood, and A. McMillan. Gardeners' and amateurs' class: Eighteen show Pansies.—1, (silver medal), James Skinner, Penicuik, with A. Miller, Mauve Queen, Peter Lyle, Rev. J. Morrison, dark selfs; Gomar, yellow self; Agnes Fairgrieve, white self; Miss Barr, Miss Meikle, Mrs. J. G. Paul, Miss Ritchie, Jessie Foote, Mrs. J. Millar, white grounds; Corsair, J. B. Robertson, R. Donaldson, J. Bucha-

nan, John Bruce, Try me Oh! yellow grounds. 2, Mr. L. T. Fleming, Berwick. Eighteen fancy Pansies: 1 (silver medal), Mr. Jas. Gowans, Hawick, with May Tate, Miss Bliss, Catherine Agnes, Jas. Gardner, A. McMillan, Perfection, Rev. J. Graham, Mrs. Jameson, Mrs. Barrie, W. Cuthbertson, Miss Reeve, and others. 2, Mr. Jas. Black, East Calder, who had specially fine Bob Montgomery, R. K. Mitchell, Ruby, Mrs. T. McComb, Countess of Home, Mrs. J. Stewart, and G. O. Trevelyan. Best show Pansy: Miss Bowie (primrose self), Mr. Jas. Black. Best fancy Pansy: Miss Bliss, Messrs. Laird & Sons. Best white ground show Pansy: Jessie Foote, Mr. J. S. Armstrong. Best yellow ground show Pansy, David Dalglish, Mr. Jas. Bowie, Galashiels.

Pansy (M. M.).—By no means new, but distinct, and well worth growing.

Bronze Pansy (Myton).—We can find no mention of the Pansy you name in the report in question.

Pink Malmaison Carnation (J. B.).—A very distinct and pretty sport, but not new. It was shown a year or two ago in London.

Gloxinias (G. A. F.).—Your question appeared in THE GARDEN (see p. 575). Can you send us a bloom or two for inspection?

Pansies (Messrs. Carter).—The flowers sent are large and beautiful, deep and rich in colour, edged in some cases with bright yellow, in others with buff and flame colours, and in others again with white—a charming strain.

Names of plants.—*L. A. C.*—1, *Astrantia major*; 2, *Centaurea montana*.—*Bete.*—A deformed flower of some *Cattleya*; the other (yellow) is *Oncidium sphacelatum*.—*A. Wallis.*—*Stanhopea tigrina*.—*Col. Wortley.*—*Erigeron grandiflorum*.—*D. H. P.*—*Veronica Teucrium* var. (blue); the other is *Hesperis tristis* (Night Scented Rocket).—*X. Y. Z.*—1, *Æschynanthus grandiflorus*; 2, *Diplacus glutinosus*.—*Anon.*—1, *Geranium macrorrhizum*; 2, *Hieracium pilosella*; 3, *Acæna pulchella*; 4, *Crepis aurea*.—*Capt. Coleridge.*—A fair variety of *Oncidium stelligerum*.—*E. Beveridge.*—*Oncidium altissimum*.—*R. V. & Son.*—The *Pæonies* belong to the herbaceous, not the Moutan class, but we do not know the names.—*Berthons.*—*Jasminum Sambac*.—*W. N.*—*Thalictrum aquilegifolium*.—*A. Locke.*—*Orchis maculata*.—*De B. Crawshaw.*—*Digitalis grandiflora*.—*E. F. T.*—1, *Aspidistra lurida*; 2, *Lilium Martagon*; 3, *Silene inflata*.—*G. Jupp.*—*Stanhopea bucephalus guttata*.—*Constant Reader.*—1, *Gymnogramma calomelanos*; 2, *Selaginella Kraussiana* (denticulata of gardens); 3, *Adiantum pubescens*; 4, *Pteris serrulata*.—*C. W. H.*—*Amelanchier canadensis*.—*C. L. C.*—1, *Allium* species; 3, *Allium Moly*; 4, *Lotus corniculatus* fl.-pl.; 5, *Doronicum Pardalianches*.—*T. S. U.*—*Acropera Loddigesi*.

CATALOGUES RECEIVED.

J. Backhouse & Son's (York) Stove, Greenhouse, and Miscellaneous Plants.



